2018
SUSTAINABILITY REPORT
ACEA GROUP

(Consolidated Non-Financial Statement pursuant to Legislative Decree no. 254/2016, prepared according to GRI Standard)

acea

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RELATIONS WITH THE ENVIRONMENT

LETTER TO STAKEHOLDERS

The 2018 *Sustainability Report*, prepared pursuant to Legislative Decree no. 254/2016 and in accordance with GRI Standard, has a dual purpose. On the one hand, the document that we are presenting here performs the typical task of the annual report, illustrating the performance and the main projects carried out during the year under review for all the non-financial aspects of management and in response to stakeholders' expectations.
On the other hand, it presents forward-looking elements in order to clarify Acea's sustainability guidelines. While for the first aspect the indicators envisaged by the reference standards, the historical data aimed at highlighting the trends and a qualitative narrative of the events that characterised the year were used; for the second, the aim was to highlight the steps forward that Acea is making towards the integration of sustainability in the strategy and business management, thanks also to the commitment of the Ethics and Sustainability Committee, which spurs on the entire organisation in this respect. In fact, during 2018 the Sustainability Steering Commitee became fully operational, a collegial body participated by main functions and departments of the holding company.
It has been entrusted with the task of supporting us in overseeing the implementation of the 2018-2022 Sustainability Plan, with regard to both governance level guidelines and operational level objectives. We have monitored the progress of our Sustainability Plan, the results of which are also detailed in this Report, noting that, already in the first year, for 78% of its 137 targets specific actions have been carried out.
The Sustainability Steering Commitee, with the aims that inspired its creation, has also promoted the spread of a business culture oriented towards sustainability, scheduling seminars on topics of interest consistent with strategic line, like *Climate Change, Performance management and sustainability objectives* and *Sustainability in the management of business risks*. Acea pays particular attention to each of them.
Here we would like to at least mention that during the year, in order to promote an integrated vision and proactive risk management, we launched the Enterprise Risk Management Programme based on a risk analysis and mapping methodology that takes into account the main sustainability issues, and in particular the most relevant issues for Acea and for its stakeholders, in the classification of the sources of risk and in the potential risks generated.

While this document provides extensive information, we would like to recall some elements here with regard to relations with stakeholders, the factors most related to the operational management of 2018 and some emerging evidence. We have noticed some changes in the business context, and Acea is responding, taking advantage of the opportunities. Both the needs and the sensitivity of customers are undergoing a profound transformation that influence and change the interactions with the company. One trend, for example, is the progressive and marked reduction in the use of traditional contact channels (calls to toll-free numbers dropped by 24% and contacts at branches by 13%), which facilitates the improvement of their levels of performance and the simultaneous increase in the use of digital channels. This is also demonstrated by the constant increase in customers who opt for an electronic bill, at the end of the year totalling 315,600 customers in the energy and water sectors, a trend which, moreover, generates an overall savings of around 39 tonnes of paper per year, benefiting the environment. The increase in the number of "prosumers" connected to our networks was also noted (over 12,400, +10% compared to 2017). These represent an emerging figure, being both energy consumers and producers – incidentally they generated 73% of energy from solar – and their increase furthers our ability to make infrastructure increasingly resilient.
A trend that shows the evolution of customer sensitivity is also seen in the increase in the sale of "green" energy (+16% compared to the previous year), with an incidence of 27.5% on the total energy sold to customers in the free market.
This year we have introduced a structured smart working method that makes it easier to reconcile work and family life and has already benefited almost 300 employees. We have signed a Framework Agreement on Industrial Relations that defines a programmatic negotiation path based on an innovative and participatory model. We have invested in training, focusing on the sharing of skills both at a managerial level and in relation to the topic of ageing, enhancing and treasuring the experiential heritage of people. We have diligently continued to commit ourselves to prevention and safety training, seeing a continued downward trend of all accident indicators (-25% of the number of accidents and decreasing indices). The attention to safety has also been shown in a significant way throughout the supply chain, with acareful safety verification on site (11,270 inspections, +27% compared to the previous year). We have increased the application of environmental criteria in procurement, even receiving an award for our commitment (the Social Procurement Award from the Compraverde-Buy Green Forum). With regard to the social aspect, we decided to continue our well-established programme of environmental education – the 2018 edition being called *Think*

Sustainable! – for young people, involving more than 6,900 students and 700 teachers in training courses, and once again this year we have launched an awareness campaign on water conservation, which aims to involve everyone on such key issue.
We have continued to make every effort to upgrade and improve our infrastructures even by applying technological and digital innovation to their management, with an intense focus on prevention. To give just one example, today, thanks to the actions carried out, we are able to ensure the service continuity in a remote control way in the event of a disaster (Disaster Recovery). In the water sector, activities continued to search for leaks and repair the networks, and in order to secure the water supply for Lazio the foundations were laid for the construction of the second line of the Acquedotto del Peschiera, an infrastructure of exceptional importance. In order to increase the resilience of the water system to extreme events, a plant has been adapted and upgraded and today is able to purify the water of the river Tiber (about 500 l/s) in emergency situations. We have also continued to implement energy efficiency measures, achieving overall savings in the energy and water sectors of 34.5 TJ/year, equal to 3,470 tonnes of CO_2 emissions avoided.
Finally, in July 2018, we implemented and distributed a new edition of the Code of Ethics, reaffirming Acea's commitment to conducting a business that respects ethical principles and shared values, taking into account the legitimate interests of the company itself and all stakeholders, including the natural environment. We also confirmed Acea's participation in Global Compact Network Italy in compliance with the principles of the "Global Compact", which are fully consistent with the values that guide our management.

The Chief Executive Officer
Stefano Antonio Donnarumma

The Chairwoman
Michaela Castelli

HIGHLIGHTS
RELATIONS WITH STAKEHOLDERS

CUSTOMERS

28,100
people heard
through Customer Satisfaction surveys

-24%
calls received
by toll-free numbers and -13% customers in branches

+16%
green energy sold
to customers in the free market (27.5% of the total)

COMMUNITY

About 7,000
young people
in *Think Sustainable!*

85%
of LED lamps
of the total number of lamps

77 Water houses
active in 2018:
19.2 million litres supplied
350 t of plastic/year saved and 620 t of CO_2 atmospheric emissions saved

SHAREHOLDERS AND FINANCIERS

150.9
million euros
of dividends

240
analysts/investors
met by Investor relations

100.7
million euros
allocated to financiers

INSTITUTIONS AND THE COMPANY

630.8
million euros
of investments
in the year

Cybersecurity
the ECHO project
for the establishment
of a European network

9.3
million euros
in innovation and more
than 20 ongoing projects

STAFF

295
people
in smart working

-25.3%
accidents
at work

Under 30
about 50%
of the 208
new employees

SUPPLIERS

974
million euros
the 2018 procurement value

SOCIAL PROCUREMENT "BUY GREEN AWARD 2018"
for the supply
of environmentally
low-impact workwear

11,270
inspections
of construction site
safety carried out
by the "Safety Team"

HIGHLIGHTS
RELATIONS WITH THE ENVIRONMENT

WATER

382 Mm^3
of drinking water supplied by Acea Ato 2, Acea Ato 5 and Gesesa (total Group: 655 Mm^3)

More than 480,900
Analyses of drinking water (Acea Ato 2, Acea Ato 5 and Gesesa)

PESCHIERA AQUEDUCT
safeguarding the water supply
laid the foundations for construction of the second line

SEARCHES FOR LEAKS
more than **10,000 km**
of water network monitored in the Ato 2 area

ENVIRONMENT

About 457,150 t
of waste converted to energy (input) and about 130,000 t of waste generated (output): **22% (output/input)**

398.7 GWh
of energy produced by waste-to-energy (+1.4% compared with 2017)

About 10,800 kNm^3
of biogas and, from this, 19 GWh of energy

ANALYSES AND EMISSIONS OF WASTE-TO-ENERGY PLANTS
values of polluting agents markedly lower than legal limits

ENERGY INFRASTRUCTURE

968 GWh
of total energy produced (including WtE)
(+15.6% compared to 2017)

72% of the total
energy produced
from renewable sources (696 GWh)

225,619 bulbs
for public lighting
-38% Specific consumption per lamp

Increases in the local protection index (underground HV network/total HV network): **46%**

More
12,400 prosumers
(+10% compared to 2017)
more than 73% of the energy they produce is renewable

Disaster recovery
completed in the year of transformation of the service (interventions on Business continuity and Network management system)

1,600 t CO_2
not emitted into the atmosphere through improvement actions

Improvement in the intensity index of emissions (scope2) from network losses: **0.0113 t/MWh**

DISCLOSING SUSTAINABILITY: METHODOLOGICAL NOTE

SUSTAINABILITY PERFORMANCE: LEGISLATIVE DECREE NO. 254/2016 AND GRI STANDARD

Acea has prepared and published the Group's Sustainability Reports on a voluntary, annual basis, starting in 1999 (for the 1998 financial year), with the aim of integrating economic and financial information with the social and environmental aspects of its activities.

From the early years sustainability reporting has been carried out in conformity with the international reference Guidelines[1], under constant development, and voluntarily submitted for audit and verification by a third party. Moreover, with the intention of providing the financial community and interested parties with a complete disclosure regarding Group performance, the publication times for the Sustainability Report have been aligned with those of the consolidated Sustainability Report as from 2011.

Since the 2017 edition, as is well known, the Sustainability Report has been published in compliance with Legislative Decree no. 254/2016[2], which transposed EU Directive 95/2014 into Italian law. Under the Decree, companies that meet the conditions set out in article 2 are required to publish information on sustainability performance in a **non-financial statement** – individual or consolidated – which, as stated in the Decree in article 3, paragraph 1: *"...to an extent necessary for ensuring an understanding of the company's activity, its performance, results and the impact it produces, relating to environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters, which are relevant given the activities and characteristics of the enterprise..."*[3].

This Sustainability Report, for the year 2018, is the 21st published. It has been prepared in accordance with the GRI Standards (ed. 2016)[4]: Comprehensive option and therefore called *Acea Group's 2018 Sustainability Report (consolidated non-financial declaration pursuant to Legislative Decree no. 254/2016, prepared in accordance with GRI standards)*, taking the form of an autonomous document, as permitted by the aforementioned Legislative Decree[5].

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1 After the first years, in which other focuses were also referred to, starting with the 2003 Sustainability Report Acea opted for the guidelines issued by the Global Reporting Initiative (GRI), then in its 2002 edition, in the following years remaining in sync with all the developments, maintaining the highest level of "accordance" possible. Finally, starting with the 2017 Sustainability Report, which also complies with Legislative Decree no. 254/2016, Acea adopted the GRI Standard (ed. 2016), anticipating the requirements of the GRI by one year.

2 It should also be noted that article 1, paragraph 1073, of the 2019 Budget Law introduces an amendment to Legislative Decree no. 254/2016, art. 3, paragraph 1, letter c, also prescribing the illustration of the methods for managing the main risks.

3 Legislative Decree no. 254/2016, in particular articles 2, 3, paragraphs 1, 4.

4 The Global Reporting Initiative (GRI), launched in England in 1997 by the Coalition for Environmentally Responsible Economies (CERES), became independent in 2002 as an official centre supporting the Unite Nations Environment Programme (UNEP) and works in collaboration with the United Nations Global Compact. In 2016, when the previous version of the Guidelines for Sustainability Reporting (GRI-G4) were superseded and further developed, it published the GRI Standards – *Consolidated set of GRI Sustainability reporting standards 2016* – available on the website www.globalreporting.org, requiring their adoption with respect to the 2018 financial year. Acea has anticipated such adoption, with the Comprehensive option, since the 2017 Sustainability Report.

5 Therefore, the *Acea Group Sustainability Report 2018* is to be understood as a Consolidated disclosure of a non-financial nature (Legislative Decree no. 254/2016, art. 4 and art. 5, paragraph 3.b).

The ***Sustainability Report***, enclosing a *Summary Note*, following its **approval by the Board of Directors**, is made available to the supervisory body and submitted for **assurance by the statutory auditor**, with which Acea has no joint interests or other connections, appointed with verifying the conformity thereof with Legislative Decree no. 254/2016 and its consistency with the implemented reporting Standards[6] (see *Opinion Letter of the independent auditor*). The document is made available online on the institutional website at the same time as the *Consolidated Financial Statements* and distributed at the Shareholders' Meeting.

THE FIRST YEAR OF MANDATORY NON-FINANCIAL REPORTING IN ITALY

2018 was the first year of application of Legislative Decree no. 254/2016, which made annual non-financial reporting mandatory in Italy for about 200 companies. The way in which these companies managed the first year of production of the *Non-Financial Declaration* (DNF) was the subject of analysis by important observers, who also wanted to further develop some aspects of content and quality.

A first finding from the analyses is that more than 50% of the DNFs examined were produced by organisations that **approached the issue of non-financial reporting for the first time**. The **Energy and Utilities** segment, on the other hand, **has long been committed to sustainability reporting** by virtue of its peculiar line of business (services of common interest, strong presence in the local region, interaction with diversified stakeholders).

In addition, **about 80% of the companies surveyed exercised the option of producing a stand-alone document**. Among the **reporting standards** adopted, the **GRI** was confirmed as the reference **for 100%** of the organisations examined, although with respect to the use envisaged by the GRI the most popular was the **core** (about 58%), a high percentage (38%) used the standard only as a reference, while the **comprehensive** level was only implemented by a few companies (4%).

As far as **materiality analysis** is concerned, **60% of companies carried out** this activity **for the first time** for the purposes of drafting DNF 2017, while the remaining 40% had already carried it out, although, according to the surveys, this activity was not always structured in defined procedures and responsibilities, involving, for example, the Board of Directors or the Board Committees. The establishment of **internal committees to oversee sustainability issues** was another aspect noted that has **still been poorly applied**, as well as a specific strategic planning: on this point, research indicates that only a **minimum percentage of companies – between 13% and 19% – publish Sustainability Plans**.

The process started with the first year of application of Legislative Decree no. 254/2016, according to the interpretations of the researchers, as with all new initiatives shows a substantial dual register between companies going through their first experience, more mature companies or major listed companies (FTSE MIB) and minor or unlisted. However, it seems that the climate is ripe for a decisive acceleration by all companies, each for its own areas of improvement, towards the implementation of corporate sustainability.

MATERIALITY, GRI STANDARDS AND REPORT SCOPE

For 2018, given the stability of the company's management, the continuity of the Group's strategic guidelines and the absence of marked changes in the context analysis, **Acea confirmed the relevance and validity of the results of the materiality analysis carried out in 2017**.

The analysis, aimed at identifying the most relevant – material – economic and governance, social and environmental issues for the company and its stakeholders, taking into account their impacts on the business and on the stakeholders themselves, **was in fact renewed last year at every stage**: document and context analysis, discussion with stakeholders (internal and external) and with company managers[7], drawing up the schema and reporting the results.

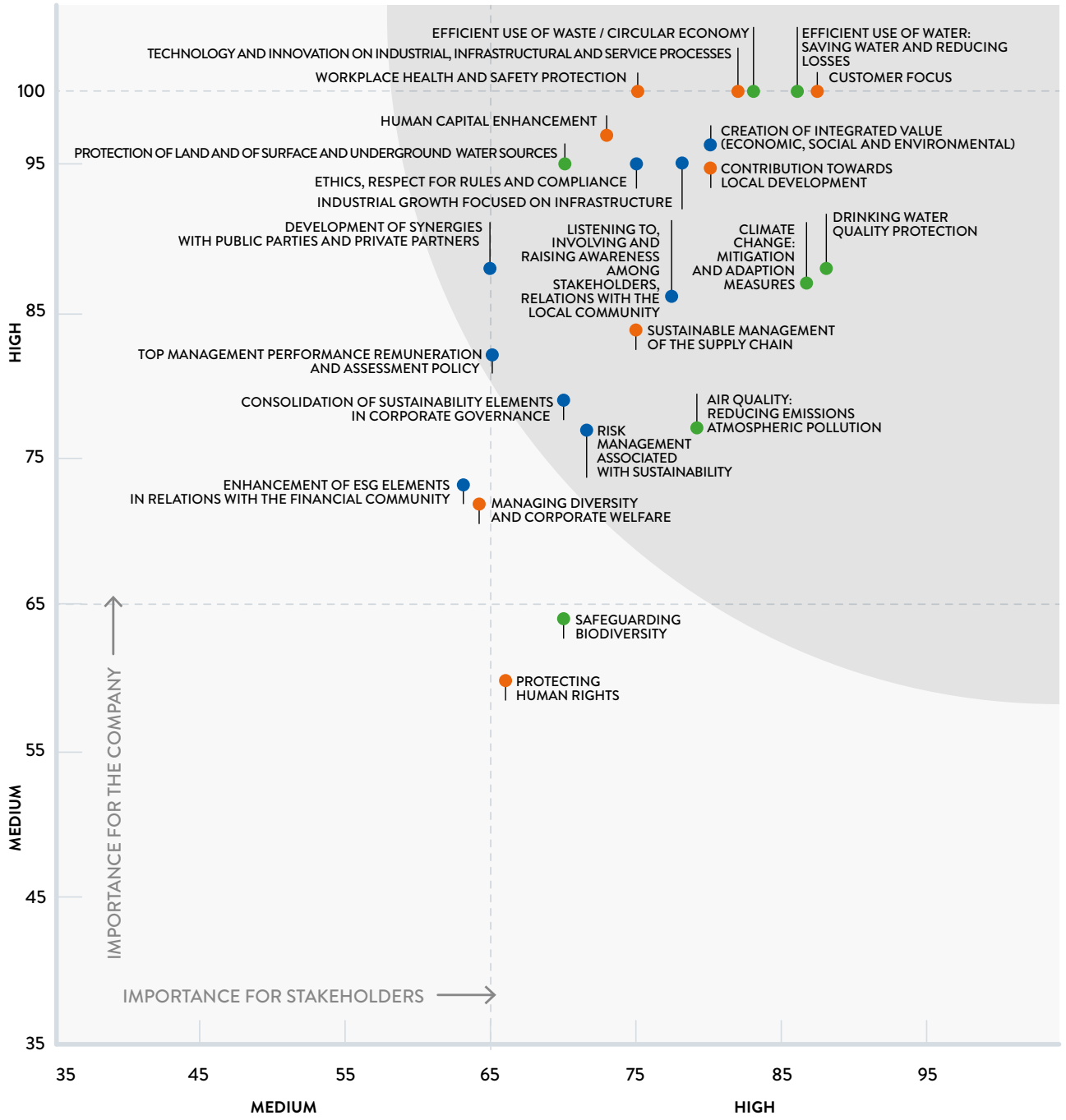
The 2018 materiality schema is therefore unchanged from the one illustrated in the previous edition of the *Sustainability Report*. This identifies and articulates **20 highly significant topics** (score 66-100) in a Cartesian coordinate system and **4 of medium significance** (score 36-65) (see Chart no. 1).

The highly significant matters proved to be consistent **with the Group's strategic planning**, regarding industry and sustainability. The materiality analysis and its results were on the agenda of a meeting of the **Ethics and Sustainability Committee** in October.

[6] Legislative Decree no. 254/2016, under art. 3, paragraph 10, provides that: *"The subject appointed with performing the statutory audit of the Sustainability Report (...) or another subject entitled to performing the statutory audit as specifically designated"* issues *"a certification concerning the conformity of the provided information respect to the requirements under this legislative decree and respect to the principles, methods and procedures provided under paragraph 3"*. Namely principles and methodologies: *"provided by the reporting standard used as reference (...)"*.

[7] In particular, as far as the direct comparison with the stakeholders is concerned, Acea organised a multistakeholder focus group in September 2017 with 21 attending organisations representing 13 subcategories of stakeholders, totalling 26 persons, entrusting the performance thereof to an external expert and in October 2017 while the strategic, industrial and sustainability planning was being defined, it organised a board meeting with the corporate management. For an illustration of the materiality analysis carried out in 2017, see the *Methodological Note to the Acea Group's 2017 Sustainability Report*, available online on the company's website: www.gruppo.acea.it.

CHART NO. 1 – RELEVANT TOPICS FOR THE COMPANY AND STAKEHOLDERS: ACEA "MATERIALITY MATRIX" – 2018



● ECONOMIC GOVERNANCE TOPICS ● SOCIAL TOPICS ● ENVIRONMENTAL TOPICS

1 EFFICIENT USE OF WATER: SAVING WATER AND REDUCING LOSSES
2 CUSTOMER FOCUS
3 EFFICIENT USE OF WASTE / CIRCULAR ECONOMY
4 TECHNOLOGY AND INNOVATION ON INDUSTRIAL, INFRASTRUCTURAL AND SERVICE PROCESSES
5 WORKPLACE HEALTH AND SAFETY PROTECTION
6 HUMAN CAPITAL ENHANCEMENT
7 CREATION OF INTEGRATED VALUE (ECONOMIC, SOCIAL AND ENVIRONMENTAL)
8 CONTRIBUTION TOWARDS LOCAL DEVELOPMENT
9 PROTECTION OF LAND AND OF SURFACE AND UNDERGROUND WATER SOURCES
10 ETHICS, RESPECT FOR RULES AND COMPLIANCE
11 INDUSTRIAL GROWTH FOCUSED ON INFRASTRUCTURE
12 DRINKING WATER QUALITY PROTECTION
13 DEVELOPMENT OF SYNERGIES WITH PUBLIC PARTIES AND PRIVATE PARTNERS
14 CLIMATE CHANGE: MITIGATION AND ADAPTION MEASURES
15 LISTENING TO, INVOLVING AND RAISING AWARENESS AMONG STAKEHOLDERS, RELATIONS WITH THE LOCAL COMMUNITY
16 SUSTAINABLE MANAGEMENT OF THE SUPPLY CHAIN
17 TOP MANAGEMENT PERFORMANCE REMUNERATION AND ASSESSMENT POLICY
18 CONSOLIDATION OF SUSTAINABILITY ELEMENTS IN CORPORATE GOVERNANCE
19 AIR QUALITY: REDUCING EMISSIONS ATMOSPHERIC POLLUTION
20 RISK MANAGEMENT ASSOCIATED WITH SUSTAINABILITY
21 ENHANCEMENT OF ESG ELEMENTS IN RELATIONS WITH THE FINANCIAL COMMUNITY
22 MANAGING DIVERSITY AND CORPORATE WELFARE
23 SAFEGUARDING BIODIVERSITY
24 PROTECTING HUMAN RIGHTS

The classification of material topics into high, medium or low relevance, as well as being important from the strategic viewpoint, **is functional** to **identifying the aspects to be reported** with a higher or lower detail in the sustainability report and **selecting the indicators provided under the reference Standards**.
To prepare the Sustainability Report **in accordance with the GRI Standards (ed. 2016): comprehensive option**, in fact, it is necessary to illustrate the performance in light of:

- "Universal Standards", which include the **reporting principles** (GRI 101: Foundation) and **56 general standards** (GRI 102: General Disclosures);
- the **aspects considered to be material** ("material topics") and **related indicators**, to be selected from among the 33 aspects envisaged in the Standard ("Topic-specific Standards"): GRI 200-Economic, GRI 300-Environmental, GRI 400-Social);
- the **management approach** (GRI 103: Management Approach) for each aspect deemed as material.

In order to be able to select the "material topics" from among those envisaged under GRI Standards, consideration [8] was given to both their correlation to Acea's highly significant topics and meaning thereof conferred by the international Standards, in some cases tracing them back to the corporate context and in others establishing their lack of pertinence [9].
Following the assessments described above, **25 Topic-specific standards were identified** out of a total of 33, **as consistent with Acea material topics of high significance** (see Table no. 1), although not always exhaustive in the widest sense of the meaning [10], which is more widely covered in the document where appropriate. Furthermore, **among all the indicators included** in the "topic-specific standards" considered as "material", **only 4 were considered as not pertinent** and excluded from the analysis. **Only one Acea material topic** of high relevance is **not correlated to the Topic-specific standards**, this being the ***Consolidation of elements of sustainability in corporate governance***, which **however, is fully consistent with the general standards** dedicated to aspects of **governance** (GRI 102: General Disclosures).
Lastly, also regarding Acea material topics of medium significance present in the report on a less descriptive basis, consistencies were found, albeit not highlighted in the table, with both the "material Topic-specific standards" and the "general standards" (GRI 102: General Disclosures).

TABLE NO. 1 - CONSISTENCY WITH GRI "MATERIAL TOPIC-SPECIFIC STANDARDS" AND ACEA "MATERIAL TOPICS" OF HIGH SIGNIFICANCE

GRI 200: ECONOMIC TOPICS 2016	ACEA MATERIAL TOPICS
Economic performance	4, 6, 7, 8, 10, 11, 14, 17, 19, 20
Indirect economic impacts	2, 3, 4, 7, 8, 11, 13, 16
Procurement practices	7, 16
Anti-corruption	10
Anti-competitive conduct	10

GRI 300: ENVIRONMENTAL TOPICS 2016	ACEA MATERIAL TOPICS
Material (301-1)	3, 4, 9
Energy (from 302-1 to 302-4)	4, 9, 14, 19
Water	1, 4, 9
Biodiversity	9, 14, 19
Emissions	9, 14, 19
Effluents and Waste (from 306-1 to 306-3, 306-5)	3, 9
Environmental conformity (compliance)	9, 10, 14, 19
Assessment of environmental aspects regarding suppliers	16

GRI 400: SOCIAL TOPICS 2016	ACEA MATERIAL TOPICS		ACEA MATERIAL TOPICS		ACEA MATERIAL TOPICS
Employment	6, 7, 17	Diversity and equal opportunities	6	Consumer health and safety	2, 10, 12
Industrial relations	6	Community life and local communities	7, 8, 13, 15	Marketing and labelling of products and services	2, 10
Health and safety at work	5, 16	Assessment of social aspects at supplier premises	16	Respect of privacy	2, 10
Training and education	6	Public politics (political contributions)	10	Socio economic compliance	2, 10

NB The economic, environmental and social "material aspects" were identified amongst all those provided for under the GRI standards (Topic-specific Standards). When indicators are placed in brackets next to an aspect this means that only the indicators shown in the table will be considered material, or, where not specified, all the indicators related to the aspect are material (also see the *GRI standard content index*). For Acea material topics as identified in the table by a number, reference should be made to the figure illustrating the materiality matrix (Chart no. 1).

8 It is important to consider that both the Topic-specific GRI standards — each of which includes a description of the management approach (Disclosure Management Approach) and a number of indicators — and Acea material topics both refer to contents that are far more complex and detailed than their brief name may suggest which, given their level of detail, cannot be presented at this time. See the GRI Standards — Consolidated set of GRI Sustainability reporting standards 2016 — in the website www.globalreporting.org.

9 This led, for example, to the exclusion of topic-specific standards related to *Presence on the Market* and *Human Rights* which, according to the meaning given to them by the GRI, are more pertinent to multinational enterprises and not suited to the reality of the Group's most significant operations.

10 It is also important to note that some Acea material topics, already correlated to specific aspects of the GRI standards, are also consistent with some of the 56 general standards (GRI 102: General Disclosures).

The **principle of materiality** was also applied to the **definition of the "report scope"**, as envisaged both by the standards adopted for reporting and by Legislative Decree no. 254/2016. The latter, in fact, under art. 4, states: *"To an extent necessary for ensuring an understanding of the group's activity, its performance, results and the impact it produces, the consolidated declaration includes data about the parent company, its fully consolidated subsidiary companies and covers the topics pursuant to article 3, paragraph 1"*.

To identify the companies to be included in the report's scope, the same approach was used as for the previous edition.
First of all, **the adequacy of the criteria of strategic materiality/significance** – identified last year – **was reconsidered and confirmed in order to identify the companies that ensure an understanding of the Group's activities and its performance**, taking into account the main business areas, the region where these activities are mainly carried out and the main impacts generated.

TABLE NO. 2 - COMPANIES INCLUDED IN THE PARENT COMPANY'S FULL CONSOLIDATION AREA (2018)

COMPANY	REGISTERED OFFICE
Acea Ambiente Srl	Via G. Bruno 7 – Terni
Aquaser Srl	P.le Ostiense 2 – Rome
Bioecologia Srl	Via Simone Martini 57 – Siena
Iseco SpA	Loc Surpian 10 – Saint Marcel (AO)
Acque Industriali Srl	Via Bellatalla, 1 – Ospedaletto (PI)
Acea Energia SpA	P.le Ostiense 2 – Rome
Acea8cento Srl	P.le Ostiense 2 – Rome
Cesap Vendita Gas Srl	Via del Teatro 9 – Bastia Umbria (PG)
Umbria Energy SpA	Via B. Capponi 100 – Terni
Acea Energy Management Srl	P.le Ostiense 2 – Rome
Parco della Mistica Srl	P.le Ostiense 2 – Rome
Acea Dominicana SA	Avenida Las Americas – Esquina Mazoneria, Ensanche Ozama – Santo Domingo, Dominican Republic
Aguas de San Pedro SA	Las Palmas 3 Avenida 20 y 27 calle – San Pedro, Honduras
Acea International SA	Avenida Las Americas – Esquina Mazoneria, Ensanche Ozama – Santo Domingo, Dominican Republic
Acea Perù SAC	Calle Amador Merino Reyna – 307 Miraflores – Lima, Peru
Consorcio Acea-Acea Dominicana	Avenida Las Americas – Esquina Mazoneria, Ensanche Ozama – Santo Domingo, Dominican Republic
Consorcio Servicios Sur	Calle Amador Merino Reyna – San Isidro – Lima, Peru
Acea Ato 2 SpA	P.le Ostiense 2 – Rome
Acea Ato 5 SpA	Viale Roma snc – Frosinone
Acque Blu Arno Basso SpA	P.le Ostiense 2 – Rome
Acque Blu Fiorentine SpA	P.le Ostiense 2 – Rome
Crea Gestioni Srl	P.le Ostiense 2 – Rome
Crea SpA (in liquidation)	P.le Ostiense 2 – Rome
Gesesa SpA	Corso Garibaldi 8 – Benevento
Gori SpA	Via Trentola 211 – Ercolano (NA)
Lunigiana SpA (in liquidation)	Via Nazionale 173 – Massa Carrara
Ombrone SpA	P.le Ostiense 2 – Rome
Sarnese Vesuviano Srl	P.le Ostiense 2 – Rome
Umbriadue Servizi Idrici Scarl	Strada Sabbione industrial area – Terni
Areti SpA	P.le Ostiense 2 – Rome
Acea Illuminazione Pubblica SpA	P.le Ostiense 2 – Rome
Acea Produzione SpA	P.le Ostiense 2 – Rome
Acea Liquidation and Litigation Srl	P.le Ostiense 2 – Rome
Ecogena Srl	P.le Ostiense 2 – Rome
Acea Elabori SpA	Via Vitorchiano 165 – Rome
Technologies for Water Services SpA	Via Ticino 9 – Desenzano del Garda (BS)

These criteria[11] include **quantitative elements** (such as the weight of turnover on the consolidated revenues, value of energy consumption expressed in TOE, etc.) and **qualitative elements** (companies having a relevant and current role in the Acea qualifying companies or an essential role respect to the services they provide; companies present in the territorial area in which almost all of the turnover is generated, the majority of the stakeholders is present and a large part of the managed assets is located). They were **applied to the Companies included in the scope of consolidation** of the Parent Company 2018[12] (see table no. 2) resulting in a scope proposal that, having heard the opinion of the Head of the Legal and Corporate Function of the Parent Company and the CFO, **was shared with Top Management and communicated to the Ethics and Sustainability Committee**.

The companies **that are representative for the purposes of disclosing the 2018 non-financial information** (in accordance with Legislative Decree no. 254/2016 and the GRI Standard) and therefore **included in the scope of reporting**[13], were **the same as in the previous edition of the document** (see table no. 3).

TABLE NO. 3 - CORPORATE SCOPE FOR THE ACEA GROUP SUSTAINABILITY REPORT 2018 (CONSOLIDATED NON-FINANCIAL STATEMENT PURSUANT TO LEGISLATIVE DECREE NO. 254/2016, PREPARED ACCORDING TO GRI STANDARD)

COMPANY	REGISTERED OFFICE
Acea SpA	P.le Ostiense 2 – Rome
Acea Ambiente	Via G. Bruno 7 – Terni
Aquaser	P.le Ostiense 2 – Rome
Acea Energia	P.le Ostiense 2 – Rome
Acea8cento	P.le Ostiense 2 – Rome
Acea Ato 2	P.le Ostiense 2 – Rome
Acea Ato 5	Viale Roma snc – Frosinone
Gesesa (*)	Corso Garibaldi 8 – Benevento
Areti	P.le Ostiense 2 – Rome
Acea Produzione	P.le Ostiense 2 – Rome
Ecogena	P.le Ostiense 2 – Rome
Acea Elabori	Via Vitorchiano 165 – Rome

(*) As far as Gesesa is concerned, the data regarding the areas of sustainability are progressively provided.

The scope of the *Acea Group's 2018 Sustainability Report* is therefore consistent with what was defined the year before, guaranteeing **continuity and comparability** as well as coverage of the Companies **that ensure full understanding of the Group's activities** and **most significant sustainability performance**. Furthermore, such companies represent at least: 90% of the turnover, 85% of the average number of employees and 85% of the costs for materials and services of the full consolidation area of Acea Group (including the Parent Company and excluding the companies that had entered that area in the last quarter of the year).

Lastly, **in compliance with the principle of completeness** required under **GRI Standards**, we considered it appropriate to **provide qualitative and quantitative information regarding corporate and environmental matters** also **for certain companies**, regardless of the method of consolidation, that are **not included within the scope of the non-financial Statement**. Specifically this concerns foreign activities and the following companies operating in the water area: Acque, Gori[14], Acquedotto del Fiora, Publiacqua and Umbra Acque, which were **included in some Group data and described in a dedicated chapter, giving clear evidence of their individual contribution.**

11 Every considered quantitative element has defined thresholds of significance and elements of "non consistency" were also identified for qualitative criteria (such as "vehicle" companies, companies under liquidation with non-determining positions for the purposes of operativity, companies operating outside of the territory of reference, etc.). The conditions of contemporary presence of quantitative and qualitative factors were also established, aimed at defining the strategic significance of a company for the Group and its representative ability for the purposes of disclosing non-financial information.

12 As required by Legislative Decree no. 254/2016.

13 In light of the applied criteria, the following companies are outside of the scope of the *Consolidated non-financial Statement 2018*: Bioecologia, Iseco, Acque Industriali, Cesap Vendita Gas, Umbria Energy, Acea Energy Management, Parco della Mistica, Acea Dominicana, Aguas de San Pedro, Acea International, Acea Perù, Consorcio Acea-Acea Dominicana, Consorcio Servicios Sur, Acque Blu Arno Basso, Acque Blu Fiorentine, Crea Gestioni, Crea, Gori, Lunigiana, Ombrone, Sarnese Vesuviano, Umbriadue Servizi Idrici, Acea Illuminazione Pubblica, Acea Liquidation and Litigation, Technologies for Water Services.

14 Gori was added to the scope of consolidation on a full basis in November 2018. Therefore, for the present reporting cycle it has not been considered within the scope of the Consolidated Non-Financial Declaration. See the section on *Water Company data sheets and overseas activities*.

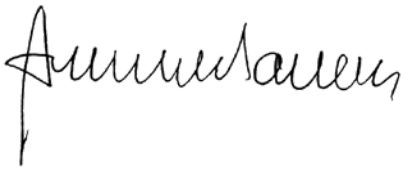
DOCUMENT STRUCTURE AND DISSEMINATION

In compliance with the implemented reporting Standards the *Sustainability Report 2018* bears information and data mainly of a non-financial nature, with specific attention to social and environmental aspects of the managed activities.
The document is divided into three sections: ***Corporate identity***, ***Relations with stakeholders*** and ***Relations with the environment***, supplemented by the Environmental Accounts. The latter comprises **about 400 items and parameters monitored** which quantify the physical flows generated by the activities: the products, factors used (resources), outbound outputs (rejects and emissions) and some performance indicators.
It is important to note that where the document recalls the main economic-financial data and describes corporate governance, data and information are consistent with those given in the *Consolidated Report* and the *Corporate governance report* and which may derive from the latter.
The published data and information are provided by the Industrial Areas, Companies and responsible Functions (data owner), they are processed - and possibly reclassified with application of the reference Standards - by the internal workgroup which draws up the document and then submitted once again to the Areas/Companies/Functions responsible for final validation, formalised by the issuing of a specific certificate.
Downstream of the audit activities by the appointed statutory auditor, the report distributed by means of **publication in the institutional website** - www.gruppo.acea.it - **and the company intranet**, as well as **the other formats provided under Legislative Decree no. 254/2016** and the implementary Consob Regulation (implemented by Resolution no. 20267 of 19 January 2018). It is also distributed together with the consolidated Sustainability Report, by means of a dedicated kit: to the shareholders, during the annual Shareholders' Meeting upon closure of the financial year, the directors and middle management of the Group and the interested public during events.

For further information about the Sustainability Report and its contents, it is possible to write to the following email address: RSI@aceaspa.it.

Giuseppe Sgaramella
SUSTAINABILITY UNIT

Antonio Sanna
RISK & COMPLIANCE FUNCTION



MEMBERSHIP IN THE UNITED NATIONS GLOBAL COMPACT

In 2007 Acea formally joined the **United Nations Global Compact** (UNGC), acknowledging **consistency between the ten principles** supported by the United Nations through the "Global Pact"[15], **the UN's objectives of sustainable Development** ("Agenda 2030", to which the UNGC expressly refers), **the orientation established by the Acea Code of Ethics** – whose latest edition was approved by the Board of Directors in July 2018 – **and the commitment for corporate sustainability**.

The ***advanced level Communication on Progress*** (CoP) is included in the *Sustainability Report* (consolidated non-financial report) through a combined **statement of the GRI indicators and the principles of United Nations Global Compact**, pursuant to the understanding reached between the two organisations.

TABLE NO. 4 - THE TEN PRINCIPLES OF THE UNITED NATIONS GLOBAL COMPACT

HUMAN RIGHTS

1. Companies are required to support and respect the protection of internationally proclaimed human rights
2. Companies should ensure that they are not complicit, even indirectly, in human rights abuses

JOBS

3. Companies are required to uphold the freedom of association and the effective recognition of the right to collective bargaining
4. Companies should uphold the elimination of all forms of forced and compulsory labour
5. Companies should uphold the effective abolition of child labour
6. Companies should uphold the elimination of discrimination in respect of employment and occupation

ENVIRONMENT

7. Companies are required to support a precautionary approach to environmental challenges
8. Companies are required to undertake initiatives to promote greater environmental responsibility
9. Companies are required to encourage the development and diffusion of environmentally friendly technologies

FIGHTING CORRUPTION

10. Companies should work against corruption in all its forms, including extortion and bribery

[15] The United Nations Global Compact is an initiative launched by the Secretary General of the United Nations upon the conclusion of the World Economic Forum of 1999. In his appeal he invited the leaders of the world economy to uphold and circulate nine universal principles related to human rights, labour and the environment, added to which was the tenth in 2004: anti-corruption.

ADVANCED LEVEL COMMUNICATION ON PROGRESS AND ITS CORRELATION WITH GRI STANDARDS

Since 2014, Acea has undertaken for better principles of the process qualifying the consistency between the "Global pact" and the actions taken, identifying in the *Sustainability Report* **the elements responding to the *advanced* level of the *Communication on Progress*** envisaged by the United Nations Global Compact.

The table below lists and describes, in schematic format, these elements according to 21 criteria defined by the United Nations Global Compact and states their **correlation**[16] **to the GRI Standards** (GRI 102: General Disclosures and the "Topic-specific standards" 200-Economic, 300-Environmental, 400-Social identified as "material", applied in the preparation of the sustainability report according to the "comprehensive" level of compliance. See the *GRI standard content index* for the pages of the document where the relevant data and information can be found.

TABLE NO. 5 - THE ELEMENTS OF ADVANCED COP AND GRI STANDARDS

UNGC - ADVANCED CRITERIA	UNGC - MATCHING SCOPES	CORRELATION GRI STANDARDS (GENERAL DISCLOSURES AND TOPIC-SPECIFIC MATERIAL STANDARDS)
	integration of sustainability in corporate functions and business units	from GRI 102-18 to GRI 102-39
CRITERIA 1-2 implementation of the ten principles in the strategies and operational management of the business	implementation of sustainability in the value chain	GRI 102-9 - GRI 102-10 - GRI 102-25 - GRI 204-1 - GRI 103 (1-3) by GRI 308 *Assessment of environmental aspects regarding suppliers* - GRI 302-2 - GRI 305-3 - GRI 308-1 - GRI 308-2 - GRI 103 (1-3) by GRI 414 *Assessment of social aspects regarding suppliers* - GRI 403-2 - GRI 414-1 - GRI 414-2
CRITERIA 3-5 robust human rights policies and procedures management	**HUMAN RIGHTS** commitments, strategies or policies; management systems; monitoring and evaluation mechanisms	The Human Rights aspect and indicators related to it, as proposed by the GRI Standards, are relevant for multinational enterprises. Acea has therefore considered such aspects non-material. Whereas in the meaning that the United Nations Global Compact gives to aspects relating to human rights (such as employment protection, freedom of association, non-discrimination, health and safety at the workplace, training and education and supplier social assessment), they are included in other GRI "topic-specific" standards, deemed "material", as well as in the "material topics" identified by Acea and are therefore covered in the report.
CRITERIA 6-8 robust labour policies and procedures management	**LABOUR** commitments, strategies or policies; management systems; monitoring and evaluation mechanisms	GRI 103 (1-3) and indicators of the following topic-specific standards (series GRI 400: SOCIAL TOPIC 2016): *Employment* (from GRI 401-1 to GRI 401-3) *Industrial relations* (GRI 402-1) *Health and safety at the workplace* (from GRI 403-1 to GRI 403-4) *Training and education* (from GRI 404-1 to GRI 404-3) *Diversity and equal opportunities* (GRI 405-1 and GRI 405-2) *Supplier social assessment* (GRI 414-1, GRI 414-2)

[16] Acea has autonomously updated the proposed scheme, linking elements of the Communication on progress and GRI Standard, maintaining the approach of the document referred to the previous version of the GRI-G4 Guidelines, the result of the collaboration of GRI and UNGC. See *Making the Connection: Using the GRI G4 Guidelines to Communicate Progress on the UN Global Compact Principles*, available online in the website www.unglobalcompact.org.

CRITERIA 9-11 robust environmental policies and procedures management	**ENVIRONMENT** commitments, strategies or policies; management systems; monitoring and evaluation mechanisms	GRI 103 (1-3) and indicators of the following topic-specific standards (series GRI 300: ENVIRONMENTAL TOPIC 2016): *Materials* (GRI 301-1) *Energy* (from GRI 302-1 to GRI 302-4) *Water* (from GRI 303-1 to GRI 303-3) *Biodiversity* (from GRI 304-1 to GRI 304-4) *Emissions* (from GRI 305-1 to GRI 305-7) *Effluent and waste* (from GRI 306-1 to GRI 306-3, GRI 306-5) *Environmental compliance* (GRI 307-1) *Supplier environmental assessment* (GRI 308-1, GRI 308-2)
CRITERIA 12-14 robust anti-corruption policies and procedures management	**FIGHTING CORRUPTION** commitments, strategies or policies; management systems; monitoring and evaluation mechanisms	GRI 102-16, GRI 102-17, GRI 103 (1-3) and indicators of the following topic-specific standards (series GRI 200: ECONOMIC TOPICS 2016 and series GRI 400: SOCIAL TOPIC 2016): *Anti-corruption* (from GRI 205-1 to GRI 205-3) *Public politics* (political contributions) (GRI 415-1)
CRITERIA 15-18 actions aimed at upholding wider development objectives of the United Nations	strategies, business activities, actions of promotion and engagement with the stakeholders to uphold the Sustainable Development Goals (SDG's)	GRI 103 (1-3) of all the material "topic-specific standards" included in series GRI 200: ECONOMIC 2016, GRI 300: ENVIRONMENTAL 2016 and GRI 400: SOCIAL 2016 (except for the topic *Respect of privacy*)
CRITERIA 19-21 Governance and leadership of sustainability	commitment of the CEO	GRI 102-14, GRI 102-15
	engagement of the BoD	from GRI 102-18 to GRI 102-39
	involvement of the stakeholders	GRI 102-40 to GRI 102-44
high level of transparency and reporting	use of GRI Standards	from GRI 102-1 to GRI 102-10
external audit		GRI 102-56


acea
acea
Recupero e trattamento fanghi e rifiuti liquidi

CORPORATE IDENTITY

GROUP PROFILE

ACEA'S HISTORY

Since its establishment in 1909 as the Azienda Elettrica Municipale (AEM) of the Municipality of Rome, Acea has been responsible for the maintenance and development of the capital's essential infrastructure, providing modern and efficient electricity and water services as a basic guarantee of the city's productive growth, social development and environmental balance.
Since its listing on the stock exchange in 1999, the definition of industrially advanced public service business models – also thanks to the collaboration of private partners – has characterised Acea's development phases and the consolidation of new industrial activities. The most recent years in Acea's history are distinguished as much by the development of **technological innovation and the digitalisation of processes and services**, with the aim of increasing operating efficiency and improving the quality of the services as the renewed vocation for developing **modern network infrastructures** that are **resilient and integrated**, as well as able to forecast a widespread and sustainable development.

BUSINESSES AND FUNCTIONS OF THE MAIN GROUP COMPANIES

Acea is **one of the main Italian multi-utilities** operating in the public **energy**, **water** and **environmental** services (waste valorisation, composting and value-added services).
The company is the reference operator in the Rome area for energy sectors (production, distribution, including public lighting and sale) and water (integrated cycle) and in this last context it is present in several regions of Central Italy as an industrial partner for local companies managing vast areas.

TABLE 6 - ACEA GROUP IN FIGURES 2018

PERSONNEL (number, by % consolidation)	6,534
NET REVENUES (million of Euros)	3,028.5
INVESTED CAPITAL (million of Euros)	4,471.5
net financial debt	*2,568*
shareholders' equity	*1,903.5*
TOTAL BALANCE SHEET ASSETS (million of Euros)	8,194.9
ELECTRICITY	
generation (GWh) (gross)	968.4
of which from renewable sources (GWh) (gross)	695.5
hydroelectric	*476.5*
solar	*10.2*
waste to energy	*190.2*
biogas	*18.6*

ELECTRICITY (continued)	
network demand (GWh)	10,612
sold (GWh) (free and protected market)	6,028
electricity and gas customers (number)	1,336,550
WASTE TO ENERGY (WTE)	
electricity generation (GWh) (gross)	389.7
waste burnt (t)	457,145
RDF	*357,174*
pulper	*99,971*
PUBLIC LIGHTING	
bulbs managed in Rome (number)	225,619
WATER (INTEGRATED WATER SERVICE)	
drinking water supplied (Group) (Mm^3)	655
of which (Acea Ato 2, Acea Ato 5 and Gesesa)	*382.3*
tests on drinking water (Group) (number)	1,328,950
of which (Acea Ato 2, Acea Ato 5 and Gesesa)	*480,397*
wastewater treatment (Group) (Mm^3)	859.2
of which (Acea Ato 2, Acea Ato 5 and Gesesa)	*603.9*
inhabitants served (Group) (million)	8.6
of which (Acea Ato 2, Acea Ato 5 and Gesesa)	*4.3*

CHART NO. 2 - THE ACTIVITIES OF THE MAIN ACEA COMPANIES IN THE REGION

WATER

Acea Ato 2 manages the integrated water service in Rome and another 111 municipalities in the Province.
Acea Ato 5 is the operator of the service in 86 Municipalities in the province of Frosinone.
Gesesa operates in the municipality of Benevento and another 22 municipalities in the Province.
Acea Elabori performs laboratory services, research and development and engineering services (design and project management) mainly in water and environmental activities for Acea Group companies.

ENERGY INFRASTRUCTURES

Areti plans, designs and executes the actions of modernising and developing electricity infrastructure (lines AT-MV-LV, cabins, remote control systems and metering) and manages its distribution services in the municipalities of Rome and Formello. In the city of Rome, it manages and develops functional and monumental and artistic public lighting systems as well as cemetery illumination.
Acea Produzione deals with the production of energy and heat with a power plant consisting of hydroelectric and thermoelectric plants.
Ecogena designs and constructs cogeneration and trigeneration plants and operates as ESCo (Energy Service Company) pursuing energy efficiency services for internal customers (obligations of increase efficiency under Min. Decree dated 20 July 2014) and for external ones.

ENVIRONMENT

Acea Ambiente, with plants present in Lazio, Tuscany and Umbria, and active in environmental waste management (treatment and disposal), in the production of energy from waste in composting.
AQUASER is active in the recovery, treatment and disposal stages for sludge resulting from the treatment phase of the integrated water service.

COMMERCIAL AND TRADING

Acea Energia manages the sale of electricity and gas on the market (free and more protected).
Acea8cento manages customer care, especially remote contact channels for Acea Group operating companies.

CONTEXT ANALYSIS AND BUSINESS MODEL

CONTEXT ANALYSIS

Acea monitors the **scenario of reference** – internal and external – intercepting and analysing the factors assuming relevance for the company and which can affect the pursuit of strategic goals.
In particular, **the corporate sustainability, normative, regulatory, technological, competitive, market and environmental settings** represent different aspects integrated into an overall framework, which outlines **the context within which management activities and the outlook of the organisation are to be included**. These are supplemented by the **context within** the Group – in terms of **energy and environmental impacts, development of human capital, protection of workers' health and safety** – and **management of the supply chain**.

THE ENERGY MARKET AND COMPETITORS

The Acea Group is vertically integrated into the electricity supply chain through independent companies that meet the obligation to guarantee neutrality in the management of infrastructure essential for the development of a free energy market, to prevent discrimination in access to commercially sensitive information and to avoid cross-subsidisation between the various segments of the chain.
In the **Sales segment**, the outlook of most significance is the completion of the liberalisation of retail sales, with the expected abolition in 2020 of the regime of greater protection. An increase in competition between the operators is expected, with a consequent search for distinctive added value elements, to be pursued through investments in technological innovation and digitalisation to the benefit of the customer.
Technological innovation also plays an important role in the development of the **Networks-energy distribution and public lighting sector**, in favour of further progress in the automation and increasing the efficiency of the processes and for applications in the smart metering and smart grid framework and from a smart city viewpoint. In the latter area, the development of new synergies with other operators and the creation of business opportunities (as has already been done for ultra-wideband) can be foreseen. For **public lighting**, in addition to the developments related to smart cities, opportunities for operators with specific consolidated know-how also reside in an increase in demand from regions still without the latest generation of energy-saving lighting (LED).

THE INTEGRATED WATER SYSTEM

In the **Water sector**, the main development driver is the progress being made in the regulation by the ARERA, which rewards the efficiency of operators. Similarly to the electrical sector, in fact, in December 2017 the national Authority resolved on the new regulation for the technical quality of the integrated water service using a reward/penalty mechanism linked to the respect of performance standards (service levels) and also an automatic indemnity system for customers which is added to that already defined in relation to contractual quality. There are therefore development opportunities for the service managers that are closely linked to the capacity to adopt developed technological systems, highly efficient disclosure and organisational models, standardised and repeatable, capable of significantly affecting the improvement of performance levels.

THE WASTE MANAGEMENT MARKET

The current situation of production, disposal and treatment capacity for waste in the traditional operational areas of the Acea Group and in the neighbouring areas shows a high "potential demand" for **waste management** (disposal, waste-to-energy, composting and biogas, sludge and liquid waste treatment). This is supported by a national regulatory framework that provides incentives and the regulatory support of European directives on matter and energy recovery, as well as by the implementation of the European Union's policy guidelines on the circular economy (closing the loop).
Opportunities for developing the sector are therefore highlighted, also facilitated by the availability of new technologies (for example in composting) and by possible forms of industrial integration with other operators.
Finally, the expansion of the potential for disposal/recovery of sewerage sludge – in the context of value added environmental services (sludge treatment, compost) – could lead to the completion of the integration with the Water business, in view of a complete management in-house of the entire supply chain.

INSTITUTIONAL INVESTORS

In 2018, the Italian Stock Exchange recorded a negative performance (FTSE Italia Mid Cap -19.6%; FTSE MIB -16.2%) "underperforming" the main European stock markets, with the exception of Frankfurt.
International stock markets have been influenced by, among other things, the "trade war" involving the world's major economies.
It should be noted that in 2018 there was an **increase in initiatives implemented by institutional investors to promote sustainable** and responsible behaviour in the medium to long term.
In particular, there was a greater focus on **integrating ESG (Environmental, Social and Governance) factors into the investment process**. We have witnessed more intense participation in company meetings and more in-depth discussions with companies aimed at identifying projects and forms of collaboration having to do with sustainability issues.
All this represents an increased level of engagement, considered one of the most advanced and concrete forms of **responsible investment**.
The CEO of BlackRock – among the most important investment funds in the world – in the firm's annual engagement letter notes that *"profits and purpose do not at all contradict each other, rather they are inextricably linked to each other. Profits are essential if a company must effectively serve all its stakeholders over time – not just shareholders, but also employees, customers and the community. Purpose guides the culture, creates a framework for a consistent decision-making process and ultimately contributes to sustaining the long-term financial returns for the shareholders of your company"*.

SUSTAINABLE DEVELOPMENT

In the field of sustainability, the signals coming from the institutional, national and international settings indicate the growing importance of a multidimensional logic capable of highlighting

the interconnection of social, environmental and economic aspects with which to interpret, assess and guide global priorities integrating regulatory, relational, physical and productive systems.
Worthy of note in this area is the Committee of Sponsoring Organisations of the Treadway Commission (**COSO**), a global point of reference for enterprise risk management models (ERM) that, in collaboration with the World Business Council for Sustainable Development (WBCSD), issued the first Guide to apply ERM methodology to risks related to social, environmental and governance factors.
In 2018, environmental risks were confirmed as the main global concern both in terms of impact and probability, followed by cybersecurity and privacy due to the speed of ongoing technological development. These aspects become even more complex when it comes to considering their interconnections with potential social and geopolitical risks (**Global Risk Report**).
The commitments made at the UN with the Sustainable Development Goals (**Agenda 2030**) that were then ratified at a national level represent the framework of reference for a transition towards sustainable life models, in relation to which important institutions perform analyses and define their own pathways. Indeed, this was the orientation chosen by the International Energy Authority, for example, which developed its own **World Energy Outlook** by combining analyses and assessments based on consumption projections generated by demographic and production dynamics, technological-innovative trends and environmental determinants.
Also of note in the year under review was the award of the Nobel prizes for economics to William Nordhaus and Paul Romer. The Nobel prize was for sustainability, considering the motivation of the Royal Academy for the choice of the two American scientists, who developed studies on the integration of climate change, technological innovation and macroeconomic analysis, dedicating themselves to "some of the fundamental and most urgent challenges of our time: combining the long-term sustainable growth of the global economy with the well-being of the planet's population".
The **European Union** has made two important strategic commitments. The first defines a roadmap for strengthening the role of finance in creating an economy that achieves environmental and social objectives, the second represents the new long-term climate strategy of the Union, with the aim of making the European continent the first great global economy with zero climate impact by 2050.
Looking towards the Fourth Industrial Revolution, as evidenced by recent research of the **World Economic Forum**, cities will play a decisive role in triangulating the environment, production systems, technological developments and social and demographic dynamics in a sustainable manner. Urban setting will grow, becoming agile and resilient and basing their evolution on big data and analytics, IT systems and interoperable management systems. Local public services represent the main infrastructure for future smart cities, and the role of Utilities will be crucial in managing water and energy efficiency and savings, the circular economy, the prevention and reduction of pollution and climate-changing emissions. Lastly, it is worth noting the change made by the 2019 Budget Law in Italian Legislative Decree no. 254/2016, which made non-financial reporting mandatory for companies, adding reporting obligations for environmental, social and sustainable governance (ESG) management methods.

ENVIRONMENTAL AND ENERGY IMPACTS

The natural environment is the scenario where the activities of the Group are performed and is to be preserved with a responsible and efficient use of resources, protecting sources, safeguarding the natural areas where the plants and service networks encroach, mitigating the physical and the external impacts generated in the ecological context of the operating processes.
Consider for example energy generation where the repowering initiatives constantly act to modernise plants also by pursuing the lowest environmental impacts in terms of emissions, or the integrated water service where Acea's responsible management in resources starts from the provisioning stage, to make it available to people and ends with the commitment to restore the runoff to the receptacle body in the best condition possible.
Finally, the environmental services linked to waste management cannot be overlooked, where the commitment to the ecosystem regards both operating processes, just think about the environmental efficiencies brought in the innovative project of the Ecobelt® WA belts in the waste to energy plant of San Vittore del Lazio, or the transformation of waste with a view to circular economy, as occurs with sludge treatment for water purification.
In keeping with the desire to operate while respecting and protecting the surrounding environment, Acea has already implemented a series of initiatives aimed at better managing the aspects of its activities that have a general impact on the environment and specifically on energy, also thanks to the use of advanced systems and technologies.

- **management systems**: the widespread adoption of environmental and energy management systems is a concrete response on the importance of environmental dynamics for Acea and a managerial tool for continuous improvement in performance.
- **mobility management**: a focus on the environmental impacts of corporate activities also concerns the effects produced by the movements of employees. In this context, the Acea Group has undertaken initiatives to reduce employee travel and to encourage less polluting means of transport.
- **carbon disclosure project (CDP)**: Acea publishes its initiatives, for over ten years communicating them to the international CDP organisation, which produces various annual online reports aimed at informing analysts and lenders about the levels achieved by companies in managing risks and opportunities related to the topic of climate change.
- **green purchases**: Acea has set itself the goal of increasingly developing Green Procurement for the relevant product categories included in the PAN (National Action Plan for Green Procurement).
- **environmental conduct of the supply chain**: Acea has committed to assessing its suppliers on an annual basis with regard to the environmental performance of the products/services supplied, and to inform/train contractors and subcontractors regarding the environment.

Acea has included actions to combat climate change in its 2018-2022 Sustainability Plan, which includes both mitigation and adaptation actions and monitors the matter and related EU and international developments (the COP - Conference of the parties and European legislation). Environmental issues related to the array of services provided by the Group are included in the Organisation and Management Model pursuant to Italian Legislative Decree no. 231/01.

LEGISLATION IN THE RELEVANT MARKETS AT A LOCAL, NATIONAL AND SUPRA-NATIONAL LEVEL

The legal context of pertinence to Acea is wide-ranging and articulated according to the **specificity of the operating segments** – water, energy and environment – and the **variety of the frameworks** within which the legal and regulatory disciplines intervene which affect the business operations, from administrative authorisation profiles to those protecting the market and competition. Added to such aspects is the peculiarity of the nature of **listed companies**, with the related legal impacts, for example in terms of regulating communications to the market. The legal scenario is therefore analysed from a **multidisciplinary** viewpoint, applying a 360° overview and continuous interpretative analysis, in order to detect developments of particular significance, identifying and assessing risks and opportunities in terms of strategy and operating management.

The new **Code of Public Contracts**, which has radically transformed the rules and operations of public contracts, is surely one of the most important issues. This Code was the subject of corrective action by means of **Legislative Decree no. 56/2017**, and a further reform is currently being examined. Among the articles that will be subject to modification are: art. 31 *"Role and functions of the person responsible for the procedure in contracts and concessions"*; art. 80 *"Reasons for exclusion"*; art. 105 *"Subcontracting"* and art. 177 *"Assignment of concessionaires"*.

The legal application aimed at protecting consumer interests becomes increasingly more important, especially with regard to relations with commercial operators and at privacy level. With regard to the latter, 2018 saw the entry into force of Regulation EU 2016/679 on the protection of personal data and Legislative Decree no. 101/2018 containing the provisions for the adaptation of national legislation to those envisaged in the aforementioned regulation.

The industrial nature of the services managed bestows significance upon the focus on **legal and administrative profiles** related to both authorising procedures for the construction, renewal and management of plants, with obvious effects on the capacity to guarantee the continuous operation of the company managed, and on the recognition of incentives for energy plants (energy efficiency certificates, ex green certificates and other incentives recognised by the legal system). In this regard, we draw attention to the Ministerial Decree of 10 May 2018 concerning, among other things, the determination of national quantitative energy savings targets to be pursued by companies distributing electricity and gas for the years from 2017 to 2020, issued to address the deep crisis in which the market for TEEs finds itself due to the significant imbalance between supply and demand. With regard to **environmental legislation**, we point out **Decree Law 109/2018** (the so-called "Genoa Decree"), converted by **Law 130/2018**, which introduced a "buffer" provision aimed at regulating the management of sewage sludge pending an organic revision of the sector's regulations.

Also worth mentioning is the postponement by one year – from July 2019 to July 2020 – of the interruption of the "protected market" regime in the energy sector pursuant to Legislative Decree no. 91 of 25 July 2018, converted, with amendments, following the approval of Law no. 108 of 21 September 2018. Lastly, with regard to compliance with **antitrust laws**, an area in which there has been general and growing attention due in part to the evolution of the competitive environment in the markets the Acea Group operates in, the Antitrust Authority adopted the "Antitrust Compliance Guidelines" on 25 September 2018.

THE REGULATORY AUTHORITIES

In the water sector, from a regulatory point of view, 2018 reaped the benefits of the important measures introduced at the end of 2017, with reference to the resolution on the tariff structure (665/2017/R/idr) and the two end-of-year resolutions on Technical Quality and on the methods for updating tariffs for the two-year period 2018-2019 (917/2017/R/idr and 918/2017/R/idr).

During the year, ARERA presented a hypothesis of protection regime both for operators, with the containment of arrears in the integrated water service and for the end user, introducing measures in cases of suspension and deactivation of the supply.

Also with regard to water bonuses, ARERA has issued a measure, resolution 227/2018/R/idr, regarding the application procedures for the regulation of information flows, data exchange and operating procedures for the disbursement of the social water bonus, to allow its disbursement to users who request it as from 1 July 2018.

In the electric power area, the following issues were discussed in greater detail in 2018:

- **resilience of electricity grids**, with resolution 31/2018/R/eel, obligations were introduced to prepare resilience plans for all distribution companies;
- **general system charges**, esolution 50/2018/R/eel defines the mechanism for reintegrating general system charges paid but not collected by distribution companies. On this issue, by means of resolution 626/2018/R/eel ARERA deferred for one year the elimination of the residual progressivity from the amounts covering the general charges applied to households.

On the subject of energy efficiency certificates, with the interministerial decree of 10 May 2018 the MISE introduced corrective measures to stabilise the price of White Certificates and, following this decree, ARERA intervened on the definition of the tariff contribution to cover the costs incurred by electricity and natural gas distributors subject to obligations under the mechanism of energy efficiency certificates. Still on the subject of guidance and orientation by primary legislation, the publication of the new **RES Decree (renewable energy sources)** is expected.

Moreover, the 2018 Budget Law assigned the Authority the functions of **regulating and controlling the waste cycle**, including differentiated, urban and similar waste, to be exercised "with the same powers and within the framework of the principles, purposes and powers – including those of a sanctioning nature – established by Law 481 of 14 November 1995" and already exercised in the other areas of responsibility.

With regard to this prescription, ARERA has initiated procedures for the adoption of measures concerning the quality of service and tariff regulation, which did not give rise to further regulatory impacts during the year.

DEVELOPMENT AND TECHNOLOGICAL INNOVATION

Technology represents an area that is both dynamic and critical for Acea. The intense activity of research and development by the producers of technological services and the pervasive application of these technologies in the areas of Acea's operations led in 2018 to a substantial refocusing on the topic of Innovation. The **Innovation, Technology & Solutions department**, which reports directly to the CEO, **was set up** with **an Organisational Unit dedicated to Innovation** that has the task of ensuring an Innovation model for the Group through the adoption of processes and Open Innovation approaches that involve internal and external stakeholders, assigning the new activities to the three pillars of

the business plan: ***Infrastructure, People, Client***. In 2018, innovation initiatives were launched for each of the three pillars, with positive effects on the infrastructure, employees and customers. In addition, from an Open Innovation perspective, **partnerships** have been established with **Open Fiber** for the evolution of networks and the development of innovative services for the city of Rome, and with **Huawei** for the definition of projects of high technological value to provide advanced and innovative services in Smart and Safe City area.

DEVELOPMENT OF HUMAN CAPITAL

To cope with the increasingly rapid changes of our time and transform them into opportunities for development, Acea has decided to focus on the evolution of its corporate culture.
The new **Leadership model**, values and behaviours guide and contribute to defining an organisational setting that seeks to promote a constant development of human capital, recognised as a fundamental asset for remaining competitive in a changing economic and social context.
Entrepreneurship, teamwork and action are the three pillars upon which the Group's initiatives are built to achieve the goals of the 2018-2022 strategic plan and the sustainability plan.
Among these, the goal of enhancing people for the growth of the Group is broken down and carried out through three areas of activity:

- **professional growth, training and development of skills**, through a process that, starting from hiring, uses training and a performance assessment system to align behaviour with the Leadership model and the values of the Acea Group in a constant development of human capital;
- **involvement of people in the Group's identity**, through specific initiatives designed to promote employer branding, making Acea increasingly attractive for new talent;
- **inclusion and organisational well-being**, with the launch of initiatives aimed at making work increasingly "smart" and boosting motivation, potential and satisfaction of personnel, as well as the well-being of employees, recognising the strategic value of Diversity, Health and the Safety of workers.

SUSTAINABLE MANAGEMENT OF THE SUPPLY CHAIN

Aware of the positive contribution that sustainable supply chain management can offer to protecting the environment, Acea is committed to defining purchasing methods that include intrinsic characteristics of the products and aspects of the process that **limit environmental impact** and foster initiatives aimed at minimising waste, reusing resources and **protecting the social aspects** involved in the procurement of goods, services and works defined and used to meet its needs.
Indeed, for several years Acea has been using the Minimum Environmental Criteria, in its calls for tenders including even rewarding aspects that are not mandatory but often decisive in ensuring the maximum achievement of the objectives set. Furthermore, it engages in the **education** of its own resources so that the purchasing choices tend toward goods or services with sustainable characteristics, thus stimulating the development of a specific sensitivity towards these aspects, with the aim of having them always present in supplier selection processes.

HEALTH AND SAFETY IN THE WORKPLACE

2018 marks the tenth anniversary of the "Consolidated Law on Safety and Health in the Workplace", published on 9 April 2008, and, while over the past ten years numerous actions have been taken to prevent accidents, the current INAIL data in Italy unfortunately show an increase in the number of accident reports.
Acea carries out constant awareness campaigns on the subject, with the aim of profoundly affecting the widespread dissemination of a culture of safety involving all its employees. It has also implemented an advanced risk assessment model, not to mention control and mitigation measures. Acea has also launched a number of **initiatives to raise awareness of and involvement** in the issues discussed above with its **contractors and sub-contractors**, key business partners throughout the entire value chain.
To this end, an intense audit activity carried out at **construction sites** also contributes, such inspections being an effective tool for verifying the application of safety regulations and procedures with respect to maintenance contracts for networks and plants.

THE BUSINESS MODEL

The implemented business model (Chart no. 3) is based on an organisational structure in which the Holding covers the role of governance, steering and control of the portfolio of managed activities. The Parent Company, moreover, offers managerial support to the operating companies by means of management and legal, logistic, technical, financial and administrative services. Acea SpA's **organisational macrostructure** consists in **corporate functions** and **industrial segments** to which the operating companies report (see Chart no. 4).

CHART NO. 3 - ACEA'S BUSINESS MODEL

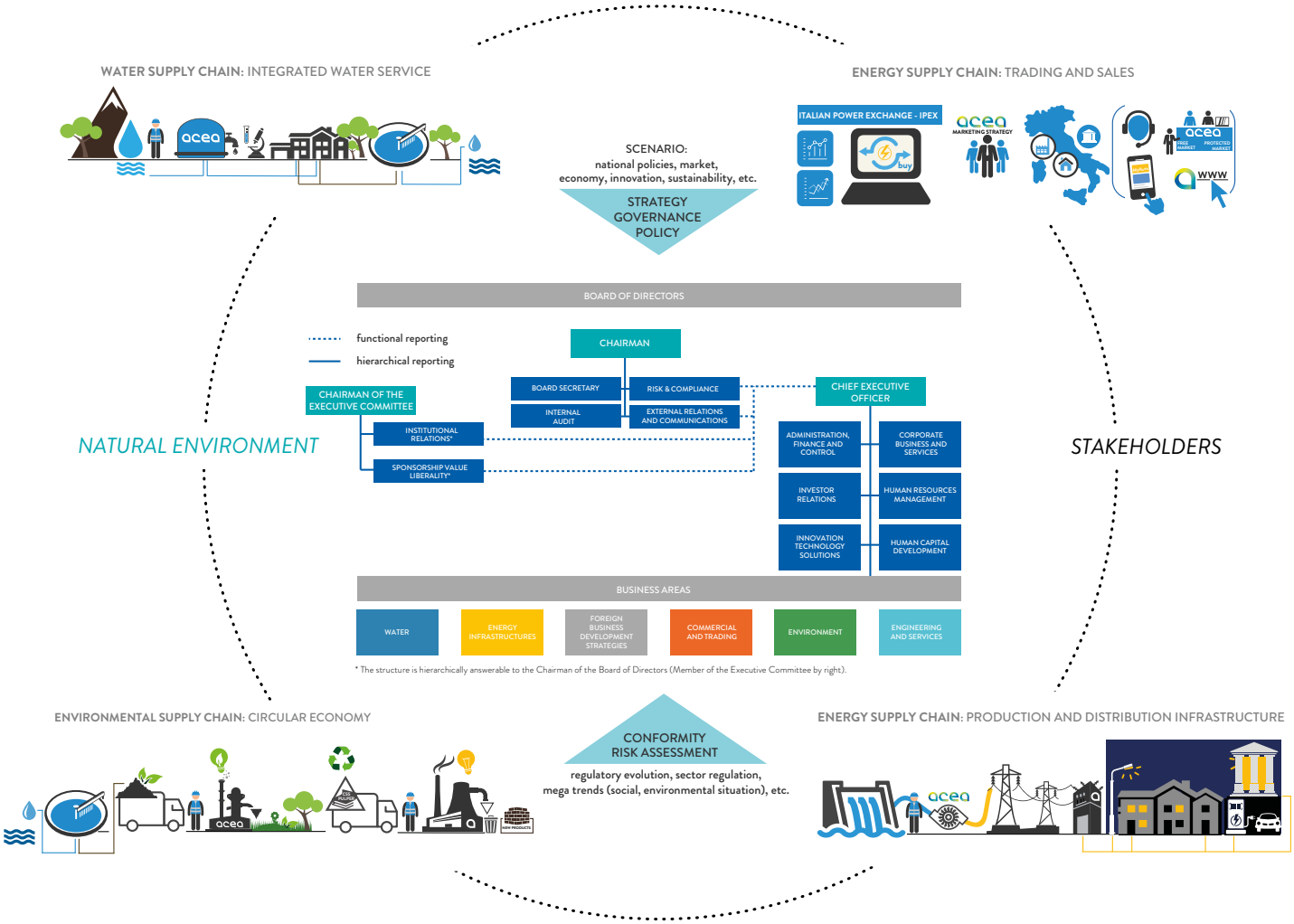
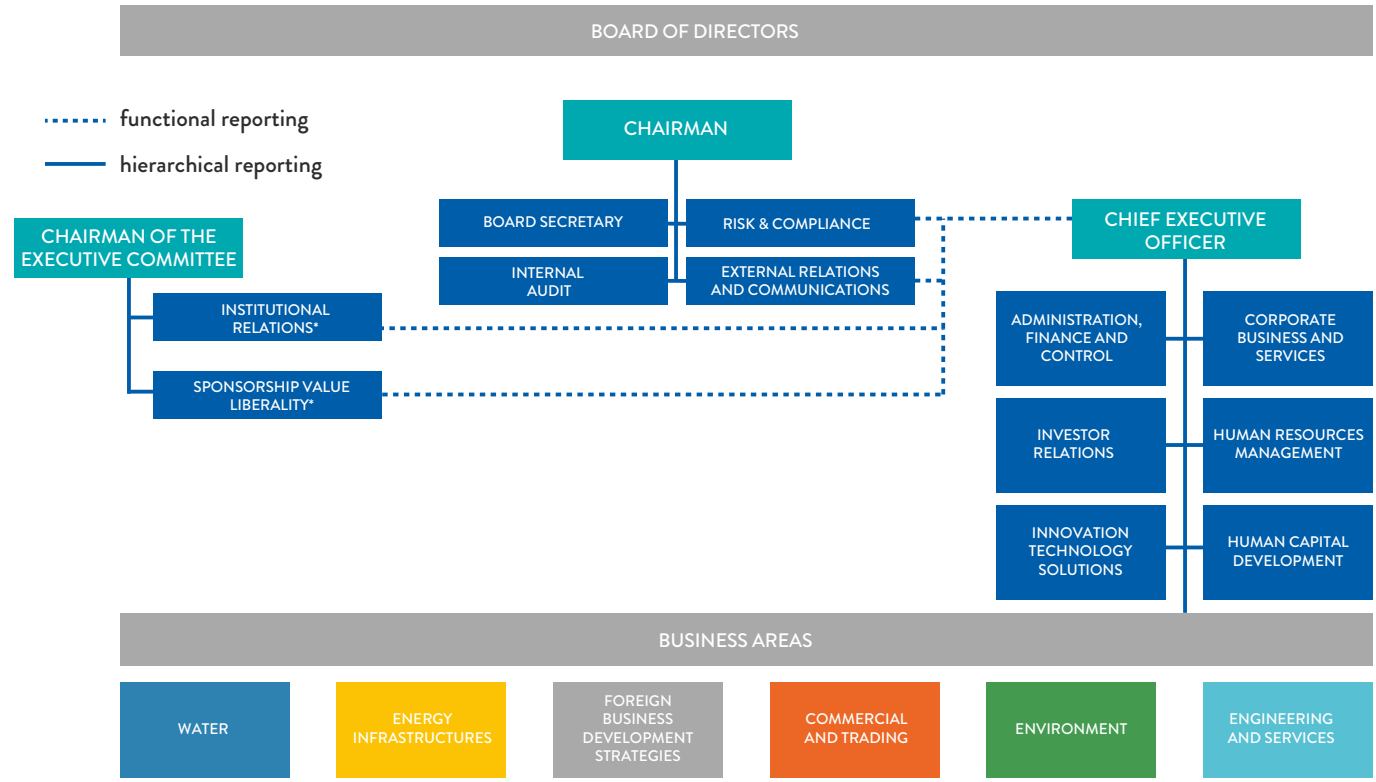


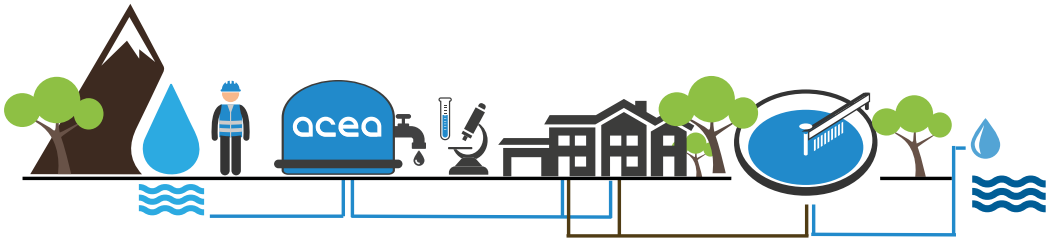
CHART NO. 4 - ACEA SPA ORGANISATION CHART AS AT 31.12.2018



* The structure is hierarchically answerable to the Chairman of the Board of Directors (Member of the Executive Committee by right).

The Acea Group is mainly active in 4 supply chains: the **integrated water service**; the **production and distribution of electricity** (including **public lighting**); the **sale of energy and gas**; the **valorisation of waste**. Acea operates in such segments through industrial Companies located in central Italy (particularly on the Tyrrhenian ridge) that it has equity investments and in which it plays the role of industrial entity of reference.

WATER SUPPLY CHAIN: INTEGRATED WATER SERVICE



The water supply chain begins with the resource capture phase: the water required by the network serving the communities is drawn from streams and water tables in the territory. The quality of the water resource is tested and guaranteed by Acea, throughout its journey, in observance of the normative standards envisaged for end uses. Thereafter the wastewater and treatment phase is activated to recycle and return the resource to the environment in the best possible conditions for its natural cycle to resume.

ENERGY SUPPLY CHAIN: PRODUCTION AND DISTRIBUTION INFRASTRUCTURE

Production and distribution of electricity: Acea produces energy at hydroelectric plants, waste-to-energy plants, thermoelectric plants (high-efficiency cogeneration), anaerobic digestion plants (biogas) and photovoltaic plants, for a total generation from renewable sources of about 72%. Users receive electricity thanks to the distribution grid managed and developed by Acea. The digital and innovative development in the services, stimulated and required by a constantly evolving market, commits the Distributor to tend towards smart city solutions. This is accompanied by a resilient management of the networks by which it is possible to support a future shift and increase in the uses of the electrical vector.

ENERGY SUPPLY CHAIN: TRADING AND SALES

Sale of energy and gas: the purchase of commodities (energy and gas) takes place by means of trading on market platforms (power exchange) where resellers such as Acea Energia procure energy in order to supply customers according to their respective commercial policies. Market demand in Italy is separated into two large sectors, the protected market that will cease in 2020 and the free market, where each customer can choose a supplier and related services. Sales companies develop relations with the customers based on their type, by means of increasingly innovative and digital contact channels, while also retaining traditional tools such as the telephone and branches open to the public. In order to promote their products, the sales companies avail themselves of selected trained sales agencies that are monitored in their commercial practices.

ENVIRONMENTAL SUPPLY CHAIN: CIRCULAR ECONOMY

Waste valorisation and circular economy: the environmental supply chain has as its objective the valorisation of waste through the reduction of volumes, conversion into biogas and transformation into compost for agriculture and floriculture. In particular, with a view to circular economy, Acea exploits the integration into water activities to recover sludge from water purification and send it for treatment to become compost.

The business activities are broken down in the strategic Plan (see the section *Integrated Reading of the Strategy*), which defines corporate development guidelines based on the assessments of **opportunities offered by the market**, the **institutional framework** and the **context of reference**, the **governance system** and a careful **identification and weighting of the risks** that can impede the achievement of objectives. When performing activities and supplying services, Acea Group pays the greatest attention to its **interactions with the natural environment** and **relations with stakeholders**, managing the company's activities in a manner that is consistent with the principles of sustainable development.

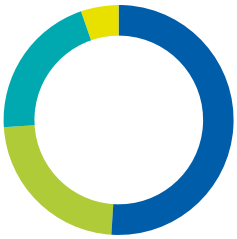
OWNERSHIP STRUCTURE AND GENERAL ECONOMIC INDICATORS

Acea SpA is listed on the Italian Stock Exchange organised and managed by Borsa Italiana. The company is included in the FTSE Italia Mid Cap Index. **Roma Capitale** is Acea SpA's majority shareholder, holding **51% of its share capital**. At **31.12.2018**, other significant direct or indirect equity interests were held by Suez SA for over 23% and **Francesco Gaetano Caltagirone** at approx. 5% (see Chart no. 5).

Institutional investors control about 14% of the share capital, with a geographical distribution that shows a predominance of Italian shareholders, followed by those in the USA, Norway and the UK (see Chart no. 6).

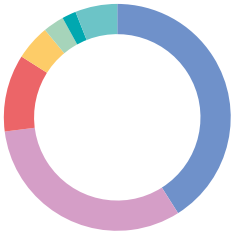
Retail investors hold around 6% of the capital.

CHART NO. 5 – PROPRIETARY STRUCTURE AS AT 31.12.2018



Source: CONSOB

CHART NO. 6 – GEOGRAPHICAL REPRESENTATION OF THE INSTITUTIONAL INVESTORS IN ACEA



In 2018, the impetus given to business by the operating areas made it possible to achieve very significant results, both in economic and financial terms and in terms of the quality of service provided to customers, making it possible to see higher results and to anticipate progress in the stages set out in the business plan [17]. The main items in the financial statements are all positive: **EBITDA** increased to **€ 933 million** (+11% compared to 2017) and **EBIT** amounted to **€ 479 million** (+33% compared to 2017). The **Group profit** was **€ 271 million** (+50% on 2017).

[17] The business plan is expected to be updated in spring 2019.

TABLE 7 - THE MAIN ECONOMIC AND EQUITY DATA OF THE ACEA GROUP (2017-2018)

(in € million)	2017	2018
net revenues	**2,796.9**	**3,028.5**
operating costs	1,983.8	2,138.5
staff costs	*215.2*	*219.6*
costs of materials and overheads	*1,768.6*	*1,918.9*
income/(expense) from non-financial investments	26.8	43.3
EBITDA	**839.9**	**933.2**
operating profit/(loss) (EBIT)	**359.8**	**478.5**
financial operation	(72)	(82.9)
investment operations	0.3	13.3
profit/(loss) before tax	**288.2**	**409**
income tax	96	124.3
net profit	**192.2**	**284.7**
profit/loss attributable to minority interests	11.5	13.7
profit/(loss) attributable to the Group	**180.7**	**271**

Consolidated revenues in 2018 amounted to **€ 3,028.5 million** (€ 2,796.9 million in 2017), up by approximately 8%. All business areas contributed to these revenues, including, in absolute terms, the € 108.2 million increase in sales and services of electricity. The Water sector recorded an increase of € 55 million, which includes both the best estimate of the premium for the quality of Acea Ato 2's service and the consolidation of GORI in the Group's scope from November 2018. Finally, the Environment segment, with its waste disposal and landfill management activities, increased by about € 4 million.

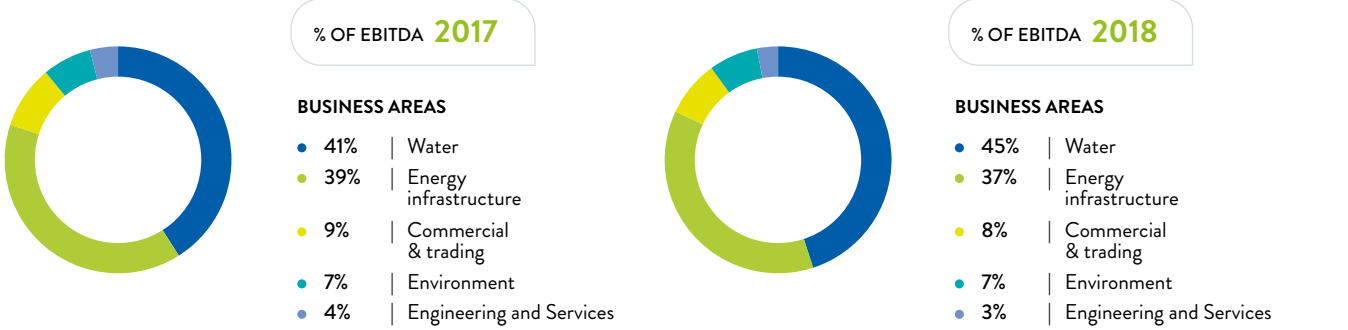
In 2018, **external costs** amounted to approximately **€ 1.91 billion** (€ 1.76 billion in 2017). The main factors affecting cost dynamics are: higher costs for the supply of electricity (+€ 138.3 million), partly offset by lower transport costs (-€ 56.5 million) and charges deriving from previous energy items and the fine imposed by the antitrust authority for € 16 million. Costs include the increase in water concession fees (+€ 7 million) connected with the mandatory agreement for the hydraulic management of the Peschiera - Le Capore water system, signed in February 2018.
The **EBITDA** of approximately **€ 933 million** is up by € 93 million (+11%). Net of the consolidation of GORI, non-recurring items and the negative contribution attributed to the antitrust authority fine, the organic growth of the EBITDA is equal to 8%.

The overall value consists of:

- **Water** operating segment at 45%, with € 433 million, a 24% increase respect to the data from 2017 (€ 350 million). In particular, the performance of the area was influenced by the results of Acea Ato 2 and Acea Ato 5, which recorded increases of € 50 million and € 4 million respectively;
- 37% from the **Energy Infrastructure** industrial area, with about € 361 million, up about 8% from the previous year (€ 333 million). This positive change is mainly attributable to Areti, following the tariff updates of the fifth regulatory cycle;
- **Commercial and Trading** operations accounted for 8% of the total, € 76 million more or less in line with the previous year (€ 78 million);
- the **Environment** industrial area accounted for 7%, with € 66 million, up about 2% compared with the previous year (€ 64 million) due to improvements in performance from the increased supply of waste and greater quantities of electricity sold.

Also contributing to the Group EBITDA are the **Overseas** segment and the **Engineering and Services** segment totalling 3%.

CHART NO. 7 – CONTRIBUTION OF THE BUSINESS AREAS TO OVERALL EBITDA (2017-2018)



Operating profit (EBIT) came to **€ 479 million**, up by € 119 million (+33% on 2017). The figure is mainly affected by the growth in EBITDA, the release of provisions for risks set aside for GORI and the lower provisions for bad debts compared to 2017 for the position with GALA.

STRATEGY AND SUSTAINABILITY

INTEGRATED STRATEGY

Taking advantage of the opportunities offered by the evolution of the setting and the new economic, social and environmental challenges, Acea's strategic planning balances both the industrial dimension and the sustainability aspects in its business objectives, thus facilitating ***"integrated thinking"***.

In this perspective, during the year, the Sustainability Advisory Board (see the dedicated box) became fully operational, a **Panel supporting the Chairman and the Chief Executive Officer**, which has the task of facilitating integration and overseeing the implementation of the 2018-2022 Sustainability Plan, starting with the "governance level" objectives; **the first seminars were held** – conducted by experts and focused on specific targets – **to examine some sustainability issues related to business and operational management and analyses were performed on sustainability risks** generated and incurred (see the section *Corporate governance in Acea*, specifically *Integrated risk analysis*).

On the basis of the analysis of trends and the relevant context, the **2018-2022 Business Plan** focuses on the following strategic pillars[18]:

- **Industrial growth** focused in infrastructural development and a customer-oriented approach;
- **Territory and sustainability**, based on the decarbonisation of consumption through the development of electrification of energy uses, the recovery of waste in a perspective of circular economy and the protection of water management;
- **Technology, innovation and quality**, with investments of over € 400 million in innovative projects to facilitate the transition to advanced models of smart grids and smart cities;
- **Operational efficiency**, by means of the managerial regulation of costs and investments and improvement of performances.

The total investments envisaged in the Plan amount to **€ 3.1 billion**.

MAIN ACTIONS AND STRATEGIC OBJECTIVES OF THE 2018-2022 BUSINESS PLAN BY BUSINESS AREA

ENVIRONMENT

- strengthening of the **waste recycling cycle consistently with the development of a circular economy**, through the acquisition of new compost plants, the expansion of existing ones and the development of new multi-material waste management initiatives (+70% treated waste)

COMMERCIAL AND TRADING

- improvements of the initiatives for pursuing **customer satisfaction** and **optimising of operational processes** to obtain cost reductions
- commercial push on **digital channels and cross selling** given the forthcoming conclusion of more protection on the electricity market and its full liberalisation (+33% customers)

WATER

- extraordinary plan for the **reclamation of over 800 km of water and sewage network**, with significant objectives for leakage reduction and better management in relation to any water emergencies
- introduction of **remote reading systems** on meters for a total of over 500 thousand smart meters installed
- **boosting of purification** with a rationalisation plan aimed at decommissioning small plants, accompanied by the efficient use of large plants
- strengthened supply to **guarantee available water**: design to enhance the Peschiera aqueduct

ENERGY INFRASTRUCTURE

- renovation of the LV network to **increase the network's resilience** and increase the capacity of power available to customers (from 3kW to 6kW) in view of the increase in electricity consumption
- **smart metering the Rome network** by means of installing 1 million new 2G meters to enable the development and use of new services
- creation, in partnership, of a **fibre optic network** for upgrading the ultra-wideband connection in the Capital and for developing technological innovation in the automation and control of water and electricity networks

[18] At the time of publication of the consolidated non-financial declaration, the business plan is being revised and updated.

The **2018-2022 Sustainability Plan**, approved by the Board of Directors, was drawn up **at the same time as the industrial plan** with the **broad and direct involvement of the Group's management**. This has made it possible to produce an **overall vision of the company's strategy** and to **highlight the correlation** between the **investments envisaged in the Industrial Plan** and **sustainability objectives**, for a value of approximately **€ 1.3 billion**. **In 2018**, the investments made in relation to the "targets" of the Sustainability Plan amounted to **approximately € 175 million**.

The 2018-2022 Sustainability Plan is made up of **6 cross-cutting objectives** aimed at **integrating sustainability into corporate governance** (governance level) and **5 macro-objectives at an operational level**, with targets for 2022 and related KPIs.

THE GOVERNANCE LEVEL OF THE 2018-2022 SUSTAINABILITY PLAN: CROSS-CUTTING OBJECTIVES FOR INTEGRATION

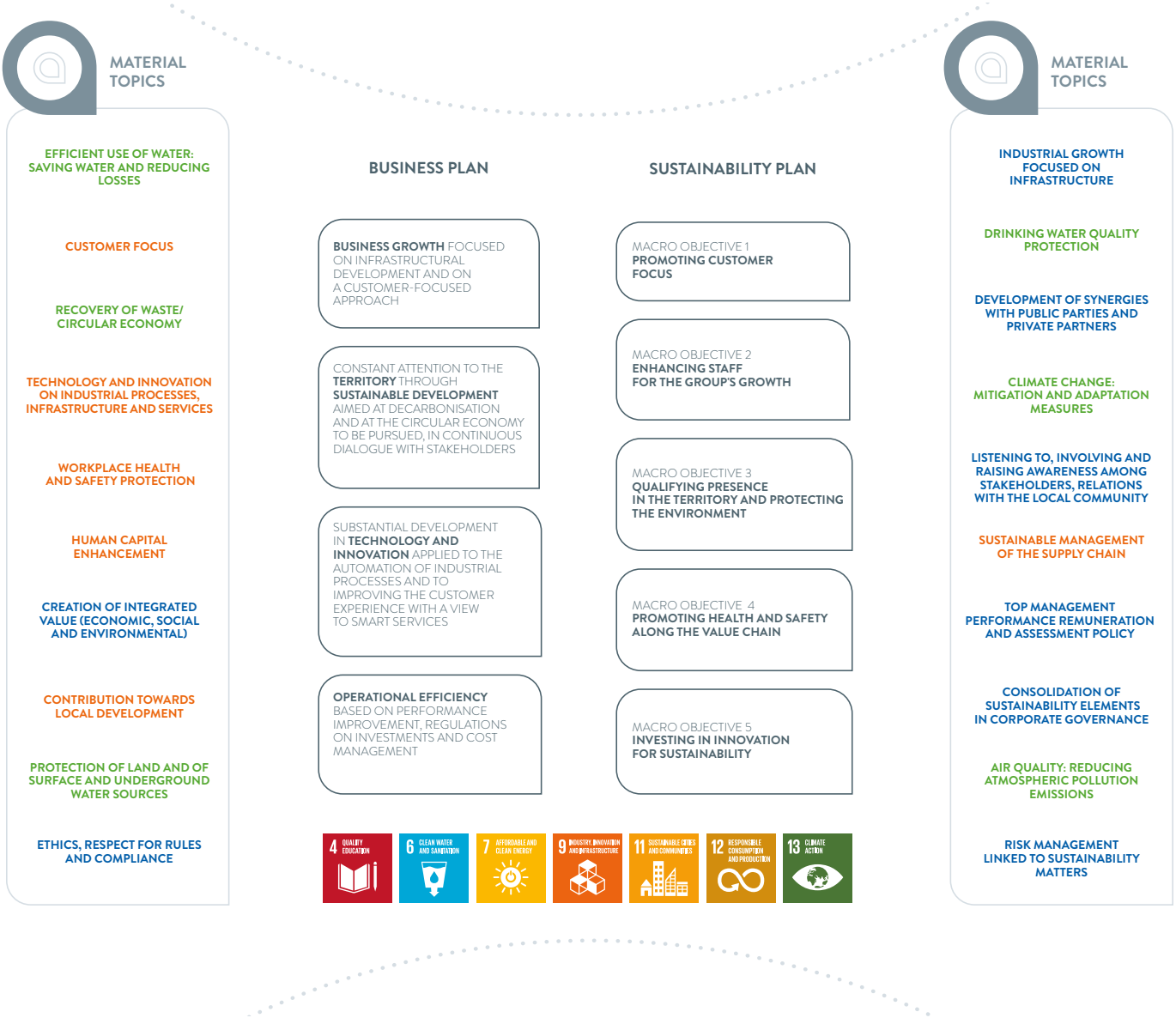
OBJECTIVE	STRATEGY
SUSTAINABILITY IN THE RISK ASSESSMENT	• integration of sustainability objectives into the system for **identifying, assessing and monitoring business risks**
SUSTAINABILITY IN THE STRATEGY	• integrated reading of economic and financial data, as well as sustainability data, in order to highlight the **total value generated by the Group**
SUSTAINABILITY IN THE MBOs	• introduction into the **performance management systems** of objectives aimed at promoting sustainability impacts
SPREAD THE CULTURE OF SUSTAINABILITY	• dissemination of the "**sustainability culture**", by means of awareness-raising and the involvement of internal and external stakeholders in the matter
SUSTAINABILITY FOR SHAREHOLDERS AND FINANCIERS	• enhancement of **ESG – Environmental, Social, Governance – elements in relations with shareholders and investors**
SUSTAINABILITY IN SECTOR REGULATION	• reading of **evolutionary trends in national and European regulation**, in relation to **sustainability-related topics** in the areas in which the company operates

THE OPERATIONAL LEVEL OF THE 2018-2022 SUSTAINABILITY PLAN: SPECIFIC FEATURES OF THE 5 MACRO OBJECTIVES

MACRO OBJECTIVE	STRATEGY
PROMOTE A CUSTOMER FOCUS	• reach challenging levels of **commercial and technical quality of the supplied services** and improve the channels of contact to fully satisfy customer requirements
VALUING PEOPLE FOR THE GROUP'S GROWTH	• **training**, valorisation of know-how (**active ageing**) and development plans for young adults, **sharing strategic choices** and introducing sustainability in performance management systems
QUALIFYING PRESENCE IN THE REGIONS AND PROTECTING THE ENVIRONMENT	• more **resilient infrastructures** in relation to climate change, **contained impact** on the natural environment and territorial protection, more efficient use of resources and reduction of CO_2 emissions, development of **initiatives for circular economy**, promotion of sustainability along the supply chain, in involving the interested parties
PROMOTING HEALTH AND SAFETY ALONG THE VALUE CHAIN	• prevention and **circulation of the culture of safety along the value chain**, internal and external, by means of training and awareness, increased **verification and control activities**
INVESTING IN INNOVATION FOR SUSTAINABILITY	• experimentation of **new technologies**, applied research **for the development of infrastructures**, contribution to the development of the urban fabric with a view to **smart city**

As can be seen from the guidelines expressed in the Group's two strategic industrial and sustainability planning documents, many elements, already related in operational management, lend themselves to an integrated interpretation, which enhances the peculiarities and complementarity between the two Plans – one focused on **aspects related to the economic solidity of industrial growth** and the other on the **expected results for stakeholders and from the social and environmental point of view** – in the framework of Acea material issues and the relevant UN sustainable development goals (SDGs).

CHART NO. 8 - KEY ELEMENTS OF THE STRATEGY



During the year, the 2018-2022 Sustainability Plan **was updated** in light of developments in the company, particularly in the areas of **health and safety, smart working** and **innovation**. These updates led to the reformulation of 3 targets, the elimination of 5 no longer considered strategic and the introduction of 7 new targets.

Therefore the operational level of the **2018-2022 Sustainability Plan** is currently divided into **137 targets**.

In 2018, **an initial monitoring of the Plan's progress was carried out**. In particular, **the evolution of the governance objectives** for some of the Holding's Departments/Functions with strategic roles was **shared** during **meetings of the Sustainability Advisory Board**.

The objectives of the **operating level** – expressed in targets for 2022 and KPIs – were the subject of **precise monitoring**, carried out in two stages of the second half of 2018, the results of which, for the first phase, were presented to the Sustainability Advisory Board. The monitoring made it possible to identify the actions implemented during the year. The analysis of the data collected showed that only 11% of the targets were neglected during the year, **78% of the sustainability targets were acted on in 2018** and 11% have planned actions.

In 2019, the Sustainability Plan may be further amended in order to incorporate new developments in the business strategies detailed in the Industrial Plan, which are currently being revised and updated, and in consideration of the presence of targets already achieved or no longer pursued by the Group.

THE ACTIVITIES OF THE SUSTAINABILITY ADVISORY BOARD

During the year, the **Sustainability Advisory Board**, a panel responsible for providing support to the Acea Chairman and CEO, began its activities in order to supervise the implementation of the Sustainability Plan – with regard to both governance level guidelines and operational level objectives – and its periodic review.

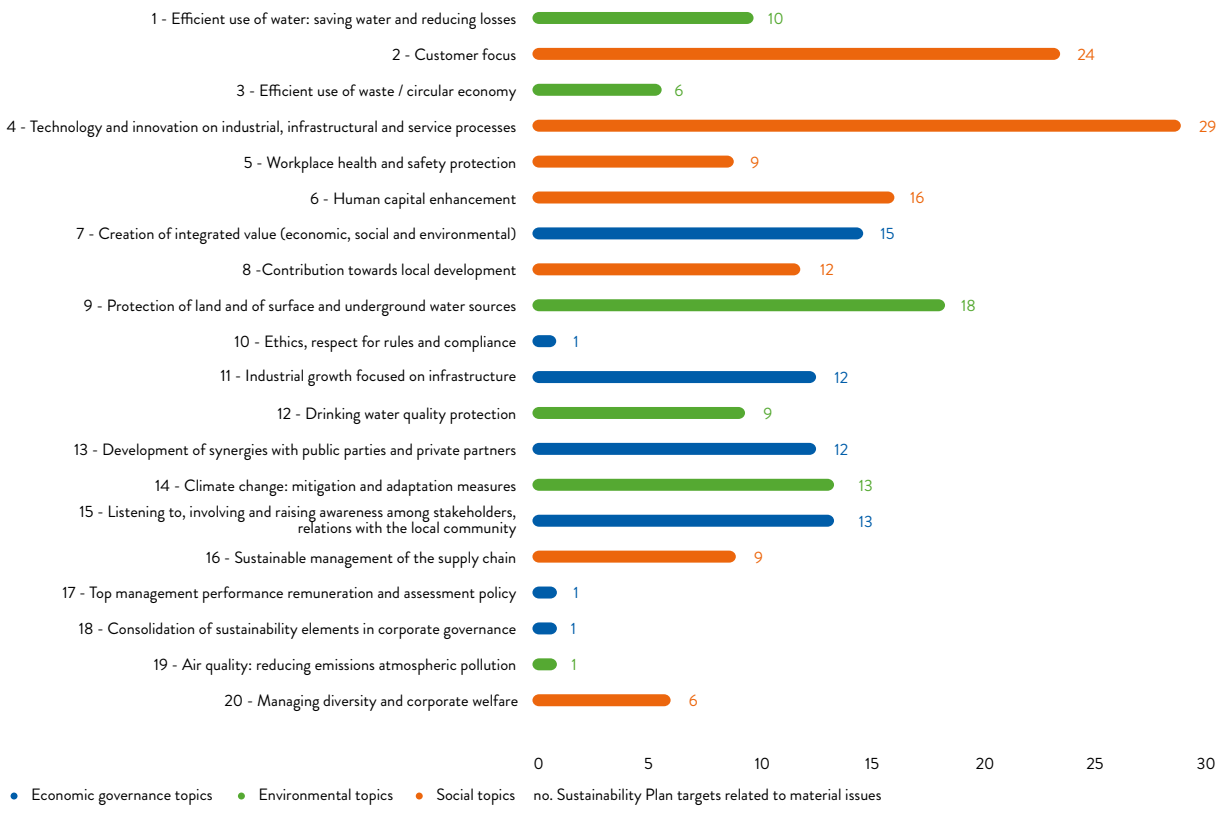
The composition of the Board is established by the Board of Directors. It consists of the **main Functions and Departments of the Holding Company, which also have responsibility for the governance level of sustainability**. To date, the Functions/Departments involved are: External Relations and Communications; Internal Audit; Risk & Compliance; Administration, Finance and Control; Investor Relations; Human Capital Development; Innovation, Technology & Solution; Corporate Affairs and Services Department; Board of Directors' Secretariat. In 2018, the Board met three times, focusing in particular on the **governance level** and the **first results of the progress of sustainability objectives at the operational level** thanks to the implementation of a **periodic monitoring process**, sharing reflections on initiatives to promote the implementation of the Sustainability Plan.

In compliance with the tasks set out in its regulations, the Board also promoted and coordinated a **calendar of seminars** carried out by a qualified external organisation, examining topics of specific interest consistent with the strategic plan outlined in the Sustainability Plan, useful for further developing the integration of sustainability into the company's management logic. These seminars were attended by colleagues representing the Group Organisational Units/Companies pertinent to the subject under discussion. The topics were: **Climate Change; Sustainability in business risk management; Performance management system and sustainability objectives**.

Being a panel, the Board has also made a positive contribution to the sharing of knowledge and information among the various Functions, encouraging synergies and cross-cutting collaborations on sustainability projects and initiatives and the development of new corporate actions implemented to incorporate the targets of the Sustainability Plan.

Having monitored the progress of the 2018-2022 Sustainability Plan, to better represent the consistency between material issues and strategic sustainability planning **the correlations between sustainability objectives for which actions were carried out during the year and material issues were highlighted** (see Chart no. 9).

CHART NO. 9 - CORRELATION BETWEEN THE 2018-2022 SUSTAINABILITY PLAN AND MATERIAL ISSUES

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THE 2018-2022 SUSTAINABILITY PLAN AND OPERATIONAL OBJECTIVES

The **2018-2022 Sustainability Plan**, as already noted, **acts on governance and operational levels**, identifying 6 cross-cutting objectives aimed at incorporating sustainability into the governance of the company and 5 macro Group operational objectives.

GOVERNANCE LEVEL
THE 6 OBJECTIVES

ACEA IS COMMITTED TO THE ADEQUATE OPERATIONAL ENHANCING INTEGRATION OF SUSTAINABILITY INTO THE COMPANY'S GOVERNANCE, THROUGH:

- the integration of sustainability objectives into the system for identifying, assessing and monitoring business risks;
- the integrated reading of economic and financial data, as well as sustainability data, in order to highlight the total value generated by the Group;
- the introduction into the performance management systems of objectives aimed at promoting sustainability impacts;
- the dissemination of the "sustainability culture", by means of awareness-raising and the involvement of internal and external stakeholders in the matter;
- the enhancement of ESG (Environmental, Social, Governance) elements in relations with shareholders and investors;
- the reading of evolutionary trends in national and European regulation, in relation to sustainability-related topics in the areas in which the company operates.

OPERATIONAL LEVEL THE 5 MACRO-OBJECTIVES

WITH A SPECIFIC FOCUS ON THE FOLLOWING 5 MACRO-OBJECTIVES AND ON THE RELATED AREAS OF ACTIONS AND OPERATIONAL OBJECTIVES (*)

PROMOTING CUSTOMER FOCUS

Improving communication with customers

- Developing presence on the web and digital channels, in line with the Group's communication and positioning requirements

Improving the quality of services

- Improving the sales quality of services
- Improving the technical quality of services

PEOPLE FOR THE GROUP'S GROWTH

Professional enhancement, training and development of skills

- Enhancing and increasing Human Capital skills
- Investing in the development and improvement of the staff assessment and recruitment system

Involving people in the Group's identity

- Facilitating the implementation of the new "execution" organisation
- Boosting the level of engagement of the company population
- Defining and promoting an employer branding plan

Organisational inclusion and well-being

- Detecting and improving the organisational well-being of the entire business population
- Enhancing diversity and promoting

The **5 macro objectives** are broken down into **14 frameworks for action, 26 operational objectives** and **137 targets for 2022** and **related KPIs** which allow the **progressive achievement thereof to be monitored**. It is envisaged that the **Plan will be updated periodically**, especially at an operational level, so that consistency with changes to the management and strategic industrial guidelines of the Group is ensured.
Below is a **summary image** of the Plan and **a detailed breakdown of the operating level, with the 2018 actions and related KPIs**.

ESTABLISHING A LOCAL PRESENCE AND PROTECTING THE ENVIRONMENT

Reducing the environmental impact

- Planning and implementing measures to combat climate change (mitigation and adaptation)
- Promoting an efficient use of resources, facilitating circular economy
- Taking initiatives to protect the land and limit impacts on the natural environment
- Enhancing certified environmental and energy management systems
- Implementing sustainability logics in procurement procedures

Contributing to the well-being of the community

- Promoting activities with a positive impact on the well-being of the community and on the regions in which the company operates

Consolidating relations with the territory

- Contributing towards creating awareness on social and environmental matters
- Promoting the involvement of stakeholders in corporate projects to create shared value

PROMOTING HEALTH AND SAFETY ALONG THE VALUE CHAIN

Health and safety in the workplaces for Group workers

- Promoting the culture of health and safety in the workplace

Health and safety in the workplaces for contractors and subcontractors

- Raising awareness among contractors on health and safety in the workplace

Health and safety of the communities with which the Group operates

- Ensuring the health and safety of the customers of the reference community for the various services provided

INVESTING IN INNOVATION FOR SUSTAINABILITY

Organisational innovation

- Promoting "smart" working methods

Technological and process innovation

- Promoting the resilience of the urban territory and innovation from a smart city perspective
- Implementing remote control systems and remote interventions
- Applying new technologies for detecting losses

Creating and promoting knowledge

- Developing research projects in partnership with other relevant departments

(*) Each objective is divided into multiple targets and KPIs in the detailed Plan to which reference is made.

DETAILED OBJECTIVES OF THE 2018-2022 SUSTAINABILITY PLAN AND THE ACTIONS TAKEN DURING THE YEAR

MACRO-OBJECTIVE NO. 1
Promoting customer focus

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
AREA OF ACTION 1: Improving communication with customers			
Developing web presence and digital channels in compliance with the Group's communication and positioning needs	Adapt the structure of the website to the corporate and marketing communication needs, in terms of efficiency and transparency. ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS - (Digital and corporate media)	Reviewing the Group's digital identity (0-100%) = **40%**	Construction of the new Acea Energia website and start of the project for the construction of the new Group website.
	Developing "corporate" social channels and monitoring the current ones. ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS - (Digital and corporate media)	0-100% = **80%**	The project for the creation of the Group's social channels has started.
	Creating an institutional communication campaign targeting customers regarding the use of the MyAcea app and online payment of bills (reducing the impact of producing paper bills, reducing times, reducing movements, etc.). ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	Yes/No = **No**	The planning of activities related to the target has been started.
	Creating two massive communication campaigns for the use of digital channels (webform and online bills) through the call centre and e-mail, aimed at raising awareness on the use of digital channels among customers. ACEA ATO 5, ACEA ENERGIA; ACEA8CENT0, in conjunction with ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS	No. of mass communications campaigns created / no. of communication campaigns to be created No. of customers reached	During the year, the use of digital channels was stimulated by other means, like the "Acea con te" (Acea with you) loyalty programme with initiatives and competitions aimed at rewarding customers with virtuous behaviour focused on the use of online services and through dynamic spaces for bill communication.
	Expand commercial operations that can be carried out by the customer independently through digital channels up to 90%. ACEA ATO 2; ACEA ENERGIA	Commercial operations that can be carried out online / total commercial processes CRM = **Acea Ato 2 = 16/22 equal to 73% of commercial transactions**	During the year Acea Ato 2 mapped the new features to be added to the digital channels and started the process for the implementation of additional features of the MyAcea app (including a "web balance").
	Implement an instrument capable of creating a quality and dynamic segmentation of customers (by integrating data from the company, third parties and other DB) and activate the multichannel and customised engagement methods with respect to end customers (e.g.: comparing consumptions between neighbours, high consumption/leakage alert, reward for virtuous behaviour, etc.). ACEA ATO 2	Yes/No = **No**	During the year a first scouting of possible solutions on the market was started and benchmarking was carried out with the aim of verifying what was proposed by other companies operating in the water sector.
	Implementing the online bill for the visually impaired (at least 1,000 customers). ACEA ENERGIA	No. of visually impaired customers who receive the special digital bill	The following are in the planning phase: the summary electricity bill for visually impaired customers and related communications activities.
	Implement a customer care social channel where customers can exchange information on reports regarding failures/leakages in real time, enhancing interventions/investments made, handling users' demands/requests etc. ACEA ATO 2, in conjunction with ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS	Yes/No = **No**	The planning of activities related to the target has been started.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
	Creating awareness among customers as concerns digital channels also through targeted campaigns and "drive to web" initiatives to be activated on the contact channels (counter, call centre, post), with the aim of reaching 50% of requests coming from the web (Acea Ato 2). ACEA ATO 2, in conjunction with ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS	No. of requests received via web channel/ total requests received from customers (Acea Ato 2) = **152,804/1,196,201 equal to about 13% of the total requests**	During the year, 2 email information campaigns were carried out on digital services and the web bill. In addition, as part of the "meter replacement" plan, an informative letter was sent to interested customers with an invitation to register on the MyAcea website.
	Unifying and optimising toll-free numbers (NV) serving the "free market", shifting from 4 to 1, and reviewing the call flow to simplify the methods of contact with Acea and improve the customer journey, which can be measured through the Net Promoter Score (NPS >8) ACEA8CENTO	No. of toll-free numbers serving the "free market" Net Promoter Score	No action during the year.
(follows) **Developing web presence and digital channels in compliance with the Group's communication and positioning needs**	Increasing the number of active registered members to the My Acea website (reach 30% of the total number of customers who have carried out at least 1 on-line operation per year). ACEA ENERGIA 4,000 users/year increase (20,000 by 2022) registered in the MY Acea website (online counter). ACEA ATO 5	Customers who have completed at least 1 transaction per year online/ total registered customers **(Acea Energia) = about 300,000/ about 390,000, equal to about 77% of the total registered customers** No. of new customers registered online/year **(Acea Ato 5) = 5,610 in 2018**	During the year, Acea Energia sent customers DEM emails (Direct Email Marketing) inviting them to subscribe to the MyAcea portal. However, Acea Ato 5 first activated a telephone service, then a chat service to promote and support customers in subscribing to the MyAcea portal. In addition, the first "Punto Acea Web" was opened in Frosinone, in order to encourage users to register and use the portal.
	Creating a web-counter, exclusively dedicated to digital services, to be located at the sales counter. ACEA ATO 5, in conjunction with ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS	Yes/No = **Yes** **2022 target achieved**	During the year, a web point of sale was created for customers who go to the commercial point of sale. In addition, in order to facilitate the use of the digital service, trained support staff was made available to customers.
	Planning a communication campaign aimed at customers regarding the plan concerning the replacement of first generation meters with the second generation ones (intermediate target at 2020). Implementing the communication campaign on 30% of the customers affected by the replacement of the installed meters (target 2022). ARETI, in conjunction with ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS	Defining communications campaign - Yes/No Customers reached by the campaign /customers whose meters have been replaced	No action during the year.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
AREA OF ACTION 2: Improving the quality of services			
Improving the sales quality of services	Reducing the waiting times at the call centre (≤ 160 seconds). ACEA ENERGIA - Customer Care	Customer's average waiting time at the call centre = **AT: 1'36"; AL: 55"**	The 2018 performance in terms of average waiting times for toll-free numbers before the operator's reply was 1'36" for AT and 55" for AL.
	Reduce waiting times at the counter (< 10 minutes - Acea Ato 2; ≤ 20 minutes - Acea Ato 5). ACEA ATO 2 - Customer Care; ACEA ATO 5 - Customer Care	Customer's average waiting time at the counter = **Acea Ato 2: 3'20"- 6'50" for points outside of Rome; Acea Ato 5: 12'25"**	In addition to the continuous training provided to counter operators, during the year Acea Ato 2 expanded its staff at the "Contact Points" outside Rome. Acea Ato 5's actions were focused on four areas: the reorganisation of the environments and spaces in the commercial points, the increase in the opening hours of the commercial counters, the redefinition of the company procedures and the provision of training to personnel and, finally, the promotion of digital products.
	Reducing the average age of the customers' readings and at the same time reaching the implementation of smart meters, 80% of the billing amount entirely based on actual consumption. ACEA ATO 2	Turnover on actual consumption/total turnover = **about 13% of the billing amount**	In addition to the 300 pilot modules already installed for remote reading, the mass replacement of meters was started at the end of 2018.
	Ensuring installation of meters covering 97% of the active units (2017 data). ACEA ATO 2	No. of active users with meter/total active users measurable with meter (2017) = **96.7% of active users**	In 2018, a contract was awarded for the replacement of 130,000 meters and a new tender was also called for the replacement of meters and the upgrading of road sockets.
	Replacing 10,000 meters (inoperative, unreadable, faulty), to ensure the quality of the measurement systems. ACEA ATO 5	No. of meters replaced (stopped, illegible, faulty)/10,000 meters = **7,638/10,000 meters**	In 2018, 7,638 meters were replaced.
Improving the technical quality of services	Reducing response times by 20% (with respect to 2017) for complex laboratory analysis and expanding the analytical survey spectrum with the aim of reducing risks (WSP - potable water), by implementing high technology analytical techniques. ACEA ELABORI	% reduction (response time for the year under review/ response time 2017) = **50% compared to 2017** no. of untargeted surveys introduced: **322 controls on sources of supply and 220 controls on surface waters** **2022 target achieved**	During the year, new technologically advanced and highly automated measurement systems were acquired that allow direct analysis and "untargeted" analysis to be carried out, as well as guaranteeing the monitoring of emerging parameters related to water safety.

	Implementing UNI CEI EN ISO/IEC 17020 accreditation for Verifying projects pursuant to Article 26 of Italian Legislative Decree no. 50/2016. ACEA ELABORI	Yes/No = **Yes** **2022 target achieved**	During the year, the Project Verification Unit obtained accreditation as a type "B" Inspection Body for design inspections in the "Building construction, civil engineering works in general and related plant engineering works, environmental protection works and naturalistic engineering" sector, in compliance with the technical regulations of Accredia RT-07.
	Expanding the purification capacity in 13 Municipalities of the Ato 5, through works on 7 new purification plants and 6 existing purification plants: +79% of equivalent inhabitants (AE) handled. ACEA ATO 5	Purification potential in AE/ purification potential in AE in 2017 (target scope) = **6,490/5,490 equal to +18% of purification potential**	During the year, the new treatment plant in the town of Monticelli di Esperia was built and put into operation.
	Expanding the purification capacity in 14 Municipalities of the Ato 2, in critical situations, through works on 13 existing purification plants and 3 new purification plants: +58% of equivalent inhabitants (AE) handled. ACEA ATO 2	Purification potential in AE/ purification potential in AE in 2017 (target scope) = **192,275/163,975 equal to 17% of purification potential**	During the year, 2 interventions were carried out to upgrade the treatment plants in the municipalities of Mentana and Carpineto Romano.
(follows) **Improving the technical quality of services**	Reducing the average water systems failure repair duration times (≤ 2 days). ACEA ATO 5	Ordinary systems failure repair times	The planning of activities related to the target has been started.
	Reducing the maximum water systems failure repair times (≤ 12 hrs. for DN ≤ 300 mm pipes; ≤ 24 hrs. for DN > 300 mm pipes). ACEA ATO 2	Water systems failure repair times starting from report	During the year, in addition to the stipulation of new contracts for the repair of faults and urgent maintenance, the internal staff of Acea Ato 2 was increased.
	Achieving 92% coverage of the purification service with respect to the total active units (2017 data). ACEA ATO 2	% of users covered by the sewerage treatment service (compared to total users as of 2017) = **94% of covered users** **2022 target achieved**	A number of measures have been taken to clean up the areas served by the sewerage system but not yet connected to the sewerage treatment services. In particular, in 2018 3 discharges were reclaimed for 854 resident inhabitants.
	Reaching an average duration of disconnection per customer in high concentration ≤ 25 minutes. ARETI	Average duration of interruptions/customer: **43.7** minutes (figure 2018 estimated and not final)	The figure relates to performance regulated by the Authority. 2018 estimate.
	Replacing 20% of the current 361 thermal sub-stations serving the remote-heating network, for greater efficiency of the service and reliability of the unit's service. ACEA PRODUZIONE	Substations replaced/total substations serving district heating = **40/361 equal to about 11% of current substations**	Following the identification of old thermal substations, in 2018, 40 plants were modernised with equipment, materials and spare parts to make them more efficient.

MACRO OBJECTIVE NO. 2
Enhancing staff for the Group's growth

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
AREA OF ACTION 1: Professional development, training and development of skills			
Enhancing and boosting Human Capital skills	Implementing training processes for 100% of the "newly hired" (target population: hired in the last 3 years, under 33 years of age), functional towards defining specific development plans, intermediate target (2018): training of 67% of 120 (target population newly hired at 2018) ACEA SpA DEVELOPING HUMAN CAPITAL	Training - No. of "newly hired" trained/total "newly hired" to be trained = **138 newly hired, over 100% of the target population 2018 intermediate target achieved**	During the year, the Aurora programme was developed and executed, aimed at training staff that are newly hired, university graduates and under 33 in order to support the growth and development of the Acea Group's resources.
	Sustaining Active Ageing policies, ensuring transfer of know-how for 100% of the population with critical skills exiting. ACEA SpA DEVELOPING HUMAN CAPITAL	No. of employees involved in the process/no. of employees with critical skills = **148/148 equal to 100% of the population with critical skills**	As part of the training project "La Scuola dei Mestieri" (The Instructor School), 7 training courses were offered for a total of 41 sessions, involving 148 employees having critical skills to be transferred and 47 employees to be trained.
	Developing management skills of the 100% of the middle-ranking managers and office staff with responsibility positions within the Group, through targeted training processes. Intermediate target (2018): 26% out of 380 (target population at 2018). ACEA SpA DEVELOPING HUMAN CAPITAL	No. of managers trained/ total managers to be trained = **233/380 equal to about 61% of the target population, Intermediate 2018 target achieved**	In 2018, a total of 233 managers and executives were trained as part of the "Managerial Academy" development training project.
	Engaging 100% of the staff of the Group in activities aimed at knowing and implementing Leadership Model. ACEA SpA DEVELOPING HUMAN CAPITAL	No. of resources involved/total resources to be involved = **4,742/4,742 equal to 100% of the company's population**	During the year, staff information and involvement initiatives were carried out on the new Acea Leadership Model through online communications (email, intranet, JAMP), offline communications (visual campaign and meetings at all sites) and internal engagement initiatives.
Investing in the development and improvement of the staff assessment and recruitment system	Managing and ensuring the application of the various dedicated tools (both conventional and innovative) aimed at the structured assessment of the candidate and full traceability of the process for 100% of the recruitment processes. Gradually promoting the awareness of our brand in terms of staff recruitment towards external markets (target 2022: 70% of the research). ACEA SpA DEVELOPING HUMAN CAPITAL	Internal processes - No. of selection processes activated by dedicated tools/total selection processes activated = **93/93** External processes - No. of searches activated in visual mode/total searches activated = **25/35**	In 2018, Acea used various channels for personnel recruitment, including the publication of announcements on Linkedin and participation in Carrier Day and Job Meetings. Recruiting was also done using innovative tools and methodologies aimed at optimising recruiting times and methods, like online contests, gamification, new tools to test skills and candidates' digital mindset. For internal staff, specific assessment programmes have been established for assessment and development.

(follows) **Investing in the development and improvement of the staff assessment and recruitment system**	Introduction of objectives aimed at promoting impact on sustainability regarding the entire population as concerns MBO in the performance management systems. Intermediate target (2018): 100% staff n-1 and n-2 by Chief Executive Officer, amounting to about 60 people (target population at 2018). ACEA SpA DEVELOPING HUMAN CAPITAL	No. of resources with Sustainability objective in MBO/total resources with MBO = **60/60 equal to 100% of the 2018 target population 2018 intermediate target achieved**	As part of the process of integrating sustainability into the incentive system, a training seminar on "MBO and sustainability" was held in December for HR and Group operating personnel, during which the synergies between the 2018-2022 Sustainability Plan and the MBO catalogue were exploited. In line with this meeting, in 2019 an Objectives catalogue will be produced that is more closely integrated with the Sustainability Plan.
AREA OF ACTION 2: Involving people in the Group's identity			
Facilitating the implementation of the new "execution" organisation	Implementing the "execution" model: a new way of engaging the people in work cross-groups ("action team"), aimed at implementing improvement actions. Informing among 100% of the company population and activating at least 10 action teams/year. ACEA SpA DEVELOPING HUMAN CAPITAL	No. of employees informed/ total employees = **4,742/4,742 equal to 100% of the company's population** No. of action teams activated/ total action teams to be activated = **20**	During the year the "execution model" was implemented, a corporate tool to propose and implement improvement actions through the composition of Action Teams. All employees were informed of the model through the usual communication channels (e.g. emails and dedicated pages on the intranet). 20 Action Teams have been created, 11 of which are intragroup, 9 at a company level.
Boosting the level of engagement of the company population	Engaging 100% of the employees in initiatives, even with impact on the territory, aimed at boosting the sense of belonging in the company. Implementing 4 initiatives/year. ACEA SpA DEVELOPING HUMAN CAPITAL	No. of employees informed/ total employees = **4,742/4,742 equal to 100% of the company's population** No. of initiatives launched/ total of initiatives to be launched = **4/4 initiatives**	In 2018, in order to increase the involvement of company employees, the following initiatives were launched: Sustainability Innovators (with 20 proposals received and 3 ideas awarded); Gaming Acea Energia "Light Up the Summer" (a contest aimed at developing knowledge about the business and encouraging the activation of new Light and Gas contracts by employees); Acea4Young (which involved 24 colleagues in meetings at the Barbiana School in Tiburtino); Feedback Week during which manages shared more than 2,700 items of feedback with their subordinates.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
	Ensuring that 100% of the company population is informed on the strategic choices, mission and policies of the Group, by implementing at least 5 initiatives/ year to this end. ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS Internal communications	% of the company population reached by the information = **100% of the company population** No. of initiatives carried out during the year/initiatives to be carried out = **10 initiatives**	Initiatives were implemented to disseminate the 2018-2022 Industrial Plan and the Group Sustainability Plan, a Sustainability awareness Campaign, a Health and Well-being promotional Campaign for employees and a Safety in the Workplace awareness Campaign. Initiatives aimed at strengthening the bond with the local community were also organised, some of which were aimed at schools and others at Solidarity Associations.
(follows) **Boosting the level of engagement of the company population**	Measuring the level of information through 2 surveys to be implemented over the five-year period and that engages 100% of the company population. ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS Internal communications	% of the company population engaged	No action during the year.
	To increase the sense of aggregation and belonging of our employees to the Group, promoting at least 2 initiatives per year. ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS Internal communications	No. of initiatives carried out during the year/initiatives to be carried out = **4 initiatives**	The main employee-engagement initiatives carried out during the year were: the distribution of the Acea Novecento publication to all employees, which tells the story of the company through a collection of photographs taken from the historical archive, and the Christmas Event involving all Group companies, which also included the FACEWORK photo contest, the distribution of Christmas gifts and the intragroup sports tournament (football, beach volleyball, swimming).
Defining and promoting an employer branding plan	Reinforcing the employer brand identity by engaging 100% of the company population in specific initiatives. ACEA SpA DEVELOPING HUMAN CAPITAL	No. of employees engaged/ total employees	No action during the year.
AREA OF ACTION 3: Organisational inclusion and well-being			
Identifying and improving the organisational well-being of the entire company population	Reinforcing employer satisfaction, developing an EVP (employee value proposition) coherent with the company strategy as well as with the needs identified through internal organisational well-being survey, by identifying 3 improvement actions/year. ACEA SpA DEVELOPING HUMAN CAPITAL	No. of improvement actions activated/total improvement actions to be activated	Three surveys were taken to gauge employees' satisfaction and sense of belonging. Specifically: the "Emotional Marketing" survey that explored employees' perceptions of the Acea Energia brand; the "Smart Worker and Smart Manager" survey that measured the satisfaction and expectations related to Smart Working; the survey on corporate welfare.

Enhancing diversity and promoting inclusion	Engaging 100% of the employees 2 initiatives/ year aimed at enhancing awareness on diversity management and gender equality. ACEA SpA DEVELOPING HUMAN CAPITAL	No. of employees involved/ total employees= **4,742/4,742** No. of initiatives launched/ total initiatives to be launched = **1/2 initiatives**	During the year the procedure "Protection, inclusion, enhancement of diversity and well-being of workers" was published, revised in light of the "STANDARDS OF CONDUCT FOR BUSINESS LGBTI -Tackling Discrimination against Lesbian, Gay, Bi, Trans & Intersex People") issued by the UN. Another awareness-raising initiative is being planned.
	Promoting at least 3 initiatives per year regarding creating awareness on diversity management and gender equality. ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS	No. of initiatives/year	No action during the year.

MACRO OBJECTIVE NO. 3
Qualifying presence in the regions and protecting the environment

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
AREA OF ACTION 1: Reducing the environmental impact			
Planning and implementing actions aimed at fighting climate change (mitigation and adaptation)	Reducing the specific consumption of natural gas by 5% by reconverting the Tor di Valle thermal power station into a High Efficiency Cogeneration Plant (CAR). ACEA PRODUZIONE	% reduction in specific consumption of natural gas = **16.9% for the cogeneration section and 5.7% for auxiliary boilers** **2022 target achieved**	The CAR section of the Tor di Valle plant, which has been up and running since January 2018, allowed a reduction in the specific consumption of natural gas compared to the previous plant configuration.
	Reducing the consumption of electrical energy lighting the Central main offices by replacing 100% of the lighting bodies with LED technology bulbs in the previously renovated areas designated to be used as offices: less than 100 MWh as compared to pre-construction consumption records. ECOGENA	MWh pre-construction - MWh post-construction	In 2018 the Energy Performance Service was launched, i.e. the measurement and periodic reporting of the consumption recorded on the power lines being reconfigured by the Head Office.
	Implementing energy leakage reduction interventions on the network (voltage change, low-leakage transformers, etc.) and other efficiency enhancement interventions that will enable achieving about 18,000 MWh energy saving, about 6,500 t of reduction of emission of CO_2 and saving about 3,400 TOEs as compared to the 2016 data. ARETI	MWh saved/net MWh distributed = **4,063 MWh/9,809,301 MWh** t of CO_2 not emitted = **about 1,463 t** TOEs saved = **about 760 TOEs**	1 main energy efficiency measures carried out in 2018 concerned: the installation of 268 transformers with very low losses, the decommissioning of 5.4 km of 60 kV grid, the decommissioning of 3 60 kV transformers and the re-classification from 20 to 8.4 kV for about 183.7 km of grid.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
(follows) **Planning and implementing actions aimed at fighting climate change (mitigation and adaptation)**	Defining the Risk Index (RI) for the significant elements of the electrical systems (MV/LV cabinets, MV semi-dorsal) and seeing to 10% reduction with respect to the 2016 RI, due to the 98 investment interventions aimed at boosting the resilience of the electrical system. ARETI	Varying the annual percentage of the RI (as compared to the 2016 RI) related to the significant elements by target	In 2018 the Resilience Plan of the electrical system was redefined also in light of the interventions of the ARERA. Areti has completed the model for the calculation of the risk index of components/systems (secondary stations/MV lines) on the basis of which it will implement the reduction goal specified in the target.
	Reaching 100% of the events organised by the companies of the Group that can be classified as "eco-sustainable" (20% increase per year). ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	% increase of eco-sustainable events	The planning of activities related to the target has been started
	Preparing a recovery system in the water production cycle of the 1st and 2nd rainwaters in the Terni e San Vittore del Lazio installations. ACEA AMBIENTE	Yes/No = **No**	In 2018 the chemical-physical water treatment plant for 1 and 2 rainwater was activated for reuse at the San Vittore del Lazio plant. Software was also implemented to optimise the treatment process in order to reduce the use of chemical reagents and outgoing waste (sludge). Preparatory activities for the construction of a similar plant at the Terni waste-to-energy plant have begun.
	Enhancing efficiency and reducing the energy consumption of the saturated vapour condensation system by 20%, in the recovery installations (Terni waste-to-energy plant). ACEA AMBIENTE	Energy consumption/ pre-construction energy consumption	Some activities preparatory to revamping were carried out.
	Developing biogas cogeneration (39,000 MWh of energy generated from biogas/year) in 4 compost plants, with ensuing reduction of CO_2 (11,300 t CO_2 avoided per year). ACEA AMBIENTE	MWh/year from renewable sources of biogas	No action during the year.
	Drawing up prevention and/or mitigation plans of the supply risk (WSP - Water Safety Plan) of ATO 2 - central Lazio, according to the guidelines of the Water Safety Plan, up to 50% of the total population served (about 3.6 million, figure 2017, equal to 10%/year). ACEA ATO 2	No. of inhabitants covered by WSP/total inhabitants served = **350,000/3,600,000, equal to about 10% of the population served**	In 2018, the WSP (Water Safety Plan) Team was established, which prepared the risk matrix for the Grottarossa drinking water plant for about 350,000 inhabitants served.
	Drafting the Water Safety Plan. ACEA ATO 5	Yes/No = **No**	As a preliminary activity to the drafting of the Water Safety Plans (WSPs), in 2018 Acea Ato 5 attended the "National Training Course for team leaders for the implementation of Water Safety Plans (WSPs)" organised by the Istituto Superiore della Sanità (ISS) and the Ministry of Health.

	Developing a quality-quantity assessment programme on at least 10% of the managed sewage systems, with the aim of mitigating the risk of overflow. ACEA ATO 2	% of sewerage system checked out of the total = **4% of sewerage systems**	Completed the studies for the analysis of the parasitic waters in the networks connected to 4 treatment plants in the municipalities outside Rome. Similar studies are under way on 10 other treatment plants.
	Developing an in-flow/out-flow model in the sewage system foreseeing the effects of the rain on the sewage system and the rain water collection and disposal system, on which interventions aimed at mitigating and preventing extraordinary atmospheric events will be based. ACEA ATO 2	Yes/No = **No**	During the year, preliminary analyses were carried out for the development of the model, including inspections of more than 150 flood spillways.
	Reducing consumption at purification stage by 5% (about 6 GWh), starting from the purification plants serving more than 100,000 inhabitants. ACEA ATO 2	% of target achieved (approx. 6 GWh) = **32% (1.93 GWh)**	In 2018, optimisation of oxygen management was carried out on 4 treatment plants (including Co Bis and Ostia), resulting in energy savings of 1.93 GWh.
(follows) **Planning and implementing actions aimed at fighting climate change (mitigation and adaptation)**	Enhancing the efficiency regarding the 4 most energy consuming purification plants by 5%. ACEA ATO 5	kWh/cbm of treated waste water (measured at discharge) % of reduction of energy consumption (with respect to the 2017 data, target perimeter)	No action during the year.
	Supplying the main companies of the Group with "green energy" for internal consumption. Target at 2018 (on 2017 consumption): 12 companies, for an overall of about 500,000 MWh in electrical energy consumption (equivalent to about 180,000 tons of CO_2 avoided). ACEA ENERGY MANAGEMENT	No. of companies supplied with green energy GO/total companies to be supplied = **7/12 for about 458,000 MWh**	During the year, the consumption of 7 Group companies was covered by green GO energy, for a total of about 458,000 MWh (equivalent to about 165,000 tonnes of CO_2 avoided).
	Reducing electrical energy consumption for lighting company offices (15 sites, including operational offices and installations): 30% kWh less with respect to pre-construction consumptions records, by installing LED solutions. ACEA ATO 5	% kWh saved compared to historical consumption prior to operation	During the year, at one of the sites identified, the traditional (fluorescent) lamps were replaced with LED fixtures that allow an annual saving of about 553 kWh/year.
	Reducing electrical energy consumption for lighting company offices (26 sites, including operational offices and installations): 50% KWh less with respect to pre-construction consumptions records, by installing LED solutions. ACEA ATO 2	% kWh saved compared to historical consumption before operation = **8%**	During the year, 7 company sites were involved in revamping activities, i.e. replacing traditional halogen or incandescent lamps with LED lamps.
Promoting an efficient use of resources, facilitating circular economy	Reducing the level of "actual losses" on the water distribution system (Ato 2) up to < 30% (-17% less with respect to the level of about 48% in 2016). ACEA ATO 2	% of real losses = **44.2% (about 4% less than in 2016)**	During the year, reclamation activities were planned and carried out for about 63 km of the water distribution network and the research and leak repair campaign continued. The 2018 figure for real losses is 44.2%.
	Reducing the level of "actual losses" on the water distribution system up to ≤ 50% (about -17% less to the level of about 66.7% in 2016). ACEA ATO 5	% of actual losses	In 2018, as part of its leakage research and water pipe reclamation activities, Acea Ato 5 carried out pipeline replacement works for approximately 42.4 km. The % figure for real losses did not improve during the year.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
	Boosting the River Tevere water potabilisation systems as an emergency reserve for the Municipality of Rome (about 500 l/s), to supplement the water resources that can be drawn from Lake Bracciano. ACEA ATO 2	l/s of reserve water available for the city of Rome purified from the Tiber river = **500 l/s** **2022 target achieved**	In 2018, work was completed on upgrading and expanding the Grottarossa plant for the production of drinking water from the Tiber. The system is available for a full capacity of 500 l/s in case of emergency.
	Installation of sensors (pressure, flow rate) for the advanced monitoring of water leakage in products. ACEA ATO 2	Yes/No = **Yes** **2022 target achieved**	394 sensors (279 pressure gauges and 115 flow gauges) have been installed on the distribution network to control and manage the incoming resource.
	Implementing interventions for recycling purified waste water mainly for irrigation purposes with ensuing recovery of water resources for drinking purposes (recovery of 12 Mln of cbm/year). ACEA ATO 2	Mln of cbm/year of potable resources recovered through use replacement of the purified water	During the year, a tender was prepared for the construction of a treatment system at the CoBis purification plant that will allow the reuse of purified water.
(follows) **Promoting an efficient use of resources, facilitating circular economy**	Increasing the overall waste treatment capacity by about 700,000 t (equivalent to about 70% more with respect to the 2017 data). ACEA AMBIENTE	Overall t of treated waste/ overall t of treated waste (2017 data)	During the year, preliminary activities were carried out for the implementation of 9 initiatives related to the target. These include the start of authorisation procedures for the construction of plants and for extraordinary works on existing ones.
	Constructing an organic sludge management and treatment system and transformation into biolignite (10% of the dehydrated sludge treated). ACEA AMBIENTE	t of biolignite produced/ organic sludge treated	During the year planning for the plant was completed. The authorisation phase is in progress.
	Operativeness of recently purchased milk whey drying plants for transformation into powder for use in the zootechnics industry (30,000 t of whey recovered/ year). ACEA AMBIENTE	t recovered whey = **48,894**	In 2018, the residual whey from the processing of dairies in the Valle d'Aosta region and potentially classified as waste was enhanced by transforming it into a pre-centralised product and powder for food and animal husbandry.
	Recover 200 tons of ferrous scrap (pulper braids, slag, undifferentiated) at the plant of Terni. ACEA AMBIENTE	t ferrous scrap material recovered	No action during the year.
	Constructing a platform for selecting light multi-material coming from separated collection (recovery of 65% of the managed waste). ACEA AMBIENTE	t of recovered material/t of managed waste	No action during the year.
	Identifying at least 4 possible material recovery initiatives, in compliance with the circular economy. ACEA AMBIENTE	No. of possible initiatives identified	In 2018 the planning of activities related to the target was started

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
	Boosting use of online billing: about 195,000 digital bills (equivalent to about 15 t of paper saved/year). ACEA ATO 2	No. of active web bills = **80,356** t paper saved per year = **6.5 tonnes/year of paper saved**	Also thanks to the interventions carried out during the year (two mail campaigns and communication on the main touch points with the customer) the number of users of Acea Ato 2 with digital delivery at the end of 2018 is equal to 80,356. The sheets of paper not sent in the year, thanks to electronic billing, amounted to 6.5 tonnes/year of paper saved.
	Boosting the use of online bills: 250,000 digital bills (equivalent to about 35 t of paper saved/year). ACEA ENERGIA	No. of active web bills = **235,331** t paper saved per year = **32.5 tonnes/year of paper saved**	Information campaigns were carried out via email on digital services and on the web bill, informing customers of the benefits of activation. In addition, the incentive plan to increase the activation of the service (in collaboration with Acea8cento) was implemented.
	Further reduction of use of paper by digitising processes, especially in sales relations (new activities): 80% of digitised contracts. ACEA ENERGIA	% of digitised contracts = **36%**	During the year, about 36% of new accounts were opened using digital tools.
Taking initiatives to protect the land and limit impacts on the natural environment	Eliminating 167 pylons, by modernisation the electrical supply system as well as high and ultra-high voltage transmission. ARETI	No. of pylons removed/ No. of pylons to be removed = **39/167 pylons**	Demolition of 39 150 kV grid supports in the Rome North area.
	Completing the supplementation of the of the River Tevere and River Aniene quality monitoring system as concerns the Rome city centre fluvial section (7 control units by 2022). ACEA ELABORI	No. of control units/total number of control units to be implemented = **7/7 control units 2022 target achieved**	In 2018 the quality monitoring network of the Tiber and Aniene rivers was managed.
	Increasing the purification efficiency by 5.5%, with respect to 2017, in terms of reduction of BOD5, on 10 purification plants subject of adjustment. ACEA ATO 5	(BOD_5in-BOD_5 out/ BOD_5in)*100	During 2018, work began on the regulatory and functional upgrading of three purification plants under management.
	Establishing preventive measures on any sources of criticalities identified (e.g. Abnormal discharge), by clustering waste water systems and targeted monitoring (30% catchments monitored). ACEA ATO 2	No. of sewerage basins monitored by means of sensors/ total basins = **19/177 equal to about 11% of the basins monitored**	19 studies have been carried out for the identification of dangerous substances in the sewerage systems of 19 municipalities in the province of Rome.
	Increasing the set of parameters monitored on waste water, by outlining specific methods that enable identifying emerging pollutants in the water. ACEA ATO2	Yes/No = **Yes**	In 2018, 12 specific monitoring campaigns were carried out on the wastewater of purifiers (samples at the entrance, at the exit of the sludge line), for a total of 180 samples, characterised by the search for MOE.
	Developing new infrastructure surveillance systems (aqueduct sections and strategic installations), by using drones and/or satellite systems. ACEA ATO 2	Yes/No = **Yes**	During the year, the change detection service (satellite monitoring) on the two areas of Rome South and Rome East came into operation.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
(follows) **Taking initiatives to protect the land and limit impacts on the natural environment**	Reducing the annual amount of sludge produced by the 4 major purification plants by 50% (as compared to the 2017 volumes), by means of interventions aimed at enhancing the efficiency of stabilisation, dehydration and drying processes. ACEA ATO 2	t of sludge produced by the 4 largest treatment plants (Rome North, Rome East, Rome South, Ostia)/tonnes of sludge produced by them in 2017 = **Cannot be calculated because of the sludge emergency that occurred in 2018**	During the year, work was carried out on the following treatment plants: Rome North, with the commissioning of the new sludge line; Ostia, with the construction of the ozonolysis section, an experimental plant for the weight reduction of the sludge produced by the treatment plant; Rome South, with the revamping of the anaerobic digestion line. In addition, the authorisation process for the construction of the anaerobic digestion area at the Rome South treatment plant has been started.
	Replacing distribution of water bottles with water dispensers at the 3 administrative offices of the company (reduction, fully operative, of about 35,000 bottles/year, equivalent to about 1 ton of plastic less/ year). ACEA ATO 5	No. of bottles saved in administrative offices/ No. of bottles consumed (as of 2017) = **11,666/35,000 equal to 0.35 t of plastic saved**	In 2018 a water dispenser was installed at the headquarters in Frosinone.
Enhancing certified environmental and energy management systems	Reaching 100% of environmental certificates for the Group's subsidiary operative companies (water, energy infrastructure, environmental, engineering and services industries). Obtaining the ISO 50001 certificate for companies of the environmental areas as well as engineering area and services. Maintaining the currently valid environmental and energy management systems certificates. ACEA SpA - Risk&compliance - INTEGRATED CERTIFICATION SYSTEMS	% of operative companies with an environmental and energy management system (per operative sector) = **water segment: 100% environmental certification in the energy infrastructure sector: 67% environmental certification environment sector: 100% environmental certification, 50% energy certification engineering and services sector: 100% environmental certification, 0% energy certification**	During the year, internal audits were carried out to maintain the certification of the environmental and energy systems.
Implementing sustainability logics in procurement procedures	Participating in CAM (Minimum Environmental Criteria) definition meetings, where required. ARETI	No. of participations/ active definition meetings on products of competence	The planning of activities related to the target has been started.
	Defining minimum shared criteria, by drafting guidelines/internal manuals, for defining a "green" product or "sustainable" service capable of facilitating definition as a "Green Purchaser" of the requirements, when filling in the Shopping Cart. ACEA ATO 2; ACEA ATO 5; ARETI	Yes/No = **No**	Work has begun on drawing up the guidelines. Pending their completion, companies apply CAMs where possible for the purchase of "green" products or "sustainable" services.
	Developing specialised training processes for 100% of the buyers, of the drafters of the technical specifications (identified by the Companies) and of the resources when planning requirements. ACEA ATO 2; ACEA ATO 5; ARETI	Trained dedicated staff / total number of dedicated staff (drafters of the technical specifications, requirements planning, etc.)	During the year the planning of activities related to the target was started.

(follows) **Implementing sustainability logics in procurement procedures**	Introducing self-assessment in terms of quality, environment, safety, energy and social responsibility (QASER), where relevant, for all economic operators registered in the goods/services/labour procurement qualification systems. ACEA SpA - CORPORATE AFFAIRS AND SERVICES (Procurement and logistics)	No. of QASER self-assessed suppliers/total qualified suppliers = **261/309 qualified suppliers in the year (84%)**	At the end of 2018, the Vendor Management platform implemented all the system requirements necessary to process the data collected through the compilation by suppliers of the QASER self-assessment questionnaire.
	Verifying compliance with requirements in terms of quality, environment, safety, energy and social responsibility (QASER) for all economic operators registered in the works and waste management qualification systems, holding a currently valid contract. ACEA SpA - Risk&compliance - INTEGRATED CERTIFICATION SYSTEMS (Supplier audits)	No. of QASER verified suppliers/total suppliers of certified works and waste management services holding currently valid contracts	The planning of activities related to the target has been started.
	Defining, as concerns 50% of the Classes of Commodities regarding procurement of compatible Goods and Services, one or more sustainability criteria applicable when defining technical and/or awarding requirements according to the most economically advantageous tender criterion. ACEA SpA - CORPORATE AFFAIRS AND SERVICES (Procurement and logistics) with contribution from Operative companies	No. of product categories with defined criteria/total compatible product categories = **11/30, about 37% of the compatible product categories**	30 Product Categories and related award criteria have been identified within the most economically beneficial offer (MEBO). Among these, 11 criteria can be considered "sustainability criteria", specifically: ISO 9001, ISO 14001, ISO 18001, ISO 37001, ISO 50001, the presence of another certification (to be specified in the tender specifications), energy efficiency, eco-sustainability, sustainable waste management, ecological vehicles, hydraulic efficiency.
	Use of at least 90% of the applicable CAMs (Minimum Environmental Criteria), pursuant to the respective Italian Ministerial Decrees when defining technical and/or awarding requirements in procurement processes regarding multicompany contracts managed centrally. ACEA SpA - CORPORATE AFFAIRS AND SERVICES (Procurement and logistics)	No. of CAMs applied / total no. of CAMs applicable to common contracts valid during the period of reference = **7/8, equal to approximately 88% of the applicable CAMs**	In 2018, a direct contact was established with the Ministry of the Environment and Protection of the Land and Sea for updating current or newly issued CAM in real time. The tender for clothing subject to the current CAM on textiles was launched and Acea received the "social procurement" award at the 2018 edition of the Compraverde Forum.
	Assessing selection and procurement criteria for renewing the vehicle fleet of the company with the aim of facilitating transportation solutions using electric/hybrid technology or biogas-fuelled means. ACEA ATO 2	Yes/No = **No**	No action during the year.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
AREA OF ACTION 2: Contributing to the well-being of the community			
Promoting activities with positive impact on the community and on the territories where the company operates	Supporting at least 3 social-oriented initiatives per year aimed at promoting sports. ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	No. of social initiatives to promote sponsored sports = **5 social initiatives to promote sponsored sports**	In 2018, Acea supported major sporting initiatives. Among the main ones: the Rome-Ostia Marathon, the Rome Marathon, the Rome Half Marathon Via Pacis; the Volley Scuola - Acea Trophy 2018 with the involvement of students, teachers and headmasters; the Acea Camp, which allows children to spend a summer of sports, friendship and well-being.
	Enhancing industrial sites and facilities of the Group's Companies through cultural-oriented events. ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	No. of events held per year = **18 events**	In 2018, the number of visits to the Group's plants increased significantly (51 visits in total, for a total of approximately 13,200 people received). Among these, some have had a cultural character, for example the opening of water sites for Open House Rome; the commemorative celebration at the Peschiera springs for the 80th anniversary.
	Increasing the Rome area development investments by 5% per year by sustaining projects aimed at supporting the enhancement of urban quality. ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	% of annual increase of investments	The planning of activities related to the target has been started.
AREA OF ACTION 3: Consolidating relations with the region			
Contributing towards creating awareness on social and environmental matters	Ensuring Acea's engagement in creating awareness among the citizens as regards ethical matters or social campaigns promoted by the Municipality of Rome, through temporary monuments, fountains, squares and public buildings lighting events (75 events lit even free of charge: 15/year). ARETI (Public Lighting)	No. of illuminated events (even free of charge) per year = **20 illuminated events (even free of charge) in the year**	During the year, 20 temporary lighting events were organised. For example, the red lighting of the Cestia Pyramid for the fight against AIDS or of the Acea headquarters for the World Day against Violence against Women.
	Support or management of at least 4 awareness initiatives per year and promoting socially useful campaigns (prevention of cancer, women's rights, protecting diversity). ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	No. of initiatives supported and/or managed = **at least 10 initiatives supported**	During the year, Acea supported various initiatives to raise awareness and for social promotion. Among the most important: the fashion show with disabled models "Rome Inclusive Fashion Night 2018" which funds research on spinal cord injuries, talent searches and careers for women, wheelchair basketball and prevention awareness campaigns ("Light up gold, light up hope", "Pink October" and "Pink Ribbon").

	Planning and implementing awareness campaigns aimed at compulsory school age students present in the territory where the Companies of the Group operate, as concerns responsible use of natural resources (at least 6,000 students per year). ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	No. of students involved per year/no. of students to be involved = **6,966 students/6,000**	During the year, the Group carried out the environmental education programme "Acea Scuola. Think sustainable!" which involved 123 schools for a total of 6,966 students. In addition, the children who participated in Acea Camp were also made aware of environmental issues.
	Creating awareness among customers as regards conscious use of water resources by designing customised information and engagement panels (customised reports, consumption simulator, customised tips, etc.); reducing average consumption of active customers by 10% as compared to 2017. ACEA ATO 2, in conjunction with ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS	% reduction of average consumption of active customers	The planning of activities related to the target has been started.
(follows) **Contributing towards creating awareness on social and environmental matters**	Creating 2 campaigns per year or awareness initiatives addressing saving water, energy and environmental protection targeting the community. ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events) and Group companies	No. of campaigns or initiatives carried out during the year = **at least 3 initiatives during the year**	During the year a campaign to raise awareness of water conservation in the city of Rome was carried out, with posters being put up and distributed in the press and on the web. Moreover, in the framework of Acea projects for schools, the children are involved in an educational programme on the water cycle, and in the framework of the Acea Camp initiative, the younger ones participated in the "Acea Water game".
	Organising at least 5 guided tours of the Group's plants per year, aimed at schools, institutions, committees etc. with aim of creating awareness on environmental matters. ACEA ATO 2; ACEA ATO 5; ARETI, in conjunction with ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS	No. of visits per year = **about 40 visits**	In 2018, a total of around 50 visits were organised by Group companies, of which around 40 concerned educational visits, including those carried out as part of the Acea School 2018 initiative.
Facilitating the engagement of stakeholders in company projects with the aim of creating shared values	Assessing a tool for mapping stakeholders and implementing it in the main companies of the Group. ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS (Relations with Stakeholders) in collaboration with the main operating companies	Defining the tool (0/100%) Mapping status of the stakeholders in the Group (0/100%)	The planning of activities related to the target has been started.
	Developing permanent relation methods (e.g. Committees, workshops) with the community and the reference territories and applying them to the main companies of the Group. ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS (Relations with stakeholders) in collaboration with the main operating companies	Define the portfolio of consultation methods (0/100%) Companies with permanent consultation methods/Group companies Number and type of consultations carried out	The planning of activities related to the target has been started.
	Organising an event for presenting and disclosing sustainability Report Data. ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	Yes/No = **No**	The planning of activities related to the target has been started.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
(follows) **Facilitating the engagement of stakeholders in company projects with the aim of creating shared values**	Planning and carrying out School-Work Alternating projects targeting Technical Secondary School students of the territory (engaging at least 4 students/year for a minimum of 50 hours per student/year). ACEA ATO 5	No. of students involved = **4** No. of hours of work-study/ student **= 50**	Acea Ato 5 has developed three work-study programme with as many schools in the area. As part of these programmes, 4 students worked with staff in the company, and, with regard to the "IdeAzione" (IdeAction) Acea project, one school was the winner of the contest.
	Planning and carrying out School-Work Alternating projects targeting Electronic and Electro-technical Secondary School students of the territory (engaging at least 25 students/year for a minimum of 40 hours per student/year). ARETI	No. of students involved = **42 students** No. of hours of work-study/ student **= 56**	As part of the work-study programme, Areti involved 42 students from an electrical engineering school in the area.
	Attending at least 3 Work Groups and/or technical-regulatory workshops headed by organisations of the industry or scientific bodies for conveying management-operational needs and criticalities in the implementation of future guidelines and recommendations. ACEA ELABORI	No. of initiatives undertaken **= 5 Working Groups and/or technical-regulatory panels out of 3 planned**	During the year Acea participated in several Utilitalia Working Groups on: the revision of the limits for the disposal of sludge in agriculture (as per Decree 99/92), the monitoring plans for drinking water, with particular reference to the control of new parameters and levels of radioactive substances, the energy efficiency of drinking water/ wastewater, the efficiency of sewerage and water networks. In addition, Acea set up a multidisciplinary working group on the subject of "Water Safety Plan" with the involvement of bodies and institutions.

MACRO OBJECTIVE NO. 4
Promoting health and safety along the value chain

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
AREA OF ACTION 1: Health and safety in the workplaces for Group workers			
Promoting workplace health and safety culture	Making a "near-miss" injury online training module compulsory for 100% of the operative population. ACEA SpA DEVELOPING HUMAN CAPITAL (Training)	No. of employees trained/no. of employees to be trained	No action during the year.
	Making a safety culture online training module compulsory for 100% of the operative population: awareness and prevention. ACEA SpA DEVELOPING HUMAN CAPITAL (Training)	No. of employees trained/no. of employees to be trained	No action during the year.
	Train 100% of travelling staff using a company vehicle, Promoting good driving behaviour. Intermediate target (2018): 63% of 1,200 (target population by 2022). ACEA SpA DEVELOPING HUMAN CAPITAL (Training)	No. of employees trained/no. of employees to be trained = **519 /1,200, equal to approximately 43% of travelling personnel**	The aim of these 7 training editions was to teach proper driving conduct, both through classroom discussions and through behind-the-wheel training carried out in the ACI Vallelunga Safe Driving Centre.
	Consolidate the downward trend in the Group's accident indices (SI, FI) through the implementation of initiatives aimed at prevention. ACEA SpA - CORPORATE AFFAIRS AND SERVICES (Safety at Work)	SI, FI < reporting year -1 = **SI: 0.30; FI: 8.02 (in 2017 it was SI 0.43; FI 10.87)**	Prevention measures were implemented during the year, like training, safety awareness and operational controls, which facilitated the reduction of accident rates.
	Improve the management of health and safety risks by introducing in the Risk Assessment Document (DVR) of the main Group companies [Non-financial consolidated report scope - DNF] an assessment methodology that includes "residual risk" and "risk acceptability". ACEA SpA - CORPORATE AFFAIRS AND SERVICES (Safety at Work)	No. of companies that have implemented the methodology in the DVR/ No. of companies within DNF scope = **4/11**	In 2018, a new DVR was prepared and issued for the following companies: the parent company ACEA SpA, Acea Ambiente, Acea8cento and Acea Energia.
	Providing dispatched employees, who work alone, with a safety system on APP ("Smart DPI") with the aim of enhancing their protection and timely assistance in case of unwellness or injury. ACEA ATO 2	Yes/No = **No**	During the year, research and testing were carried out on solutions useful for achieving the target.
	Planning and implementing a special activity addressing smoking cessation. ACEA ENERGIA, ACEA8CENTO	Yes/No = **No**	Planning has started for the activities related to the target.
	Joining the "Healthy at Work" project (Lazio Regional Government), with initiatives aimed at promoting workplace health and with the aim of obtaining a "European Network Workplace promoting health - ENWHP" certificate. ACEA8CENTO	"European Network Workplace promoting health - ENWHP" certificate - Yes/No = **No**	No action during the year.

AREA OF ACTION 2: Health and safety in the workplaces for contractors and subcontractors			
Creating awareness among contractors on workplace health and safety	Creating safety communication tools (information pamphlets, brochures, videos, manual, etc.), on the types of risk underlying the managed plants, in various languages (e.g. English, Romanian, Polish) with the aim of facilitating learning efficiency by the labourers of the contractor companies. ACEA ATO 2; ACEA ATO 5; in conjunction with ACEA SpA - EXTERNAL RELATIONS AND COMMUNICATIONS	Yes/No = **No**	Acea Ato 2: during the year the analysis of experiences in the sector was started in order to define the scope and the communications tool to be developed. Acea Ato 5: information useful for defining the contents of the booklet is being collected and a first draft of the booklet is being prepared. In addition, a translation agency is being contracted for translations into several languages.
	Developing a professional safety plan aimed at contracting companies at the Acea Ato 2 training centres. ACEA ATO 2	Yes/No = **No**	An in-depth analysis of the regulatory context of reference was launched to outline the scope of intervention in compliance with the roles defined by safety laws.
	Creating an annual safety award aimed at creating awareness on safety issues regarding contractors and subcontractors. ACEA ATO 5	Yes/No = **No**	No action during the year.
	Extending the introduction of awarding criteria related to health and safety issues to all contracts on networks and plants. ARETI	No. of contracts featuring awarding criteria related to health and safety/ total number of contracts in the year	In-depth meetings were held with the RSPPs and the RUPs (Single Process Managers) in relation to the activities pertaining to the target group.
	Increasing annual inspections aimed at verifying the application of safety procedures and regulations on networks maintenance contracts monitored by the Safety Team by 50%. Intermediate target (2020): 11,000 verifications per year (+50% as compared to the 2016 data) ACEA ELABORI	No. of safety inspections/no. of inspections as of 2016 = **11,270 equal to approx. +104% compared to 2016**	The internal reorganisation and inclusion of new employees in the Acea Elabori Safety Team has allowed an increase in the number of field inspections.
	Application of awarding criteria related to health and safety, in 80% of the relative tender contracts, awarded according to the most economically advantageous tender criterion. ACEA SpA - CORPORATE AFFAIRS AND SERVICES (Procurement and logistics)	No. of tenders with H&S criteria/ no. of tenders awarded with the most economically advantageous tender = **9/10 equal to 90% of the relevant works tenders**	During the year awarding criteria were defined related to health and safety applicable to the relative tender contracts and awarded according to the most economically advantageous tender criterion.
AREA OF ACTION 3: Health and safety of the communities with which the Group operates			
Ensuring the health and safety of the customers of the reference community for the various services provided	Developing a plan for monitoring the radioactivity of potable water on 100% of the supply systems. ACEA ATO 2	No. of supply systems checked/total supply systems = **5/86** (70% in terms of population supplied)	In 2018, 37 checks were implemented (26 on supply sources and 11 on the distribution network). In addition, the Supply Zones (ZdF) were identified – distinct for the Rome and Fiumicino scope and shared with the Lazio Region, local ASLs and ARPA Lazio – in order to collaborate on the "Regional Radioactivity Control Programme".

(follows) **Ensuring the health and safety of the customers of the reference community for the various services provided**	Upholding highest quality standards as concerns supplied potable water. ACEA ATO 2; ACEA ATO 5	**Acea Ato 2:** No. of analytical tests in compliance with legal limits/ total analytical tests carried out = **5,901/6,400 (samples taken from the distribution network)** No. of analyses of drinking water/km networks = **359,491/11,244** **Acea Ato 5:** No. of analytical tests in compliance with legal limits/ total analytical tests carried out = **1,650/1,723 (samples taken from the distribution network)** No. of analyses of drinking water/km networks = **1,723/5,200**	Acea Ato 2 took about 6,400 samples from the distributed drinking water during the year, in line with regulatory provisions. Acea Ato 5 drew up a management programme for drinking water plants in order to respond to the non-conformities that emerged in the previous year and to rectify the most serious points.

MACRO OBJECTIVE NO. 5
Investing in innovation for sustainability

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
AREA OF ACTION 1: Organisational innovation			
Promoting processes and working methods	Involve 1,000 people in smart working from the population eligible per union agreement. At least 200 employees per year involved. ACEA SpA - DEVELOPING HUMAN CAPITAL	No. of employees involved/no. of employees to be involved = **295/200**	In 2018, the "Smart People" initiative was launched, involving around 300 employees in smart working (over 60% of the requesting population, or 466 employees).
	Design and open at least 5 environments (physical and virtual) for company and extra-company co-working to promote smart ways of working. ACEA SpA - DEVELOPING HUMAN CAPITAL	No. of co-working environments opened/no. of environments to be opened	No action during the year.
	Implement a Group innovation model that defines governance procedures (roles and responsibilities), business processes and dedicated tools. ACEA SpA - Information, Technology & Solutions (Open Innovation)	Yes/No = **Yes**	Following the workshop held to define the Group's innovation model, during the year systematisation and diffusion was completed, starting with Top Management through a dedicated event.
AREA OF ACTION 2: Technological and process innovation			
Promoting the resilience of the urban territory and innovation from a smart city perspective	Installation of a pilot system for monitoring weather conditions with the aim of estimating the resilience of the power supply network. ARETI	Yes/No = **Yes** **2022 target achieved**	During the year, the nowcasting system came into operation, capable of forecasting not only adverse weather conditions in specific areas of the region (90 minutes in advance) but also the malfunctions of the sub-stations in the territory based on vulnerability indices provided to the system. Data exchange flows between the ENEA system and the SGI Acea system have also been enabled.

OPERATIONAL OBJECTIVES	2022 TARGETS FUNCTIONS/ OWNER COMPANIES OF THE PROCESS	KEY PERFORMANCE INDICATORS	2018 ACTIONS
(follows) **Promoting the resilience of the urban territory and innovation from a smart city perspective**	Creating broadband connection on an optical fibre network owned by the company (or any other broadband connection) serving the operation of the power supply network covering the 71 main cabinets. ARETI	No. of stations with broadband connection/ 71 stations	The year saw the identification of telecommunications architecture for the construction of the secure, scalable and low-latency proprietary network and the launch of the tender for the laying of fibre optics. In-depth technological scouting was also carried out.
	Conveying information to the citizens in conjunction with the local authorities by means of 100% of the water dispensing stations. ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	% of water dispensing stations through which information can be conveyed	During the year an agreement was signed for the implementation of a new uniform management platform for the Water Kiosks installed in the municipalities of Rome and in the other municipalities.
	Develop innovative SMEs in collaboration with startups. Universities, research centres, hubs, business incubators and other innovation players, innovative projects linked to the Group's core and non-core businesses. ACEA SpA - Information, Technology & Solutions (Open Innovation)	No. of projects launched = **10 experiments**	Ten experiments (PoC) were performed involving all industrial areas, particularly in the fields: Digital Infrastructures, IoT, Artificial Intelligence, Blockchain for the new energy market, Intelligent Software (RPA) for the automation of some of the purchasing processes, Virtual Reality.
	Promote collaborations with start-ups through the organisation of events/dedicated initiatives, also in synergy with universities, institutions, etc. ACEA SpA EXTERNAL RELATIONS AND COMMUNICATIONS (Advertising, Brand Image and Events)	No. of events/initiatives staged = **2 initiatives staged**	Acea organised the first "Acea Challenge Prize" which involved 11 start-ups and SMEs in the creation of a dashboard for the analysis of company performance with an innovative approach, also from an "Open Data" perspective.
Implementing remote control systems and remote interventions	Installing remote-read meters, with about 1,000 units, in a pilot municipality. ACEA ATO 5	Number of remote-read meters installed per year	Planning has started for the activities related to the target.
	Installing remote-read meters covering 100% of the units representing 80% of the billed water consumption. ACEA ATO 2	No. of remote-read meters installed on the units covering 80% of the billed water consumption/no. of units covering 80% of the billed consumption	The installation of Remote Reading Modules has started.
	Remote-controlling 100% of the IP plants (intermediate target at 2020) ARETI (Public Lighting)	% of remote-controlled control panels = **18.7%**	At the end of 2018, 801 remote control panels were active.

Application of new technology to detect of water leakage	Testing 3 new leakage detection technologies. ACEA ELABORI	No. of technologies tested = **3 technologies in pilot area** **2022 target achieved**	During the year, pilot-scale tests were carried out using the following technologies: satellite, which allows, through the acquisition of images, radar data and the application of specific algorithms for the identification of water losses; Noise Logger (noise recorder), which makes it possible to identify a leak in the immediate vicinity of the instrument; optical fibre, which uses the deformation of the fibre to locate leaks in water and sewerage networks.
AREA OF ACTION 3: Creating and promoting knowledge			
Developing research projects in partnership with other competent organisations	Taking part in funded projects of interest to Acea and its operative companies at national or European community level, regarding research and environmental sustainability issues. ACEA ELABORI	No. of projects = **4 projects funded**	During the year, the Acea Group participated in calls for tenders and presented projects aimed at the safety and protection of the water network, the circular economy in the water sector (Circular Water) through the purification and reuse of surface water, the development of a system for actively monitoring losses in the drinking water network and the recovery of matter and energy from sewerage sludge.
	Developing methods for the research of 4 emerging organic micro-pollutant classes - MOE (interfering endocrines, drugs, antibiotics, therapeutic substances, substances of abuse) in 10 purification plants of various potential and location. ACEA ELABORI	No. of classes of organic micropollutants investigated/ total classes of micropollutants to be investigated = **4/4 classes of micropollutants** No. of plants monitored/total plants to be monitored **= 88** **2022 target achieved**	During the year, the number of compounds sought was increased by introducing chemical classes of pharmaceutical products and their metabolites, thus reaching 14 MOE sought in 88 purification plants (60% of the purification assets of Acea Ato 2).
	Encourage the sharing of expertise on innovation issues and collaboration on innovative projects through the creation of an internal Innovation Community. ACEA SpA - Information, Technology & Solutions (Open Innovation)	No. of persons involved = **76**	Active involvement of more than 70 employees in the first collaborations on innovative issues. The initiative will be extended to the entire corporate population with the support of a digital platform and the continuous organisation of activities and events dedicated to direct involvement.
	Promote idea generation through the implementation of at least 2 initiatives per year (workshops, calls, contests, etc.) addressed both internally and externally. ACEA SpA - Information, Technology & Solutions (Open Innovation)	No. of initiatives carried out/ no. initiatives to be carried out = **4 initiatives**	During the year, 4 initiatives were promoted both internally and externally. Specifically: Acea Challenge Prize - Data Edition (external target). Lego Serious Play (internal target); "Future Challenge" (internal target) and Workshop Machine Learning (internal target).

CORPORATE GOVERNANCE AND MANAGEMENT SYSTEMS

CORPORATE GOVERNANCE IN ACEA

The governance model adopted by Acea complies with the recommendations of the *Corporate Governance Code for listed companies* and with the principles of **transparency, balance and separation between guidance, management and control activities**.
The Acea SpA Board of Directors **establishes the strategic guidelines of the Group** and is responsible for corporate governance. Some committees have been set up within the Board of Directors (BoD) of the parent company, in line with the most recent indications proposed by the *Self-Regulation Code*, having propositional and consultation duties: the **Audit and Risk Committee**, the **Appointment and Remuneration Committee** and the **Ethics and Sustainability Committee**. Moreover, in implementation of Consob regulations, a committee has been set up for examining **Party-related transactions**, formed exclusively of independent directors. During the year, the Board of Directors also set up an **Executive Committee** in accordance with the Italian Civil Code (art. 2381) and the Articles of Association (art. 20, para. 1), composed of two independent Directors – one of whom chairs the Committee – and the Chairman and Chief Executive Officer of Acea SpA. This body exercises powers relating to institutional affairs, sponsorships and donations, to be managed in accordance with the budget established by the Board of Directors. The methods of exercising these powers are governed by specific regulations approved by the Board of Directors.
Lastly, the Board of Statutory Auditors performs supervisory duties, according to the traditional model in force.

CORPORATE GOVERNANCE COMMITTEES

The Audit and Risk Committee helps defining the guidelines for identifying, assessing, managing and monitoring the main risks for the Group companies, including risk becoming significant with a view to medium/long term sustainability, establishing compatibility criteria for such risks and supporting, subject to appropriate preliminary activities, the evaluations and decisions of the Board of Directors with respect to the internal auditing and risk management system. The Committee gives a prior opinion to the Board with regard to the annual approval of the activity plan prepared by the Head of the Internal Audit Function and provides its own opinion on any proposals for the appointment, removal and remuneration of the above, while monitoring the Function's independence, efficiency and performance.
The Committee is also responsible for assessing, together with the competent Acea Function, having consulted with the statutory auditor and Board of Auditors, the correct use of accounting standards implemented in order to draw up the consolidated declaration of a non-financial nature as per Legislative Decree 254/2016. Finally, regarding matters of competence, monitor the adequacy of the Code of Ethics and its effective implementation.
The Committee reports to the Board of Directors at least on a half-yearly basis concerning the completed activity. In 2018 it met 13 times.

The Appointment and Remuneration Committee provides opinions to the Board of Directors regarding its composition (size, adequacy of skills, compatibility of positions) and recommends the policy for remuneration of Directors and Executives holding key positions depending on strategic goals and the risk management policy. In this regard, it submits recommendations for performance goals related to variable remuneration. Monitors the application of the decisions adopted by the Board on remuneration policy, checking, in particular, on the effective achievement of the performance targets. The Committee met eleven times during 2018.

The Ethics and Sustainability Committee provides the Board of Directors with advisory and proactive support in the areas of corporate ethics and environmental, social and governance issues. The Committee's duties include among other things: supervision on the matter of sustainability linked to exercising corporate activities and the dynamics of interaction with the stakeholders; examination of the Sustainability Plan guidelines and monitoring of the implementation of such Plan once approved by the Board of Directors monitoring of the adequacy and implementation of the Code of Ethics. The Committee **was also recently assigned responsibility for the promotion of a culture of diversity and fighting discrimination** in the company. The Committee reports to the Board of Directors at least on a half-yearly basis concerning the completed activity. In 2018 it met eight times.

The company is managed by the **Board of Directors** (BoD), which has between 5 and 9 members depending on the decision of the Shareholders' Meeting. The members of the BoD – the process of identification and appointment of which is governed by Acea's Articles of Association according to the provisions of the applicable law – remain in office for three financial years and can be re-elected. The method used for their selection is able to guarantee the **representation of the genders**, appointment of an adequate number of Directors representing the minorities and the required number of Independent directors pursuant to law[19].

The **Board in office**, appointed by the Shareholders' Meeting of April 2017, **is composed of 9 directors**, 3 of whom are women. In June 2018, following the resignation of the then Chairman of the Board of Directors of Acea SpA, the Board of Directors elected Michaela Castelli as Chairwoman. The other two female Directors were also attributed the Chairmanships of the Audit and Risks, Appointments and Remuneration, and Ethics and Sustainability Committees.
The Board of Directors met 12 times during 2018. **The Chief Executive Officer** is the only **executive Director**.

[19] Pursuant to art. 147 ter., para. 4 of Legislative Decree 58/98, so-called Finance Act (TUF), the minimum number of independent Directors must be 1 in the case of a BoD up to 7 members, 2 in the case of BoD exceeding 7 members. During the year the BoD verified that the Directors met the conditions required to qualify as independent. As at 31/12/2018, 6 directors are effectively independent.

In accordance with the *Code of Conduct for listed companies*, **Acea carries out a *board evaluation* annually**, availing of an external advisor in order to **assess the dimension, composition and function of the BoD and its internal Committees**, as well as the issues subject matter of discussion.

The ***Report on corporate governance and shareholders' structure***, available on the institutional website (www.gruppo.acea.it), provides detailed information about the Directors of Acea SpA: **curricula, qualification of independence**, presence in meetings of the Board and the Committees of which they are members and any positions in other companies.

STRUCTURE OF THE BOARD OF DIRECTORS AND COMMITTEES OF ACEA SPA (AS AT 31.12.2018)

	ROLE IN THE BOD	EXECUTIVE COMMITTEE	APPOINTMENT AND REMUNERATION COMMITTEE	CONTROL AND RISKS COMMITTEE	ETHICS AND SUSTAINABILITY COMMITTEE	EXECUTIVE DIRECTOR	INDEPENDENT DIRECTOR
MICHAELA CASTELLI	Chairman	De jure component		Member	Member		
STEFANO ANTONIO DONNARUMMA	CEO	De jure component				X	
LILIANA GODINO	Director		Chairman	Chairman			X
GABRIELLA CHIELLINO	Director		Member		Chairman		X
LUCA ALFREDO LANZALONE	Director						
MASSIMILIANO CAPECE MINUTOLO DEL SASSO	Director	Member	Member	Member			X
ALESSANDRO CALTAGIRONE	Director						X
GIOVANNI GIANI	Director	Chairman	Member	Member	Member		X
FABRICE ROSSIGNOL	Director						X

THE ROLE AND POWERS OF THE BOARD OF DIRECTORS IN ACEA

The **duties lying with the Board of Directors** pursuant to the law provisions, the Articles of Association and in compliance with the recommendations provided in the *Code of Conduct* include:

- outlining the company's general and strategic policies as well as guiding lines; coordinating the economic and financial operations of the Group by approving business plans, including financial plans, investment plans and annual budgets;
- defining the nature and extent of risks consistent with the strategic goals of the company, including in such assessments, **all risk which could become significant with a view to sustainability** in the medium/long term of the issuer's activity, for this purpose defining the guidelines of the Internal Control and Risk Management System;
- approving and amending internal regulations with regard to the general organisational structure of the company;
- establishing the Committees required by the *Code of Conduct* and appointing their members;
- adopting *Organisation, management and control models* as pursuant to Legislative Decree no. 231/01;
- assessing the adequacy of the organisational, administrative and accounting structure of Acea and its key subsidiaries;
- interacting with the shareholders and undertaking initiatives aimed at increasing their engagement and enabling them to exercise their rights smoothly;
- evaluating the independence of its non-executive members at least on a yearly basis.

FUNCTIONS OF THE CHAIRMAN, CHIEF EXECUTIVE OFFICER

The **Chairman** is the legal representative of the company and is vested with powers of signature. He/she also has the power to call and chair the Board of Directors and Shareholders' meetings. The Chairman's duties include: overseeing the Group's activities and checking the enforcement of board resolutions and corporate governance regulations; monitoring business activities and processes with reference to delivered and perceived quality as well as activities related to **corporate social responsibility**. Lastly, the Chairman shall supervise corporate secretariat operations of the parent company. Finally, one of the powers entrusted is the chairmanship of the Tenders Supervisory Committee.
The **Chief Executive Officer** is entrusted with the ordinary business of the company, vested with powers of signature, he/she is the company's legal representative and is authorised to represent the company in dealings before the courts of law. He/she shall also discharge such other duties as may be entrusted pursuant to the law provisions and the Articles of Association. His/her terms of reference are based on long-term plans and annual budgets approved by the Board of Directors. Moreover, he/she ensures and monitors compliance with operational guidelines, implementing organisational and procedural changes to the Parent Company's activities consistent with the guidelines issued by the BoD.
The current Chief Executive Officer, in addition to being identified by the Board of Directors as the Director in charge of the Internal Control and Risk Management System, also performs the duties of Head of the Foreign Industrial Area and Business Development Strategies.
The **Chairman and the Chief Executive Officer report at least quarterly to the Board of Directors and the Board of Statutory Auditors** on the general operating trend and outlook.
The Chairman and the Chief Executive Officer may jointly implement, if necessary, acts reserved for the Board of Directors concerning contracts, purchases, participation in tenders, issue of sureties, appointment of members of the Board of Directors and Boards of Statutory Auditors of the most significant subsidiaries and affiliates when the urgency of the matter does not allow their convocation, informing the Board at its first subsequent meeting, which shall verify the legitimacy of such operations.

In accordance with current legislation, the Ordinary and Extraordinary **Shareholders' Meeting may be convened** both by the **Board of Directors** and **at the request of shareholders** representing at least 5% of the share capital. Furthermore, in compliance with such provisions, the shareholders representing at least 2.5% of the share capital may request that additional matters be discussed by either recommending additional topics or submitting resolution proposals for matters already included in the agenda.
Shareholders are encouraged to attend by ensuring appropriate operating conditions: technology-based interactions are envisaged (electronic notice of proxies; notice of call posted on the website). Moreover, prior to the date set for the meeting, the shareholders may (even by email) submit enquiries regarding topics on the agenda. There are no shares with limited voting rights or absent of such right [20].
Except for the shareholder Roma Capitale, restrictions shall apply to the voting right of shares exceeding 8% of the share capital, as laid down by the Articles of Association. Neither shareholders' agreements nor special rights of veto or in any way affecting the decision-making process exist other than as a result of the equity interest held.

The Parent Company has a number of **Company Committees** that operate on a continuous or periodic basis. These are set up with technical and advisory functions that are carried out in synergy, facilitating decision-making processes and increasing the ability to respond to emerging problems promptly and in a coordinated manner. These are the **Management Committee**, made up of the heads of the Parent Company who report first to the Chief Executive Officer, the **Business Review Committee** for the analysis of data and economic-financial performance, and ad hoc committees on specific operational areas: the **Public Lighting Committee**, the **Private Electricity Grid Committee**, the **Group's Water Company Committee**, the **Aqueduct Development Committee** and the **Treatment Development Committee**.
Furthermore, in 2018 the **Business Strategy Committee** was also set up to analyse the possibilities of developing core and non-core activities in Italy, and the **Post Audit Committee** was set up to analyse the corrective actions taken to overcome any critical issues identified in audit reports.
These Committees, chaired by the Chief Executive Officer of the Parent Company or by the Managers of the relevant business areas, are attended by the Managers of the Industrial Areas and Functions of Acea SpA. If necessary, additional company professional resources with specific skills will be involved. The matters dealt with may be the subject of reports to the Board of Directors.

It should also be noted that in 2018 the **Tenders Supervisory Committee** was set up at the Parent Company. This body, which reports to the Board of Directors on the activities carried out and is made up of, among others, the Chairman and the Chief Executive Officer, is responsible for monitoring the application of current legislation and company procurement procedures; identifying and monitoring the progress of the tender procedures and the execution of the Group's most significant contracts in terms of economic value, strategic value and executive risks, informing the company bodies of new tenders and potential risks and impacts on existing and planned tender procedures.

PROCESS FOR SETTING EMOLUMENTS FOR THE TOP MANAGEMENT

A **remuneration policy is in place in Acea concerning top management**, directors tasked with specific duties and executives holding key positions.
The remuneration system regarding these individuals is based on a **clear and transparent process**, with a key role being played by the **Appointment and Remuneration Committee** which formulates proposals regarding the remuneration Policy and the **Board of Directors** of the company which approves them. The role of these two main corporate governance bodies ensures the observance of rules which favours a consistent Policy, avoiding conflicts of interest and ensuring clarity through adequate information.
The Shareholders' Meeting may set the fixed emoluments of the Board members throughout their term of office and, furthermore, issues a non-binding resolution on the Policy pursuant to Article 123-ter, paragraph 6, of the Finance Act) on remuneration. In relation thereto, the remuneration was confirmed for the Board members, as established by resolution of 5 June 2014 whereas, in exercising its competence in setting the payments for the Directors vested with special offices, the Board of Directors resolved on the retributive references for the Chairman and the Chief Executive Officer throughout their term in office.
For further details, see the *Remuneration Report Financial Year 2018* available on the website www.acea.it.

[20] With the exception of 416,993 own shares (corresponding to about 0.2% of the total shares) for which the right of vote is suspended pursuant to art. 2357-ter Civil Code. See also the *Report on corporate governance and the shareholders' structure 2018*.

Acea's **Internal Control and Risk Management System (SCIGR)**, an essential element of the Group's corporate governance structure, consists of a set of rules, policies, procedures and organisational structures whose objectives are:

- **identify the risks** that can affect the pursuit of the objectives defined by the Board of Directors;
- **encourage the taking of conscious decisions** that are consistent with the company's objectives, within the framework of a widespread knowledge of the risks and the level of propensity for them established by the Board of Directors, legality and company values;
- **safeguard the company's assets, the efficiency and effectiveness of its processes, the reliability of the information** provided to corporate bodies and the market and compliance with internal and external regulations.

2018 saw the completion of the process of **revising the various elements of the SCIGR** that had begun last year, leading to the definition and approval of the **new Guidelines**, the **Mandate of the Internal Audit Function** that defines, on the basis of professional standards, the scope, tasks and role of the Function and the **new version of the Code of Ethics** (see the dedicated box).

THE NEW ACEA CODE OF ETHICS

The Code of Ethics is a **public statement of Acea's commitment** to conducting a business that respects ethical principles and shared values, taking into account the legitimate interests of the company itself and all stakeholders, including the natural environment.
The Code defines a system of values and rules of conduct for the performance of corporate activities that strengthens the Group's identity and manifests it externally, in the belief that this system of values **contributes to the achievement of expected results and the creation of value in the medium to long term**.
During 2018 the Code was updated through a joint effort of company departments and external experts, seeking to combine the company's identity values with the needs determined by the new strategic objectives that Acea is pursuing and by the dynamic nature of the market.
Some of the aspects that have been introduced or strengthened include: the provision of a **method for updating the Code that is open** to the active contribution of all stakeholders, to identify deficiencies or points of improvement; the **prevention and combating of corruption** through the adoption of a management system compliant with UNI ISO 37001 *"Anti-Bribery Management Systems"* and specific controls; the **promotion of diversity** and surveys to monitor **organisational well-being**; the introduction of the **precautionary principle** in the event of potential danger to health and the environment; the commitment to manage production processes by making the most of the **circular economy**.
The new text of the Code of Ethics, available on the intranet as well as on the website www.gruppo.acea.it, was approved by a resolution of the Board of Directors in July and brought to the attention of all employees.

The **SCIGR Guidelines**, adopted by the Acea Board of Directors in February 2018, taking into account the recommendations of the Corporate Governance Code of Borsa Italiana and drawing inspiration from existing national and international best practices, in particular the **COSO - Internal Control - Integrated Framework** (Committee of Sponsoring Organisations of the Treadway Commission), are intended to:

- provide guidance for the various subjects in the SCIGR, so as to ensure that the **main risks pertaining to the Acea Group – including those regarding sustainability in the medium-long term** – are correctly identified as well as adequately measured, managed and monitored;
- **identify the principles and responsibilities** of the governance, management and monitoring of the risks connected to the company's activities;
- provide for **activities of control** at all operational levels and clearly identify tasks and responsibilities in order to ensure coordination between the main subjects involved in the SCIGR.

Risk management is a **cross-cutting process** with **widespread responsibilities involving all the parties of the company in various ways**: the Board of Directors and the Board Committees, the Director in charge of the SCIGR (who is also the Chief Executive Officer), the Board of Statutory Auditors, all the managers and employees, the Manager in charge, the second level Supervisors, the Supervisory Body, the Internal Audit Function.

CHART NO. 10 - THE FLOW OF THE SCIGR

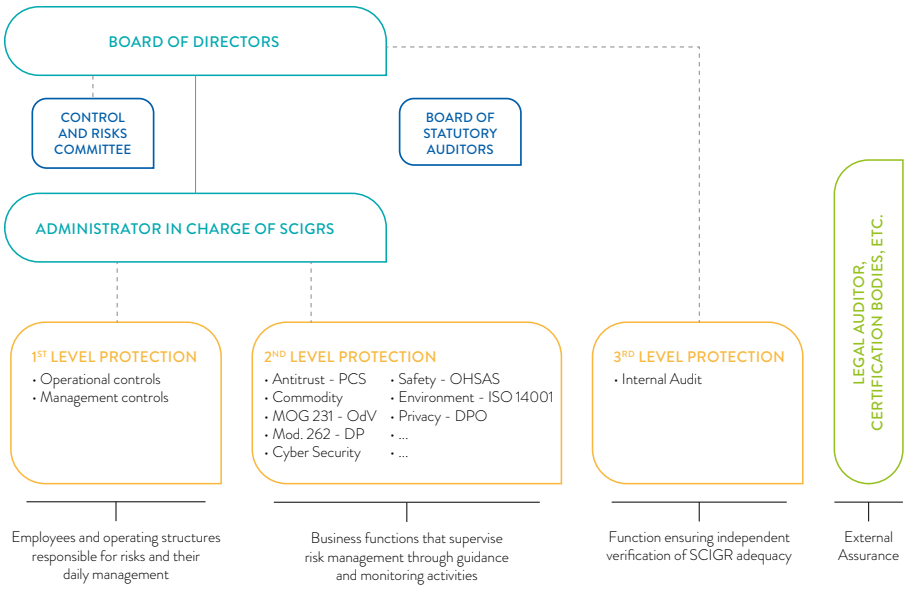


CHART NO. 11 – THE KEY PLAYERS OF THE IARMS

BoD

Determines the guidelines of the SCIGR **so as the main risks for Acea and its subsidiaries are identified, measured and managed**

APPOINTED DIRECTOR

Implements the SCIGR guidelines and takes care – also by using the Audit and Risk & Compliance Departments – of the identification of the main corporate risks, subjecting them periodically to the BoD

BOARD OF STATUTORY AUDITORS

Monitors the legislative and procedural conformity and the correctness of the administration

COMPANY STAFF

Acts with different responsibilities, from management to workers, in maintaining an efficient process of identifying managing risks, operating with respect to the procedures and performing activities of control on the line

MANAGER RESPONSIBLE FOR PREPARING THE COMPANY'S FINANCIAL REPORTS

Responsible for instituting and maintaining the System of Internal Audit on the financial information

RISK & COMPLIANCE - ERM

Defines the risk assessment and prioritisation methodology and coordinates the management of the periodic Risk Assessment process

SUPERVISORY BODY

Assigned with the powers of initiative and intervention to the functioning of MOG 231, relying on the collaboration of the Ethics and Sustainability Committee for the matters of common interest

INTERNAL AUDIT

Carries out independent audits on the operations and suitability of the SCIGR using and audit plan (risk based) approved by the BoD and monitors the execution of the action plans issued following the audits performed

The monitoring and management of risks which, in special circumstances, can also be significant for the purposes of committing crimes, is entrusted to corporate structures having the duty to realise and adopt **specific audit models**. Among these we note:

- the **Guidelines of the "Control Model pursuant to Law 262/05"** that, together with the "Regulations of the Manager in Charge", have the objective of defining an effective Internal Control System for the **Group's Financial Report**;
- the **"Privacy Governance Model"**, adopted with the aim of ensuring the application of the **GDPR** (EU Regulation 2016/679 General Data Protection Regulation) and other national and European provisions on the **protection of personal data** (see the dedicated box);
- the **"Antitrust Compliance Programme"**, adopted with the aim of strengthening internal controls to ensure compliance with antitrust regulations and encourage the development of a corporate culture for the protection of competition and consumers (see the dedicated box);
- the model dedicated to monitoring risks associated with safeguarding **health and safety and the workplace**, implemented in conformity with the international standard OHSAS 18001, having the objective of reducing risks linked to corporate activities, applying policies of prevention and continuous improvement;
- the model dedicated to monitoring **environmental risks**, implemented in conformity with international standard ISO 14001, having the objective of reducing the environmental impact of the activities by applying policies and protocols of management and continuous improvement;
- the organisational control of **Cyber Security**, with the mission of defining the guidelines on computer safety aimed at ensuring confidentiality, integrity and availability of data, in line with current regulations and having the function of steering and controlling the entire Group; (see also the chapter *Institutions and the company*, in particular the sub-paragraph *Protection of assets and management of internal risks*).

A specific Operating Instruction on the **Information Flows of the Internal Audit System** identifies the corporate structures which are to perform **second-level** supervising tasks in respect of some typical risks and provides instruction on how to prepare an **appropriate periodic report to be submitted to top management and governance bodies** reflecting the supervisory tasks performed.

UPDATING TO THE EU PERSONAL DATA REGULATION (GDPR)

In light of the entry into force of the **European Regulation 679/2016 on the protection of personal data** (General Data Protection Regulation - GDPR) and the Italian legislation implementing it (**Legislative Decree no. 101/2018** amending Legislative Decree no. 196/03), Acea has launched an adaptation programme in order to identify – with a priority of core processes – the steps necessary to achieve the highest possible compliance and to equip itself with an **Acea Privacy Governance Model**.
The discipline introduces the figure of the **Data Protection Officer (DPO)** – a professional who is an expert on privacy, information security, information technology and business processes – as a supervisor with the task of supervising and verifying the effectiveness of the measures that the Data Controller – the company – has drawn up, implemented and disseminated.
As required by the regulations, the Acea Chief Executive Officer has appointed an internal employee having the requisites and skills required as the Group's DPO with the concurrent establishment of an ad hoc organisational structure (DPO Office) reporting to the Risk & Compliance Function and the CEO in the performance of the tasks assigned.
The Top Management approved a **Governance Model** that provides for the identification of key figures for compliance within the Functions and Companies of the Group and externally, with clear obligations of compliance to ensure the conformity of the monitored processes. A group of persons has also been identified, the *"privacy watchdogs"*, who act as a point of reference within the organisation for the management of aspects relating to privacy and as a point of connection with the DPO Office.
The updating programme was articulated in several initiatives and activities carried out in parallel, including: the **mapping of company processes** and the drafting of a first model of Processing Register; the **definition of a risk analysis and assessment model** and the creation of a first DPIA (Data Protection Impact Assessment); the drafting, approval and publication of the **body of procedures** supporting the activities; the **dissemination of the instructions** given by the Data Controller to the Process Owners (former Internal Processors) and to the authorised persons (former Appointees); the implementation of **standardised procedures** for the **management of requests from data subjects** and the performance of related activities; the issuing of opinions and instructions on the **privacy impacts of company processes** either ongoing or in the planning phase (Privacy by Design); the identification of responsibilities and the issuing of the relative procedures/operating instructions for the **management of any episodes of personal data breaches**; the updating of the **legal framework on the entire company** (contractual, procedural and notice templates); **awareness-raising and staff training activities** and the launch of related programmes to ensure the involvement of the various groups within the company (Process Owners, designated persons, Privacy Officers, Functions with a higher impact for monitoring core processes, Information Technology, etc.).

ANTITRUST COMPLIANCE PROGRAMME

The evolution of the **competitive environment** in the markets in which the Acea Group operates requires growing attention to the issue of compliance with **antitrust law** and **consumer protection** regulations.
During the year, the commitment in these areas was strengthened through the adoption via resolution of the Board of Directors of a specific **Antitrust Compliance Programme** – with the approval of two management regulations and the appointment of an Antitrust Manager – for the Parent Company and its subsidiaries, which will have to ensure its implementation according to their activities and the markets in which they operate.
The adoption of the Programme was preceded by the **mapping of sensitive areas and processes** and by an **assessment of the risk of committing offences** that enabled the preparation of an **organisational oversight model** designed on the basis of the specific characteristics of the Group. Widespread training and awareness-raising activities were also carried out for the personnel.
The main objective of the programme is to strengthen internal controls aimed at preventing the violation of regulations through the implementation of regulatory and organisational instruments, as well as through a more widespread dissemination of the culture of **respect for the principles of fair competition and consumer rights**.

Within the framework of the internal control and risk management system, Group companies have also adopted their own **organisation, management and control models pursuant to Legislative Decree no. 231/2001** (231 Models) in order to prevent the risk of certain crimes or administrative offences being committed in the interest or to the advantage of the entities by top management or entities subject to their management or supervision, which may give rise to the administrative liability of the entities themselves.
The drafting of these Models is preceded by a careful **mapping of the company areas exposed to the risk** of committing crimes, including those related to legislation on **corruption, health and safety at work and the environment**, on the basis of which sensitive activities and offences that could be committed are identified.
The Models are **periodically updated** in order to adapt them to any changes in the internal organisation and activities carried out or with respect to the predicate offences referred to in the legislative decree, as well as with the aim of making them more clear and effective in the event of significant violations or circumvention of the provisions contained therein.
The **Supervisory Body (OdV)**, as an expressly designated body, has full and autonomous powers of initiative and intervention and control with regard to the effectiveness and observance of the 231 Models, it continuously monitors activities sensitive to the commission of the crimes indicated by the oft-mentioned legislative decree.
For Acea, the adoption of **ethical principles relevant to the prevention of crimes pursuant to Legislative Decree no. 231/2001** is an integral part of the internal control system. To this end, the rules of conduct set out in the **Code of Ethics** represent the point of reference for all those who must abide by it in the performance of company activities.
In 2018, following the legislative changes introduced in the last quarter of 2017, the Group's subsidiaries updated their 231 Models. Furthermore, in October work was started on updating the Parent Company's 231 Model.

The **Internal Audit** function is responsible for carrying out the controls envisaged in the **Audit Plan**, approved by the Board of Directors, subject to the opinion of the Control and Risk Committee and drawn up on the basis **of the analysis and prioritisation of the main risks of Acea and its subsidiaries**, starting with all the processes identified during the Risk Assessment and the results of the monitoring carried out by the corporate functions responsible for second-level controls.

During the year in question, **about 50% of the Plan activities** concerned **corporate processes deemed as exposed** to the **risks as per Legislative Decree no. 231/01**, amongst which the crimes regarding **corruption** and the **environment**, as well as those in violation of **injury prevention laws and the laws safeguarding health at the workplace**.
The processes that are audited and **at risk of corruption** are as follows: "Sponsorships", "Personnel selection", "Purchasing", "Finalisation of work contracts", "Finalisation of services" and "Incentives for electricity produced by plants using renewable sources".
As required by the professional standards of the **Institute of Internal Auditors** (IIA), the specific fraud risks of the process analysed and the operation of the related controls are considered, assessed and tested in the context of the various audits. With reference to **fraud detection** activities, 5 Fraud Key Risk Indicators have been adopted for the purchasing area, analysed every six months by the Function.

REPORTS RECEIVED RELATED TO THE CODE OF ETHICS

Acea has adopted a procedure that can be **followed by both employees and external parties** for the reception, analysis and processing of **reports** – so-called "**Whistleblowing**" – relating to **any failure to comply** with the **law, internal rules and the Code of Ethics**, as well as issues relating to the **Internal Control System**, **corporate notices**, the **administrative responsibility of the company (Legislative Decree no. 231/01), fraud** and **conflicts of interest**.
This procedure requires an assurance of the **maximum level of confidentiality and privacy** in the processing of communications received, **protecting those voicing their concerns and those responsible**.
The Audit Function is responsible for acquiring, registering and ascertaining the existence of violations and analysed **8 cases of presumed violations** of the *Code of Ethics* in 2018, also in coordination with other competent corporate Functions. Of these, 3 were traceable to **cases of a technical/commercial nature** and the significance thereof for the purposes of the prescriptions of the *Code of Ethics* was excluded. The remaining 5 cases concerned article 14 of the Code of Ethics "Management, employees and collaborators". The Internal Audit Function prepares **periodic reports** on the progress of the reports and the main findings are addressed to the Control Bodies.

INTEGRATED RISK ANALYSIS

In order to promote an integrated view of the risk profile and the proactive management of the risks themselves, associated with the many business processes, Acea has launched the **ERM Programme**, based on the recent **COSO framework** "Enterprise Risk Management (ERM) - Integrating with Strategy and Performance", aimed at representing **the nature and level** – in qualitative terms – **of the main risks that may jeopardise the achievement of industrial planning and sustainability objectives**, as well as directing the development strategies of a mitigation plan, where necessary.
According to the ERM programme, risk management in the Acea Group is a structured and continuous process, carried out in order to treat the risks of the entire organisation in an integrated manner, in line with the **propensity to risk** expressed, in order to guarantee management the information necessary to take the **most appropriate decisions** for the achievement of strategic and business objectives, for the safeguarding, growth and creation of company value (see also the dedicated box).
The methodology implemented and the support tools developed to allow a consistent representation at a Group level when identifying and assessing the severity of risks have taken into account the **main sustainability issues** both in the classification of **sources of risk ("suffered" risks)** and in the type of object potentially affected by the risk, understood as **economic/financial, technical/production, natural, intellectual, human and social/relational capital ("generated" risks)**.
The results of the ERM Programme are also taken into account when planning actions to address risks and seize opportunities for Acea Group companies that implement management systems that comply with the new ISO 9001:2015 and ISO 14001:2015 standards.

PROGRESS OF THE ERM PROGRAMME

The data collected under the ERM Programme have been **reclassified by ESG (Environmental, Social, Governance) topics** in light of both Legislative Decree no. 254/2016 and the "Acea material topics" (see also the chapter *Disclosing sustainability: methodological note*) and have made it possible to identify in this first application the **sources of risk** – expressed by the risk owners – that could most **affect the execution of the strategy and the management of the business**.
In particular, **considering the Industrial Segments** the Group's businesses are involved in, though the boundaries cannot be considered to be well defined, the following main findings should be noted:

ENVIRONMENTAL: the topics of ***efficient use of water; water saving and reduction of losses*** and **protection of drinking water quality** are of decisive importance for the **Water** Industrial Segment, both in the phases of plant acquisition and for operations, in the process of defining and executing industrial investments and in the correct planning of design and works management and network monitoring activities, in order to pursue the effectiveness and efficiency of operational management (see the chapter *Institutions and the company*, in particular the sub-section *Operational risk management for the protection of the common assets*). On the subject of ***waste recovery and circular economy***, the Industrial **Environment** Segment has an impact on waste treatment, recovery, valorisation and disposal operations, as well as the management of sewage sludge for compost production.

SOCIAL: with regard to ***listening, involvement, stakeholder awareness and relations with the local region***, the Industrial **Water**, **Energy Infrastructure** and **Environment** Segments are impacted due to the peculiarities of the respective businesses managed, where relations with the competent bodies are of fundamental importance in order to issue the concessions and/or authorisations necessary for the management of the plants and the realisation of investments, as well as the relationship with the social context in which the company operates due to pressure and possible opposition from committees, consumer organisations and users. The Industrial **Water** and **Commercial and Trading** Segments are impacted by the issue of ***customer focus***. In their interaction with the customer/user, on the one hand they aim to improve the technical and commercial quality of the service, and on the other hand they formulate marketing policies through competitive commercial offers and an adequate presence in the territory with their own sales outlets in order to fully satisfy the customer's expectations. The ***sustainable management of the supply chain*** has a cross-cutting impact on **all Industrial Segments** because suppliers – by subcontracting the company's activities – become fundamental partners of the company. It becomes essential to select suppliers able to guarantee quality work, also in accordance

PROGRESS OF THE ERM PROGRAMME (FOLLOWS)

with the Acea integrated management systems and timing of the contracts.
The topic of ***technology and innovation of industrial processes, infrastructure and services*** also affect **all Industrial Segments**. Through technological innovation it is possible to achieve optimal management of the plants and their efficiency, to improve the resilience of energy infrastructure and water networks with a consequent reduction in losses and to optimise the costs of running the waste treatment production plants; in addition, the evolution of architecture and IT systems in the commercial field allows providing a service that is more appropriate to the dynamic needs of business.
Of great importance is the ***enhancement of human capital***, which also has a clear impact across **all Industrial Segments**, committed to implementing management and organisational tools for managing human resources, with particular regard to staff training and adequate sizing of internal staff.

GOVERNANCE: the topic of ***ethics, respect for rules and compliance***, also linked to the fight against active and passive corruption, cuts across **all Industrial Segments**, not only with respect to ethical values and principles that must guide business conduct and management, but also for the peculiarities of businesses strongly subject to regulatory evolution.

As regards **climate change**, as shown by the evidence reported in the CDP (formerly Carbon disclosure project) questionnaire, Acea projects the assessment of related risks over a medium-term horizon. According to the indications of the Task Force on Climate-related Financial Disclosures, climate risks are divided into physical and transitional risks. The former relate to acute climate events (like hurricanes and floods) or chronic climate events (like permanent changes in temperatures), the latter to political, market and technological changes, depending on the regulatory, industrial and social approaches to climate change mitigation and adaptation.
With regard to the type of risks associated with climate change, just to mention the most obvious aspects, the most critical issues arise in the **operational, regulatory and legal areas**. As far as the first aspect is concerned, meteorological events like reductions in rainfall can have negative impacts on both hydroelectric energy production and the reduction of the availability of drinking water to be distributed, with among other things an increase in energy consumption for the withdrawal of water from more disadvantaged sources. On the other hand, extreme phenomena like storms can lead to the risk of lightning strikes, with interruptions in the service of the electricity network or, for the water network, the overflow of inflows into the wastewater systems as well as turbidity in the water sources. Moreover, from a regulatory and legal point of view, these climatic effects can have an impact on the consequent provision of the service in accordance with the regulations in force, with consequent penalties. The implications of the legislation with regard to CO_2 emission quotas, renewable sources, taxes and environmental certificates (white, green) could be very significant, with possible final impacts of a financial nature.

ANALYSIS OF POTENTIAL ENVIRONMENTAL RISKS

The **environmental aspects** that might generate potential risks of negative impacts on Acea's activities have been assessed in the context of the ISO 14001:2015 certified environmental management systems of the various operating companies.
For the main companies operating in the industrial segments of **Water, Energy Infrastructure and the Environment**, specific events have been hypothesised in relation to their management, which could have a significant impact on the environment.
As far as the **water service** is concerned, the main risks are due to: inefficient operational management of the water resource, which could cause high levels of losses with consequent excessive consumption; lack of control of the parameters of the resource with environmental consequences if they are exceeded; inadequate interventions on the sewerage-treatment system with possible contamination of the soil and water bodies; risks of fires and explosions in treatment plants related to the production of biogas, with possible impacts in terms of emissions into the atmosphere.
In the context of the operation of **energy infrastructures**, for the transport and transformation of electricity for delivery to end users, the main risks are attributable to: existence of overhead and underground systems with impacts in terms of land use and subsoil; generation of waste and impacts on ecosystems; generation of electromagnetic fields with impacts in terms of exposure; maintenance of transformation plants with potential soil and subsoil contamination with hazardous materials; maintenance and construction of plants with impacts in terms of production of special waste. With reference to electricity production using renewable and conventional power plants, the potential environmental risks concern the accidental spillage of pollutants or the exceeding of threshold values in emissions (into the atmosphere, surface water and sewerage) in the ordinary management of plants or in the event of critical events like fires or explosions. An example of environmental risk derives from the potential dangerousness of structural failure of hydraulic works.
Finally, with regard to the activities carried out in the **Environmental** industrial segment – i.e. the treatment, recovery and disposal of waste, the recovery of materials and energy through waste-to-energy and composting plants and the collection, transport, recovery and disposal of non-hazardous waste produced by waste treatment plants – the potential risks with environmental impact could arise with spills of hazardous substances and consequent contamination of the soil and aquifers or surface waters or with emissions into the atmosphere above limit values. Other impacts could be acoustic or on the landscape related to the presence of the plants.

MANAGEMENT SYSTEMS

A complex ***internal rule system*** supervises the organisational system of corporate governance for the proper running of the Group's activities, from the definition of the general guideline directives to the formal statement of the particular business aspects, according to the following criteria:

- the **Group guidelines** are the Principles, Policies and Management Regulations through which Acea SpA acts and exercises its role of direction, guidance, coordination and control with respect to the Companies of the Group and define the general guidelines to be followed;
- **procedures** govern the way in which the operational phases of a process are implemented, identifying the roles and responsibilities in detail. The procedures also define the forms to be used and the records to be archived.

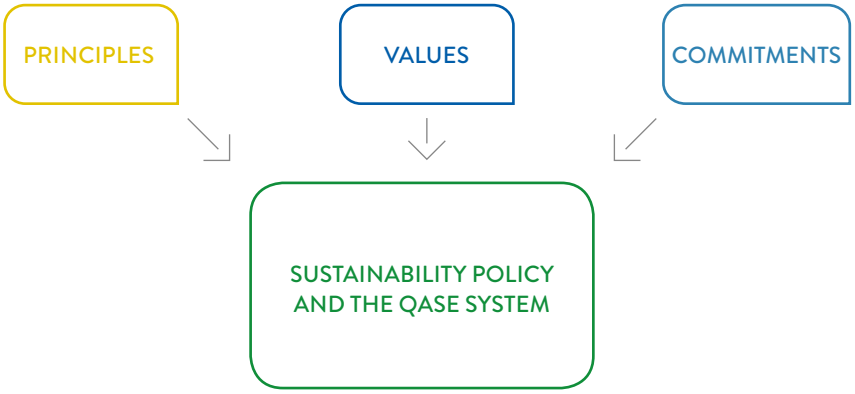
Each corporate structure responsible for the individual issues subject to internal standardisation (Process Owner) processes the documents – involving the structures concerned – in compliance with the defined organisational responsibilities.

In order to ensure **general consistency of the documents and verification of regulatory compliance** each document is subject to verification by:

- Company Planning and Organisation Unit, with regard to the consistency of the document with the **organisational structure and with internal regulations**;
- Integrated Certification Systems Unit for document compliance with **management systems**;
- Compliance Unit with regard to compliance with **regulations of reference** (Legislative Decree no. 231, antitrust regulations, etc.);
- DPO Office Unit regarding compliance with **privacy regulations**;
- Internal Control Systems of Financial Information Unit with regard to the consistency of the document with the **management system of the Internal Control System of Financial Information**.

Acea recognises the following values **as a fundamental element for the sustainability of the managed activities**: promoting the **culture of quality, respect of the environment** and **protecting ecosystems**, the **valorisation of persons** and **safety at the workplace, efficient management of resources, risk assessments and the responsible management of impacts**, economic, social and environmental, **dialogue with the stakeholders** and promoting **sustainability in the value chain**, involving the supply chain.
Consistently with such guideline, in Acea there is a **Policy for sustainability and the quality, environment, safety and energy system** [21], which breaks down the principles, values and commitments undertaken by the company, placing them in the framework of the pursuit of sustainable development and it is an **integral part of the Management Systems** conform to standards ISO 9001, ISO 14001, OHSAS18001 e ISO 50001.

CHART NO. 12 - SUSTAINABILITY POLICY AND THE QASE SYSTEM



The **Integrated Certification Systems Unit** within the Risk & Compliance Function defines the methods and standards of reference for the implementation of **QASE certified management systems** as well as for further certifications, accreditations and certifications that the Acea Group intends to acquire, and operates in synergy with the QASE Units present in the individual operating companies. These Units collaborate with the Energy Manager for the development and management of the **Energy Management System** and with the Head of the Prevention and Protection Service (RSPP) and the emergency coordinator for the **Safety Management System**. The management of health, safety and environmental emergencies in Acea is handled by means of a specific procedure (see the chapter on *Institutions and the company*, in particular the sub-section on *Operational risk management for the protection of the common assets*).

Acea also relies on professional profiles such as the **Energy Manager** and **Mobility Manager**, whose duty is to respond to the demands for optimum management of internal energy consumption and staff mobility. The duties of the Energy Manager and Mobility Manager are aimed at seeking **systemic efficiencies and savings** in important aspects related to the running of an organisation, such as use of energy and employees' transfers, which also create **positive external effects** in terms of lower use of resources and **reduction in greenhouse gas emissions** and optimisation of travelling times and routes for employees, respectively, while increasing **road safety and reducing urban traffic**. The Energy manager, in particular, has the duty of implementing actions regarding **energy efficiency**, reduction of consumption and cost control, in order to ensure the progressive optimisation of the Group's energy costs, activating coordination with all the Energy managers in Acea companies.

[21] The Policy is available from the institutional website www.gruppo.acea.it.

CHART NO. 13 – THE CERTIFIED INTEGRATED MANAGEMENT SYSTEM

The management of **quality, the environment, safety and energy are central aspects in corporate operations**, as confirmed by the number of Group companies which have implemented certified integrated management systems over time.
As of 31.12.2018 **11 of the Group companies are equipped with certified management Systems** (see Table no. 8) and they have all initiated the process for transition to the **new standards ISO 9001:2015 and ISO 14001:2015**.
The **Acea Ambiente** plants located in Terni, San Vittore del Lazio and Orvieto are **EMAS registered**.
New developments in 2018 include: the transition from OHSAS18001 to the new **ISO 45001 health and safety** certification for **Acea Ato 5**; the acquisition of **ISO 45001** certification for **Ecogena**; the acquisition of **ISO 9001 certification for Acea Ambiente**, in addition to the extension of ISO14001 and OHSAS 18001 certifications to the Sabaudia composting plant and ISO 50001 certification at the Terni waste-to-energy plant; **ISO 39001** certification "Road traffic safety management system" for **Aquaser**. Moreover, during the year the process for renewing **SOA certification** was completed for Acea SpA.
Considering the companies as a whole, about **75%** hold a **quality** certification, **75%** an **environmental** certification (100% in the Water and Environment business areas) more than **90%** have **safety** certification (100% in the Water, Environment and Infrastructure industrial segments) and more than **40%** an **energy** certificate management system.

TABLE NO. 8 - CERTIFIED MANAGEMENT SYSTEMS IN THE ACEA GROUP (AS AT 31.12.2018)

	QUALITY (ISO9001)	ENVIRONMENT (ISO14001)	SAFETY (OHSAS18001)	ENERGY (ISO50001)	OTHER
Acea SpA	X	X	X	X	
WATER AND ENGINEERING SEGMENT					
Acea Ato 2 SpA	X	X	X	X	
Acea Ato 5 SpA	X	X	X (ISO 45001)	X	
Gesesa SpA	X	X	X		
Acea Elabori SpA	X	X	X		UNI CEI EN ISO/IEC 17025:2005 Accreditation of lab analyses UNI CEI EN ISO/IEC 17020:2012 Accreditation of inspection bodies
ENERGY INFRASTRUCTURE SEGMENT					
Areti SpA	X	X	X	X	
Acea Produzione SpA		X	X		
Ecogena SpA	X		X (ISO 45001)		UNI CEI 11352
COMMERCIAL AND TRADING SEGMENT					
Acea Energia SpA			X		
Acea8cento Srl					
ENVIRONMENT SEGMENT					
Acea Ambiente Srl	X	X	X	X	EMAS
Aquaser Srl	X	X	X		ISO 39001:2012

Each company that implements certified management systems carries out an **annual review by its management** with the aim of assessing the **effectiveness of quality, environment, safety and energy management systems**, proposing possible improvements and verifying the progress of activities. On these occasions, which are always attended by **the Top Management and the first line of managers** of the Companies in question, numerous elements are analysed, like: policy; context analysis and materiality analysis at a Group level; risk assessment; process performance; significant environmental and energy aspects; changes in legal requirements and those relating to health and safety, environment and energy; supplier performance; customer satisfaction levels; analysis of complaints; accidents and injuries; objectives.
The results of the review 2018, finding no criticalities, confirmed the adequacy and efficiency of the management Systems.

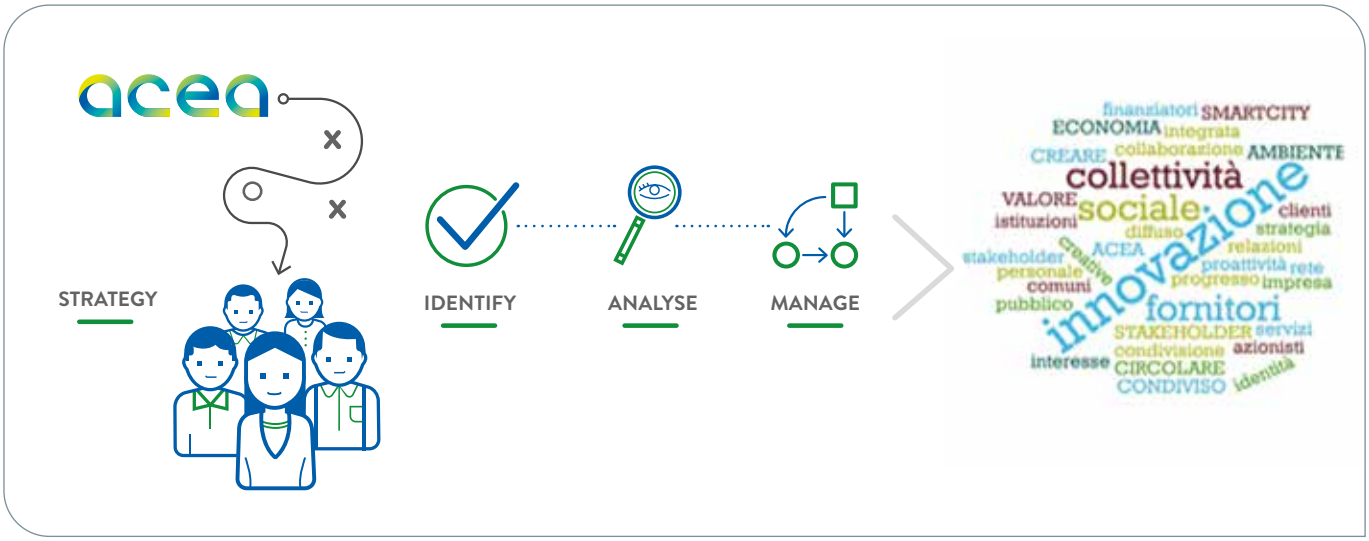
Finally, it should be noted that during the **year, Acea** – continuing the process of integration initialised and formalised with the adoption last year of the Sustainability Policy and the environmental, safety and energy quality system – **decided to consider that the objectives required by the management system should coincide with the objectives of the 2018-2022 Sustainability Plan approved by the Board of Directors**.

STAKEHOLDERS AND ALLOCATION OF GENERATED VALUE

STAKEHOLDERS AND THEIR INVOLVEMENT

Acea promotes the involvement of stakeholders [22] in line with the commitments expressed in the *Sustainability Policy and the Quality, Environment, Safety and Energy System* and the principles set out in the *Code of Ethics*, with a constructive approach that tends to rely on the results of dialogue and discussion.
Identifying the different types of stakeholders and analysing and managing interactions between them and the company are continuous, dynamic and one-on-one activities **stemming from both company actions and objectives as well as inputs from outside**.
The **stakeholder identification** phase makes it possible to identify the parties directly or indirectly involved in company activities in order to assess their level of impact, quality and quantity.
The **analysis** phase is used to perform a structured evaluation of **the existing interactions** both between the company and the stakeholders as well as among the stakeholders themselves so that dialogue and shared accountability paths may be developed.
Lastly, the **management** phase leads to the **identification of answers** to the questions raised by the stakeholders or the company in order to pursue the achievement of company goals consistent with expectations.

CHART NO. 14 - STAKEHOLDERS AND THEIR INVOLVEMENT



The **"Acea stakeholder map"** identifies the macro-categories of key stakeholders: customers, employees, suppliers, shareholders and financiers, institutions, community, environment and the company itself.
In respect of each category, engagement initiatives are undertaken which sometimes result in collaborative paths, projects able to generate shared value, crucial to both fostering business development and reinforcing and enhancing the standing and repute ascribed to Acea by its stakeholders. See the dedicated boxes.

[22] Stakeholders (interested parties) are those entities - individuals, groups, organisations - having significant relations with the company and whose interests are involved in the corporate activity for various reasons in relations of exchange held with the latter or because they are significantly influenced by them.

CHART NO. 15 – STAKEHOLDER MAP

SUPPLIERS

Acea is an important customer for economic operators active in the procurement of works, goods and services in the water, energy and environmental sectors. In 2018, the value of contracts procured centrally by the Holding company for the rest of the Group was **over € 970 million**, with **approximately 1,150 suppliers**. The **competitive method with a tender** is the prevailing form for the selection of partners: **81% of the total** was acquired in this way during the year.
Sustainability in the supply chain is promoted starting from the supplier qualification phases and is constantly monitored during audits or specific in-depth analyses. In order to register for the qualification systems related to the Single Regulations for Goods and Services and Works, operators are required to complete a questionnaire to assess **their own quality**, **environment, safety, energy and sustainability** (QASER) and these aspects may be subject to second-party audits (40 audits carried out in 2018). The **survey** carried out by Acea with a questionnaire specifically developed to assess **commitment to environmental and social issues** was submitted to a select panel of 114 suppliers this year (104 in 2017).
The development of **green procurement** has been pursued with the further expansion of the application of current CAMs in tenders for the pertinent product categories. Acea's commitment to this issue was recognised at the **Compraverde-Buy Green International Forum** when it was awarded the **Social Procurement Award** for best practice in the European tender for the supply of workwear for the entire Group with low environmental impact.
Worker **safety**, which is a fundamental element for the services provided to the Group, was guaranteed by **more than 11,200 on-site inspections** (+27% compared to 2017).

SHAREHOLDERS AND FINANCIERS

Relations with the **capital markets** are managed in order to pursue the best conditions for the sustainability of financial supplies, diversifying the sources and making the investment in the company safe and valuable for investors (equity and debt). **More than 70% of the debt derives from bond placement operations**, while in the banking sector Acea mainly targets **institutional operators (EIB, Cassa Depositi e Prestiti)** whose mission is to finance strategic infrastructure. Relations with analysts, credit rating agencies, banks and shareholders were attended to on numerous occasions: Acea participated in meetings and *roadshows* **with over 140 investors and analysts** in major European markets and, for the first time, also in the Australian market. **In conjunction with the main corporate events**, conference calls were held with the participation of more than **100 financial operators**.
In light of the evolution of global financial market trends towards **sustainable and responsible investments**, Acea's interactions with **ESG analysts** (environmental, social, governance) are constantly growing. During the year Acea confirmed its presence in the **Ethibel excellence investment register**, in the **ECPI** investment universe and maintained its presence in the **Carbon Disclosure Project** with a B rating. Acea's ESG performance was also analysed by **Sustainalytics, VigeoEiris, MSCI, Evalueserve** (FTSE Green revenues model) and **Standard Ethics**.

EMPLOYEES

Acea's people are decisive in the pursuit of its business objectives. Ensuring the best conditions of **stability, care and safety** is therefore one of the company's priorities.
The percentage of personnel employed by the Group with **permanent contracts** (**96.6%**) and the average **duration of the employment relationship** (for **58.9%** of outgoing personnel it is between 30 and 50 years) testify to a **structured and lasting relationship** with the company. This evidence is also accompanied by a **strategic management of workforce turnover**: **about 50% of the new hires** in the year were **young people under 30 years of age**. The presence of **women is 24.3%** of the total workforce.
The level of **unionisation was 70.8%**. During the year, **a new**, innovative and **participatory model of industrial relations** was defined with the signing of a **Group Framework Agreement** that allowed the **definition of company-wide implementation agreements** on issues like **performance bonuses and welfare**, **smart working** (**295 people**) and measures to **support parenting** (**extension of parental and paternity leave** and new family permits). Furthermore, **all personnel employed in Acea with permanent contracts will continue to enjoy the protections envisaged in article 18 of Italian Law 300/70** (as amended by Italian Law 92/2012) as stipulated prior to the entry into force of Italian Legislative Decree no. 23/2015.
Finally, with **regard to safety**, the company's commitment continues: in 2018 **both the number of accidents** (-25%) **and accident indices decreased** (the frequency index went from 10.87 to 8.02, the severity index went from 0.43 to 0.30). For the sake of prevention, the **"Acea Heart-Protected Company"** project was launched, with the installation of defibrillators at various company sites and specific training for 30 employees throughout the various sites, and the **"Acea Prevention"** project with the introduction of some preventive medical services (annual check-ups with diagnostic and therapeutic counselling as needed), in addition to the services already included in the company's health policy, for employees and their dependants.

CUSTOMERS

Acea monitors the dynamics of consumption and is committed to meeting the needs of customers, trying to understand their expectations. Relations with users continue to evolve focusing on a greater digitisation of contact channels, the speed of responses to inquiries and involvement in the services provided. The protagonist of the new energy paradigm, for example, is the **prosumer**, a person that is both a producer and a consumer of energy: the Areti distribution network had more than **12,400 active prosumers** in 2018 (+10% over 2017), and more than 73% of the energy produced by them **is of the photovoltaic type**. During the year, the installation of remote management electrical meters for LV users continued, covering **99.68% of the total number of meters**.
The Group's digital ecosystem was revised with the creation of a **new family of domains**, diversifying the company's websites (corporate website, Acea Energia website and website for the captive electrical market), to better meet the needs of users. **Personal contact (physical branches)** with **customers** is also maintained and even increased with new methods, like the activation in 2018 of the first Acea Energia Shop in the Ostia district. However, the dynamics of contact with consumers indicate a **marked reduction in the use of traditional channels** (-24% of calls to toll-free numbers and -13% of contacts at branches).
One of the topics that Acea and its customers collaborate on is **water, its conservation and protection**. In 2018 Acea renewed its targeted **communications campaign**, raising awareness among customers and citizens of **shared commitment and responsibility**, both as manager and end user, to protect water resources.

COMMUNITY

Aware of its role in the context of corporate citizenship, Acea transparently supports numerous initiatives of a sporting, social and cultural nature. The promotion of the local territory, making the most of the values and energies of communities, is considered a commitment of strategic importance. This includes, for example, attention to **younger generations**, their modern civic education and their future vocational training. The ***Acea Scuola*** environmental education programme for students in the schools of Rome for the 2017/2018 school year, called *Think Sustainable!* involved **123 schools** with more than **6,900 students** in the second cycle of primary and secondary schools and 709 teachers. Equally engaging was the fourth edition of **Acea Camp**, which has become one of the most important summer sports initiatives dedicated to the capital's youth involving **2,500 children** aged 6 to 14 years old and the Acea Volleyball School Trophy, which involved **3,500 high school students in Rome**. Also important was the **Ideazione** initiative, a **work-study programme** involving 289 students from 13 technical and professional institutes located in the territories where the Group operates.
To promote the local cultural and artistic identity, Acea has put to good use its consolidated expertise in the field of monumental artistic lighting, helping to give new life and use to two important projects: the permanent lighting of the **Castle of Santa Severa** on the Roman coast and of the **Roman Theatre of Benevento**. In addition to these initiatives, there is a well-established **support programme** to raise public awareness of issues of fundamental **social importance**, for example with respect to national campaigns for the prevention of breast cancer (*Pink October* and *Pink Ribbon*) and to fight violence against women (International day for the Elimination of Violence Against Women).

ENVIRONMENT

The **natural context** is the framework within which Acea's activities find their **origin, purpose and limit**. The commitment to sustainably manage industrial processes from the collection of resources to their transformation and re-introduction into the ecological cycle is therefore constant and represents one of the most highly monitored aspects.
Thanks to an increase in production from renewable energy sources, an increase in the efficiency of internal energy end-uses and of process uses, over the last ten years the Group has reached **carbon intensity** values (gCO_2/kWh produced) that are among the **lowest** in Italy in the Utility sector, with a **share of renewable sources** in the production of energy **equal to approximately 72%** of the total generated.
In its relations with customers, Acea **has also promoted a sustainable consumption style**: in 2018, 915,000 MWh of **green energy** was sold (**+16%** compared to 2017) and the awareness of customers in the electricity and water sector on the **"electronic bill"** option has led to **savings of 39 tonnes of paper per year**.
With respect to water, Acea's attention was directed both at the **protection of springs** and the **use of potential alternative sources** to better cope with the effects of ongoing climate change. **Satellite analysis** of the area where the springs are located was developed by internalising the change detection process, allowing areas of interest to be defined more precisely and making monitoring faster and more efficient. In addition, Acea Ato 2 completed the preparation of a **water treatment plant** for the Tiber river that can be used in the future for emergencies and after purification with advanced treatment and disinfection processes.
The development of the waste treatment business continues, with a view to recovering materials for the benefit of the economy and the environment. During the year the company produced over **14,000 tonnes of quality compost and 19 GWh of energy from biogas** from waste processing, confirming the benefits of a circular economy. Finally, an experimental **process was carried out to transform waste** from the San Vittore del Lazio waste-to-energy plant into a secondary raw material.

INSTITUTIONS

For a company that delivers essential public services, mostly subject to **regulation by the public authorities**, the relationship with institutions is essential both for planning activities and their exercise. Acea represents a **strategic infrastructural asset** of the local region, and consequently interacts with Public Administrations to contribute to higher **needs of public interest**, for example in the water sector through the drafting of **Emergency management plans** shared with the local institutions (like prefectures, local health authorities, area management bodies). One of the emerging issues being monitored is **cyber threats to the computer networks of general interest services**, and in this context Acea participates in the **Computer Emergency Response Team** (CERT) coordinated at a national level by the Ministry of Economic Development, and took part in the European programme Horizon 2020 with the **ECHO** project (*European network of Cybersecurity centres and competence Hub for innovation and Operations*), for the establishment of a **European network of expert centres on cyber security**.
Relationships and synergies with universities, research institutions, representative organisations, professional associations, etc. are maintained assiduously and transparently in accordance with roles and objectives.

THE COMPANY

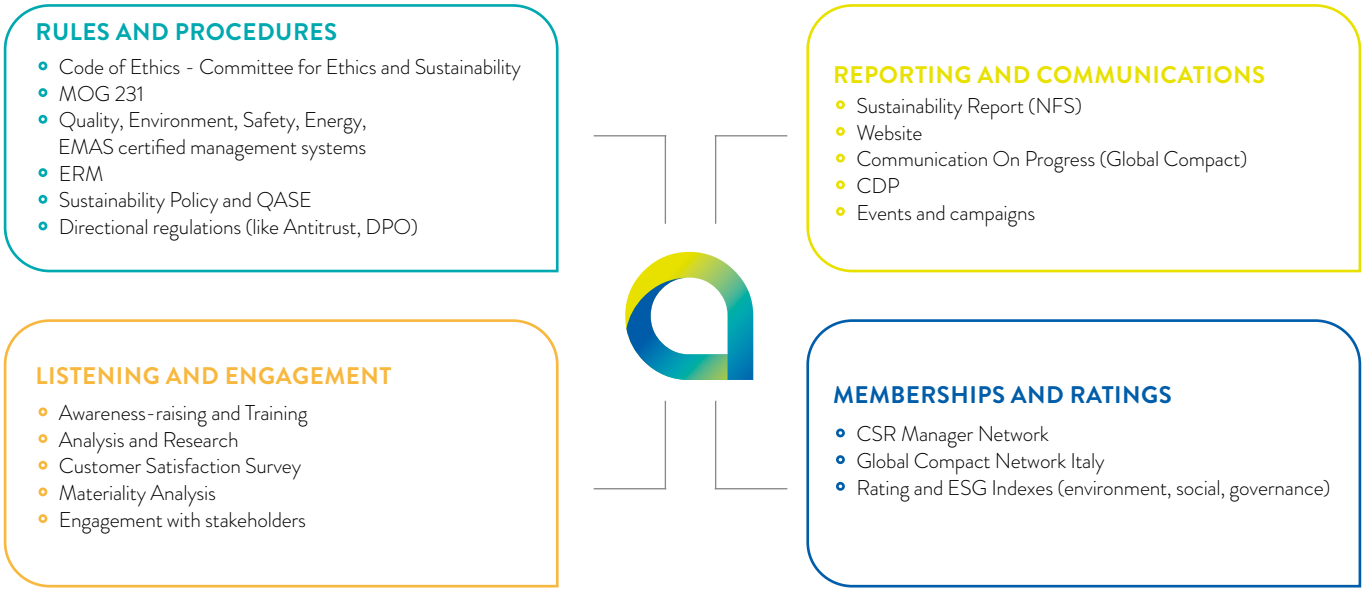
Strategic planning demonstrates the Group's commitment to its **vocation of developing, building and operating infrastructure dedicated to public services**. Acea intends to create infrastructure for smart cities that can adapt to changes in the environment and emerging risks. During the year, there were close **collaborations and partnerships with innovators engaged** in the field of *smart and safe cities*, like **Open Fiber and Huawei**.
Particular attention was paid to the **mapping of existing or planned innovative projects**. A few of the numerous projects carried out include experimentation with **blockchain** technology in peer-to-peer energy exchange, and, in the water area, a project for **finding hidden leaks using traditional techniques** (acoustic) and **testing of innovative techniques** (Noise Logger and Satellite Radar Interferometry).
In 2018, together with the relevant public institutions the foundations were laid to **ensure the main source of water in Rome** and other municipalities in Lazio through the future construction of the upper section of the Peschiera Aqueduct.
As part of the evolution of governance tools, during the year, the **enterprise risk management (ERM) activity was structured also with regard to sustainability aspects** in compliance with the regulations of reference. A specific **antitrust compliance** programme and a structured **privacy governance model** have been implemented in light of **European Regulation 679/2016** on the protection of personal data (GDPR).
In July 2018 the **Code of Ethics was updated**, implementing the prevention of and fight against corruption through the adoption of a management system as per UNI ISO 37001 "Anti-Bribery Management Systems".

TOOLS AND ACTIONS FOR SUSTAINABILITY

Acea contributes to the economic and civil development of local communities. Attention to the quality of the services provided and the efficiency of the industrial processes managed, the protection of the natural environment and the analysis of the evolutionary dynamics of the territories in which it operates facilitate the Group's growth in line with the needs of the region and its stakeholders, with a view to sustainable development.

The Group works towards spreading sustainability values, culture and practices, both within the organization and in the contexts it operates in, adopting tools and policies which today cover the most important phases of planning, management and accounting.

CHART NO. 16 - CSR TOOLS



DISTRIBUTION OF THE VALUE GENERATED BY ACEA

The economic value comprehensively generated by the Acea Group in 2018 is **3,102.8 million Euros** (2,841.4 million Euros in 2017).

Below is a breakdown of the above figure amongst the stakeholders: 61.7% to **suppliers**, 18.6% to the **company** as resources to be reinvested; 7.1% to **employees**; 5.3% to **shareholders** in the form of dividends; 3.2% to **financiers** in the form of interest on capital provided; 4% to the **public administration**[23] in the form of taxes paid and 0.1% to the **community** by way of sponsorships and donations for events and similar endeavours.

TABLE NO. 9 - ECONOMIC VALUE DIRECTLY GENERATED AND DISTRIBUTED (2017-2018)

(in € million)	2017	2018
total economic value directly generated	**2,841.4**	**3,102.8**
DISTRIBUTION TO STAKEHOLDERS		
operating costs (suppliers)	1,766.2	1,915
employees	215.2	219.6
shareholders	145.4(*)	164.1(*)
financiers	89.3	100.6
public administration	96	124.3
community	2.4	3.9
company	526.9	575.3

(*) Dividends from reserves have also been allocated to shareholders; this item includes minority interests.

[23] The amount paid to the public administration net of state and regional public contributions which Acea receives from such stakeholder (equal to 7.3 million Euros) is 117 million Euros.

TABLE NO. 10 - BREAKDOWN OF VALUE GENERATED BY STAKEHOLDER (2017-2018)

	2017 (%)	2018 (%)
suppliers	62.2	61.7
employees	7.6	7.1
shareholders	5.1	5.3
financiers	3.1	3.2
public administration	3.4	4
community	0.1	0.1
company	18.5	18.6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RELATIONS WITH STAKEHOLDERS

CUSTOMERS AND THE COMMUNITY

REFERENCE BOUNDARY

Data pertaining to the volume of customers, apart from Acea Energia, Areti, and, in the water segment, to Acea Ato 2, Acea Ato 5, Gesesa, also include data related to other water companies (Acque, Publiacqua, Acquedotto del Fiora, Umbra Acque and Gori) – that are not included in the reporting boundary – highlighting the single contribution for the sole purpose of providing a "global" dimension. Data pertaining to perceived quality, delivered quality, tariffs, customer care and communication activities relates to the operating companies – Acea Energia, Areti, Acea Ato 2, Acea Ato 5 and, where possible, Gesesa – as recalled in the text.

Interactions between Acea, customers and the community are described in a single chapter, as the information and data related to the services delivered – **perceived quality, delivered quality, customer care** – **mainly** refer to the **central and southern Lazio area, where the two stakeholders virtually coincide**[24]; **on the other hand**, data referring to electricity and water service **customer base** comprises all areas covered by the operating subsidiaries.

ACEA GROUP'S CUSTOMERS: ELECTRICITY AND WATER SERVICES

ABOUT **1.2 million**
CUSTOMERS FOR ENERGY SALES AND ABOUT
173,000
GAS CUSTOMERS

MORE **1.6 million**
WITHDRAWAL POINTS FOR ENERGY DISTRIBUTION

887,648
WATER USERS IN LAZIO (ACEA ATO 2 AND ACEA ATO 5) EQUALLING ABOUT
4.2 million
RESIDENTS SERVED

2.6 million
OF WATER USERS IN ITALY EQUALLING ABOUT
8.6 million
RESIDENTS SERVED

[24] In the area of Rome and provincial districts Acea runs the integrated water service, the supply of electricity (for more than 1.3 million customers), distribution of energy and the public lighting service. As a result, customers and communities in this area virtually coincide. Moreover, in the area of Frosinone and province, Acea manages the integrated water service. For the main social and environmental data pertaining to subsidiaries, operating in the water sector in other areas (in Italy and overseas), see the Water Company Data Sheets and overseas activities, drawn up by way of information and outside of the boundary of the consolidated non-financial Statement (pursuant to Legislative Decree 254/2016).

According to the data published by the **Regulation Authority for Energy, Networks and Environment** (ARERA)[25], **Acea Energia** is **Italy's tenth largest operator** in terms of **volumes sold on the energy sale end-user market** and the **third** with a 3.4% market share for **energy sold to families** - "domestic customers", the company is the **second largest national operator** in terms of volumes sold to customers in the **more protected market**, with a market share of 4.9%, and is ranked **eighteenth operator** in terms of volumes sold to the **free market**, with a market share of 1.6%.
In 2018 Acea Energia managed **about 1,340,000 supply contracts** between sales of energy and gas (see Table no. 11). The customer base, which follows the normal competitive dynamics of the liberalised market, undergoes annual changes, both entering and exiting the market: between 2018 and 2017, there was a total **contraction of 3%** of the customer base managed in the various segments of the energy market ("free" and "protected" markets)[26].

Areti is **Italy's third largest operator** in terms of **volumes of electricity distributed**, with a 3.6% market share, and **Italy's second largest operator** in terms of **withdrawal points**[27]. In its capacity as holder of the ministerial licence, the company **delivers energy across the areas of Rome and Formello** and in 2018 it had **1,629,980 withdrawal points**; the trend of the customer base is due to both urban expansion and disposals resulting, for example, from companies being discontinued (see Table no. 11).

PROSUMERS CONNECTED TO ACEA NETWORKS: +10% IN 2018

The **"prosumer"** is one of the protagonists of the **new energy model** being progressively defined. Being both a **producer** and **consumer** of **energy**, this type of customer is capable of **partially or totally ensuring its own energy supply** and **transferring any surplus produced to the grid**, thus establishing new relations with both the distributor and the party responsible for selling/withdrawing energy.
Acea has been proactive from the outset towards the forms of innovation that this evolution of the energy model entails, and in particular as regards the **development of the capacity of the connection, transmission and distribution systems**. It has also taken steps to comply with the regulatory obligations associated with the new production and consumption systems.
As at 31.12.2018, **12,458 prosumers were active on the energy distribution grid managed by Areti** – this figure, **up by about 10%** compared to the 11,344 prosumers in 2017, confirms the **trend of the last two years of a constant, regular increase**. Of the total active prosumers, 10,217 are qualified as "domestic prosumers", i.e. customers with residential user contracts who are also small energy producers, and 2,241 are qualified as "other uses", i.e. non-domestic users (businesses, professional and artisanal activities). About 7,000 of the prosumers on the Acea network are also Acea Energia customers. The energy transferred to the network by these subjects was **76.72 GWh** in 2018, **about 73% photovoltaic**.

INCREASING NUMBER OF USERS OF THE ELECTRICITY SOCIAL BONUS

For customers who are **under financial hardship**, also in relation to large family numbers, and customers who because of their **health** require the use of indispensable energy-consuming medical equipment[28], ARERA, acting on the advice of the government, has made the so-called "**electricity bonus**" operational; this involves a discount applied to the cost of the electricity consumed. In recent years the number of users has continued to increase, underscoring the **growth of social distress**. In fact, **in 2018 the number of Acea customers benefiting from the bonus**, on both the protected market and the free market, **totalled 23,746**[29] (**about 15% more** compared to the 20,683 clients accepted in 2017), of whom 23,379 – **98% of the total** – due to financial hardship and 367 due to their health. Overall, the electric bonus system saved the beneficiaries about **€ 3 million** in annual revenues.
In the region served by **Areti's distribution network** there are **also 9,174 customers eligible for the electricity bonus**, 21% more than the 7,556 customers in 2017, (8,925 for economic hardship, 249 for physical hardship), served, for the "sales" component, by companies other than Acea Energia.

Acea is also Italy's **leading integrated water service operator** (catchment, supply, purification, wastewater collection and treatment) in terms of **population covered**, with **more than 2.6 million connected users** and an overall base consisting of **8.6 million inhabitants in Italy** (see Table no. 11). Solely within the area of Rome and province, managed through Acea Ato 2, there are **about 690,000 users** and a served population equal to about **3.7 million people**. Starting from this area – Ato 2-Central Lazio – the Group, over time, has progressively expanded its activities, becoming the reference operator also in other Optimal Areas of Operation (ATO)[30] in the province of Frosinone (Lazio), in the provinces of Pisa, Florence, Siena, Grosseto, Arezzo and Lucca (Tuscany), in the areas from the Sorrento peninsula to the areas around Vesuvius in the provinces of Naples and Salerno and the province of Benevento (Campania) and Perugia and Terni (Umbria). The Group also operates in a number of South American countries.

25 See the *Annual report on the status of services and activities carried out*, 2018 edition (on 2017 data), *Structure, pricing and quality in the electricity sector* available online on the Authority's (ARERA) website; the Authority specifies that the data are to be considered provisional.

26 The relevant national Authority accurately defines the energy market segments. See the *Glossario della bolletta elettrica* [a glossary of the electricity bill] on the ARERA website.

27 See the *Annual report on the status of services and activities carried out*, 2018 edition (on 2017 data), *Structure, pricing and quality in the electricity sector* available online on the ARERA website.

28 For details of the conditions legitimising the request and granting of the electricity bonus, see the specific section of the ARERA website: https://www.arera.it/it/bonus_sociale.htm.

29 For customers with financial hardship and health problems reference is made to the number of customers who benefited from the bonus at least once during the year.

30 The national territory, according to law no 36/1994, so-called "Galli Law" as implemented in the Single Text 152/2006 which reorganised water services, is divided into Optimal Territorial Environments that take account of hydrographic basins. For the OTE in which Acea is operational, see also section *Water company data sheet and overseas activities* (outside of the consolidated non-financial Statement boundary pursuant to Legislative Decree 254/2016).

SUSTAINABILITY OF WATER SERVICES: ARREARS AND WATER BONUSES

In 2017, ARERA intervened, as far as its competence is concerned, on the issues of **reducing arrears** and **social tariffs**, which are the subject of two Decrees of the Prime Minister. With regard to the issue of **arrears**, in 2018 the Authority published the consultation document 80/2018 which, confirming the regulatory guidelines already emerged in the previous DCO 603/2017[31], delved into the measures aimed at greater protection of residential domestic users, like the provision not to proceed with the deactivation of the supply by termination of the contract and removal of the meter, and the prohibition on charging penalties for reactivating the supply. The measure illustrates the categories of end users who cannot be disconnected, the timing and methods for the notice of default, for deactivation, for suspension (to be carried out only when limitation is not technically feasible), for limitation and reactivation of the supply that has been suspended due to arrears. With regard to disablement, the Authority proposes to extend its definition to domestic users in whose household there are people in a state of physical distress.

As regard the **social tariff**, by **resolution 897/2017** ARERA approved the integrated text regarding application procedures for the **social water bonus** for the supply of water to domestic users under economic hardship (TIBSI). The TIBSI identifies the beneficiaries of the bonus for resident domestic users under ascertained economic social hardship, in the same way as this happens in the electricity and gas sector, based on specific thresholds of the ISEE indicator. The total amount of the subsidy is calculated by each operator according to family numbers (pro capital basis), applying the preferential tariff to the essential quantity of water required to satisfy the demand to be safeguarded (18.25 m^3/inhabitant/year, about 50 litres/inhabitant/day). Without prejudice to the faculty for the Governing Entities of the Sector to introduce, or confirm further measures of protection to the benefit of users under economically vulnerable conditions through granting a supplementary water bonus. The provisions on social water bonuses applied throughout the country from 1 January 2018, while the possibility of applying for bonuses began on **1 July 2018**.

In April 2018, with Resolution ARERA 227/18 (*"Procedure for applying for the social water bonus for economically disadvantaged domestic users"*), the Authority introduced the necessary amendments and additions to the TIBSI to ensure the concrete implementation of the new discipline, and in August 2018, with Resolution 14/DACU/18, the *detailed procedures for the validation of requests for the social water bonus as well as the procedures for the recognition of the one-off compensation component* corresponding to what the users concerned could have received if they had had the opportunity to apply on 1 January 2018.

During 2018, between July and December, **Acea Ato 2** received **3,043 applications** for water bonuses, **Acea Ato 5 1,527 applications** (individuals and apartment complexes) and **Gesesa** received **753 applications** for water bonuses from residential domestic users.

TABLE NO. 11 - SOCIAL INDICATORS: ACEA GROUP CUSTOMERS (ENERGY AND WATER SECTORS) (2016-2018)

	u. m.	2016	2017	2018
ENERGY AND GAS SALES (Acea Energia)				
more protected market	(no. withdrawal points)	942,873	892,877	832,719
free market - mass market	(no. withdrawal points)	247,022	275,688	286,714
free market - large customers	(no. withdrawal points)	44,666	43,020	44,364
free market gas	(no. redelivery points)	148,832	167,337	172,755
total	**(no. supply contracts)**	**1,383,393**	**1,378,922**	**1,336,552**
ENERGY DISTRIBUTION (Areti)				
domestic customers, low voltage	(no. withdrawal points)	1,309,366	1,316,339	1,319,118
non-domestic customers, low voltage	(no. withdrawal points)	312,808	311,141	307,961
customers at medium voltage	(no. withdrawal points)	2,863	2,886	2,894
customers at high voltage	(no. withdrawal points)	7	7	7
total	**(no. withdrawal points)**	**1,625,044**	**1,630,373**	**1,629,980**
WATER SALE AND DISTRIBUTION (main water companies of Acea Group)				
Acea Ato 2	(no. users)	628,078	649,319	689,827
Acea Ato 5	(no. users)	185,610	194,360	197,821
Gesesa	(no. users)	55,221	55,253	57,404
Acque	(no. users)	324,122	325,912	327,323
Publiacqua (*)	(no. users)	390,486	393,099	395,675
Acquedotto del Fiora (*)	(no. users)	231,266	231,648	231,563
Gori	(no. users)	518,058	523,352	526,808
Umbra Acque	(no. users)	231,485	232,910	233,405
total	**(no. users)**	**2,564,326**	**2,605,853**	**2,659,826**

[31] The guidelines issued by the Authority in DCO 603/17 referred in particular to the letter of formal notice, the suspension of the supply, compensation in the event of incorrect action of default and the timing and method of reactivation of the supply suspended for default. The Authority had also highlighted guidelines related to procedures for arrears management in the case of condominium users, to identifying defaulting users who cannot be disconnected, to arranging instalments of both invoiced amounts and the cautionary deposit.

Acea Ato 2 (*)	(population served)	3,522,055	3,631,529	3,703,160
Acea Ato 5	(population served)	470,000	481,000	469,836
Gesesa	(population served)	131,512	132,403	137,311
Acque	(population served)	737,204	740,299	738,903
Publiacqua (*)	(population served)	1,242,739	1,242,649	1,244,295
Acquedotto del Fiora (*)	(population served)	403,861	403,084	403,016
Gori	(population served)	1,430,774	1,439,091	1,446,004 (**)
Umbra Acque (*)	(population served)	504,966	504,155	502,065
total	**(population served)**	**8,443,111**	**8,574,210**	**8,644,590**

(*) Some data relating to users and population served for the two-year period 2016 and 2017 have been corrected.
(**) Resident population as at 1 January 2018.

QUALITY PERCEIVED

CUSTOMER SATISFACTION:
28,100 people
INTERVIEWED
IN THE LAZIO AREA

THE OVERALL RATINGS FOR SERVICES DELIVERED IN 2018:
ELECTRIC SERVICE "SALES": **7.7/10**
ELECTRIC SERVICE "GRID": **7.9/10**
PUBLIC LIGHTING SERVICE: **6.5/10**
WATER SERVICE (ROME AND FIUMICINO): **8/10**
WATER SERVICE (FROSINONE AND PROVINCE): **5.7/10**

For many years, Acea has been monitoring the **customers' and citizens' satisfaction with the services provided** in the electrical, water[32] and public lighting sectors via **semi-annual surveys** carried out by an institute specialising in public opinion research, identified by tender. **The Stakeholder Relations Unit**, within the External Relations and Communications Department of the Parent Company, **coordinates the process** aimed at periodically measuring the quality perceived by the Group's customers in agreement with the operating companies that manage the services, and **works with Top Management to analyse and understand the data collected**.

As in past years, the two **half-yearly surveys** in 2018 were conducted using the CATI method[33] and the following main indicators were elaborated:

- the **overall judgement** of the quality of the service (**from 1 to 10**), is a so-called "gut feeling", expression of an **on-the-spot assessment** by customers;
- **summary satisfaction indices, both overall** and **on aspects** of the service (**Customer Satisfaction Index - CSI, index 0-100**) based on the percentage of customers who stated they were satisfied and processed considering the customers' ratings regarding the individual aspects of the service;
- **satisfaction degree indices**, both overall and **on aspects** of the service (**Customer Satisfaction Index - CSI, expressed in % of satisfied customers - threshold value 75%**) which measure "to which extent" the customers are satisfied or dissatisfied with the service.

As regards the "**contact channels**", the interviews involved all of the **customers** selected using the "**call back**" method **among those who have recently used the services** (toll free number for commercial information or reporting faults, website, helpdesk, technical interventions) and gave their authorisation to be called back.

In the following paragraphs dedicated to illustrating customer satisfaction for each service – so-called "perceived quality" – the charts represent the **customer satisfaction indices (CSI) calculated during the year**. For the **percentages of satisfied customers** on the **most important factors of quality of services** and **comparison with the results of the 2017 surveys**, see **Table no. 12**.

ELECTRICITY SERVICE RATING

Customer satisfaction as regards the electricity supply service (sale and distribution) was recorded in April/July and November/December 2018 with comprehensively **13,400 people** contacted by telephone, representing customers on the **more protected market** and on the **free market: 8,900** for **sales-related aspects**, managed by **Acea Energia**, and **4,500** for **technical and management aspects of the distribution service** (network), managed by **Areti**.
The **global ratings of the electricity service**, reported here as the average of the two semi-annual surveys: **7.7 out of 10** for the commercial aspects (sales) and **7.9 out of 10** for the aspects relating to distribution (network), **remaining positive** and in line with 2017.

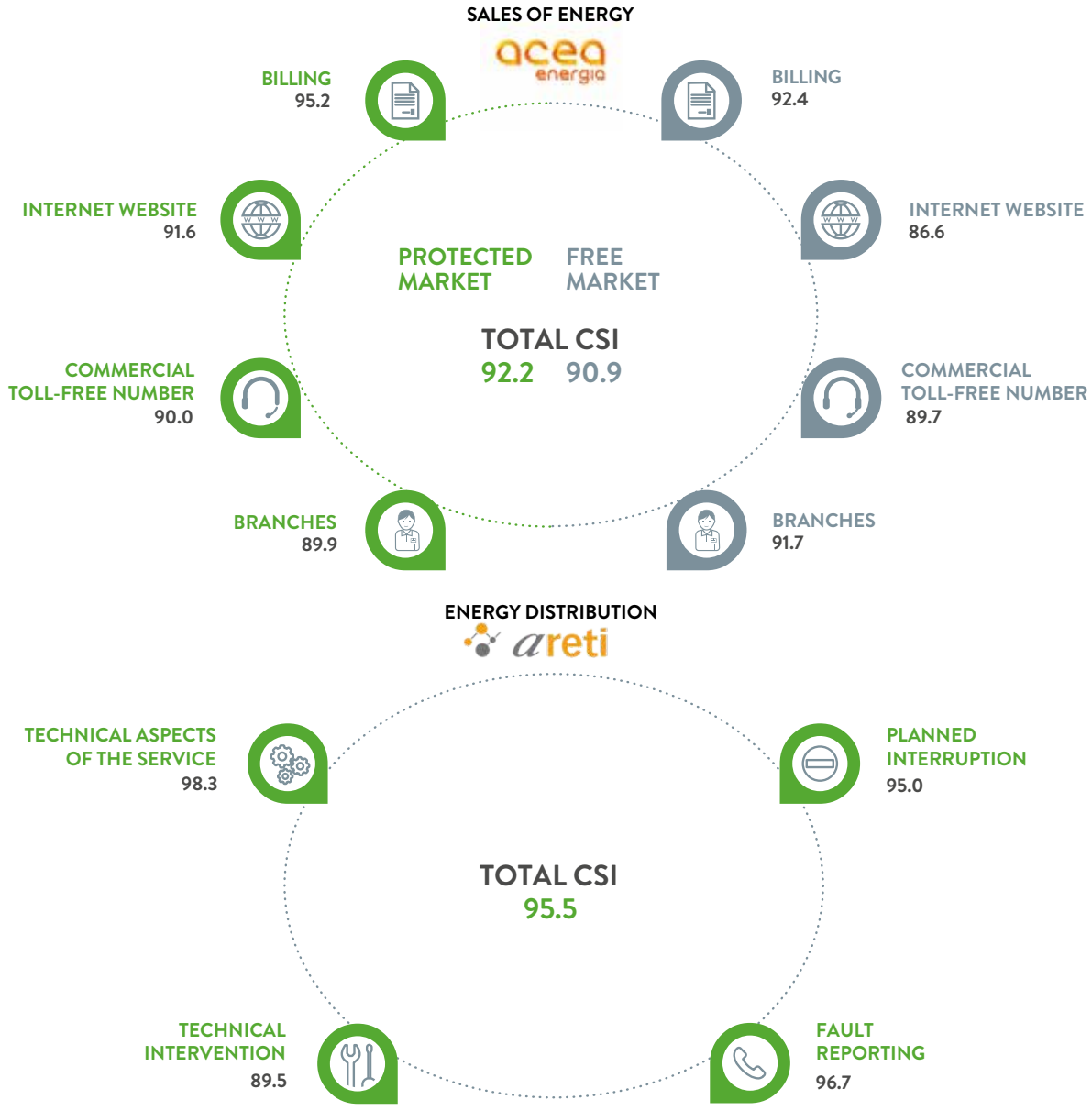
[32] As regards water services, the main results of the customer satisfaction surveys carried out by Acea SpA and reported here concern the customers of the companies Acea Ato 2 (Rome and province) and Acea Ato 5 (Frosinone and province), operating in the Lazio area, and, thanks to an initial survey carried out in the second half of 2018, Gesesa, operating in the territory of Benevento and province.

[33] *Computer Assisted Telephone Interviewing* of a stratified sample based on variables and representative of the universe of reference, following a structured questionnaire. Depending on the sample, the statistical error varies between +/- 2.3% and a maximum of +/- 4.3% and the level of significance is 95%.

For **customers in the more protected market**, the **overall satisfaction index** (CSI) for **energy sales activities**, already positive in 2017 (88.9 out of 100), **improved even more**, the average of the two surveys for the year equalling **92.2 out of 100**. CSIs for all aspects of the service subject to assessment are stable or rising compared to the previous cycle of surveys. In particular, the CSI for the **commercial toll-free number** has improved (from 83.6 to **90 out of 100**). Similar results also for **customers in the free market**: the overall satisfaction index rose to **90.9 out of 100** and the **individual aspects of the service remained stable or improved**, especially the **commercial toll-free number** (from 84 to **89.7 out of 100**).

With regard to **energy distribution** (grid), **the overall satisfaction index is very high (95.5 out of 100)** and up compared to 2017 (93.2 out of 100). **The CSIs on the service aspects were also excellent, all high and improving**, in particular the fault reporting (from 91.8 to 96.7 out of 100). See the dedicated Chart and Table no. 12.

CHART NO. 17 - OVERALL CSI AND ON ELECTRICITY SERVICE ASPECTS - SALE AND DISTRIBUTION OF ENERGY (2018) (INDEX 0-100)



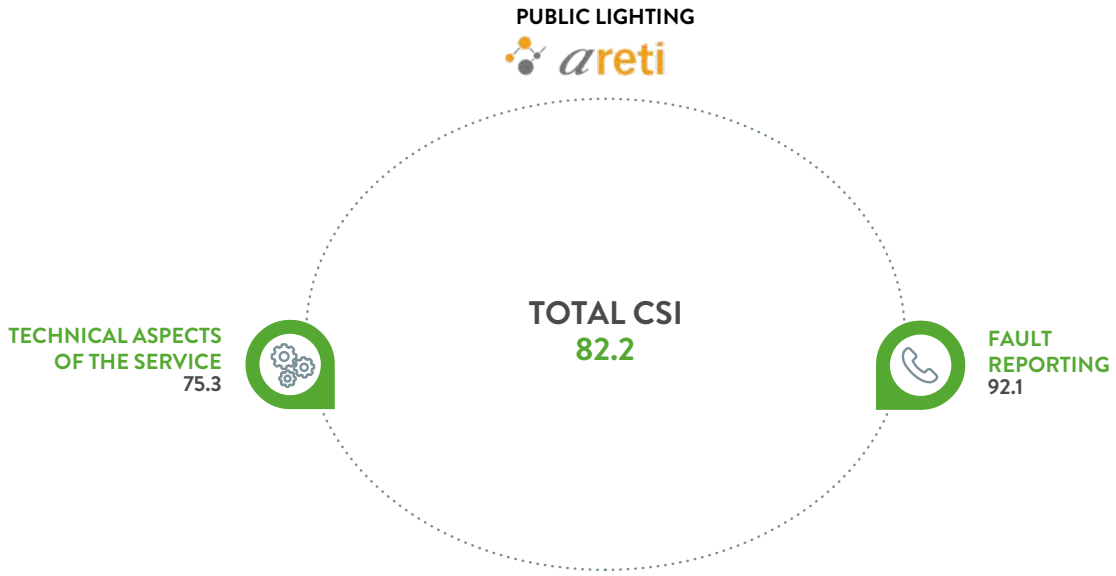
NB The Customer Satisfaction Indexes – overall and on the individual aspects of the service – shown in the chart are the average of the two semi-annual surveys.

PUBLIC LIGHTING SERVICE RATING

The satisfaction level of citizens as regards the public lighting service was surveyed in May/July and October/November 2018, through interviews to **2,900 residents in the municipalities of Rome and Formello**. The sample, representing the entire resident population, was identified in 3 territorial macro areas: central-northern Rome and Formello, east-southeast Rome and southwest Rome.
As an **average of the two semi-annual surveys**, the **overall rating** of the service remains in line with the previous year and **in the area of average satisfaction (6.5 out of 10)**.

Despite the stability of the overall assessment, the **overall satisfaction index for the service**, as an average for the two semesters, **rose compared to last year** to **82.2 out of 100** (compared to 75.7 out of 100 in 2017). The assessments expressed by the public on the **technical aspects** of the service (**75.3 out of 100**) and in particular on the **fault reporting** (**92.1 out of 100**, compared to 78.6 in 2017) also improved. See the dedicated graph and Table no. 12 for satisfaction percentages on individual items and comparison with previous surveys.

CHART NO. 18 - OVERALL CSI AND ON ASPECTS OF THE PUBLIC LIGHTING SERVICE IN ROME AND FORMELLO (2018) (INDEX 0-100)



NB The Customer Satisfaction Indexes – overall and on the individual aspects of the service – shown in the chart are the average of the two semi-annual surveys.

WATER SERVICE RATING

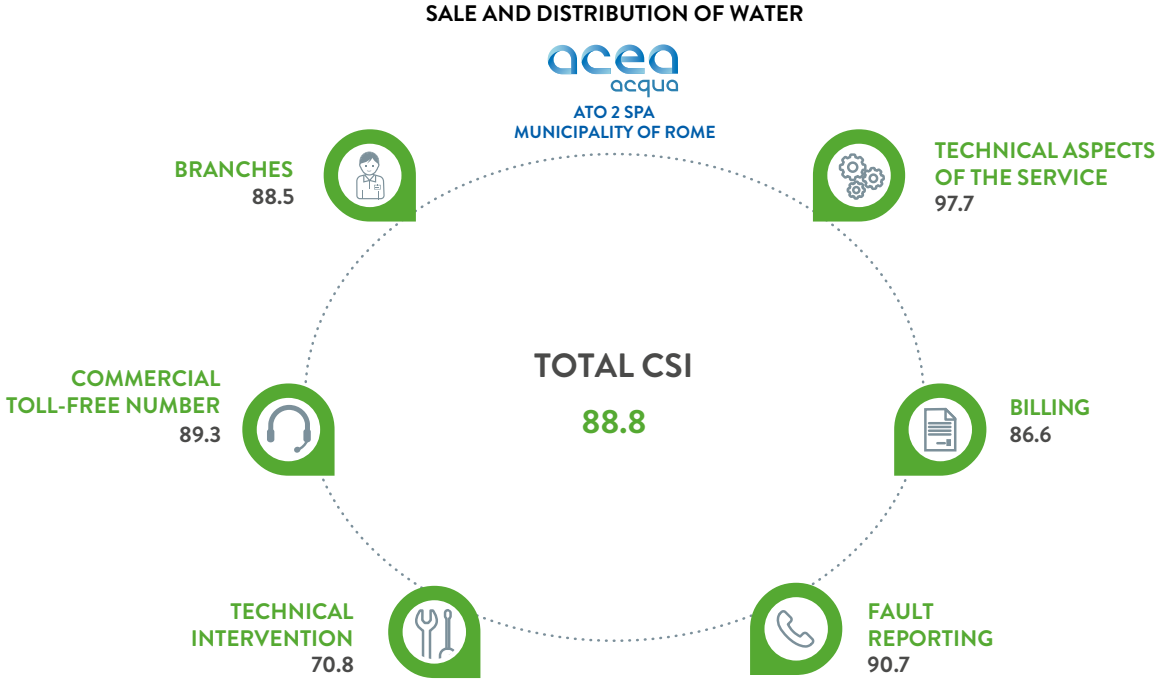
As regards the water service managed in Lazio, the customers in Acea Ato 2 (Rome and province) and **Acea Ato 5** (Frosinone and province) was satisfied.

In Rome and Fiumicino, the surveys were conducted by telephone interview in March/July and October/December 2018. The sample of respondents, representative of all users, was selected from 4 territorial macro-areas: central-north Rome, northeast Rome, south Rome, southwest Rome and Fiumicino, and has included, in total **5,800 people**, including **domestic customers**, with or without direct utilities, and **apartment complex administrators**.

The **overall assessment** of the water service, as an average of the two semi-annual surveys, **continues to be positive** (**8 out of 10**) and in line with previous surveys.

The overall service satisfaction index, average for the two semesters, is very high (**88.8 out of 100**) and has improved compared to last year (84.7 out of 100 in 2017). **Satisfaction indices for all aspects of the service being assessed have risen** (see the dedicated chart), and more markedly the CSIs on **billing** (**86.6 out of 100**, was 80.9 in 2017), **technical service** (**70.8 out of 100**, was 64.6) and **branch services** (**88.5 out of 100**, was 83.8). See also Table no. 12.

CHART NO. 19 - OVERALL CSI AND ON ASPECTS OF THE WATER SERVICE - SALE AND DISTRIBUTION OF WATER IN ROME AND FIUMICINO (2018) (INDEX 0-100)



NB The Customer Satisfaction Indexes – overall and on the individual aspects of the service – shown in the chart are the average of the two semi-annual surveys.

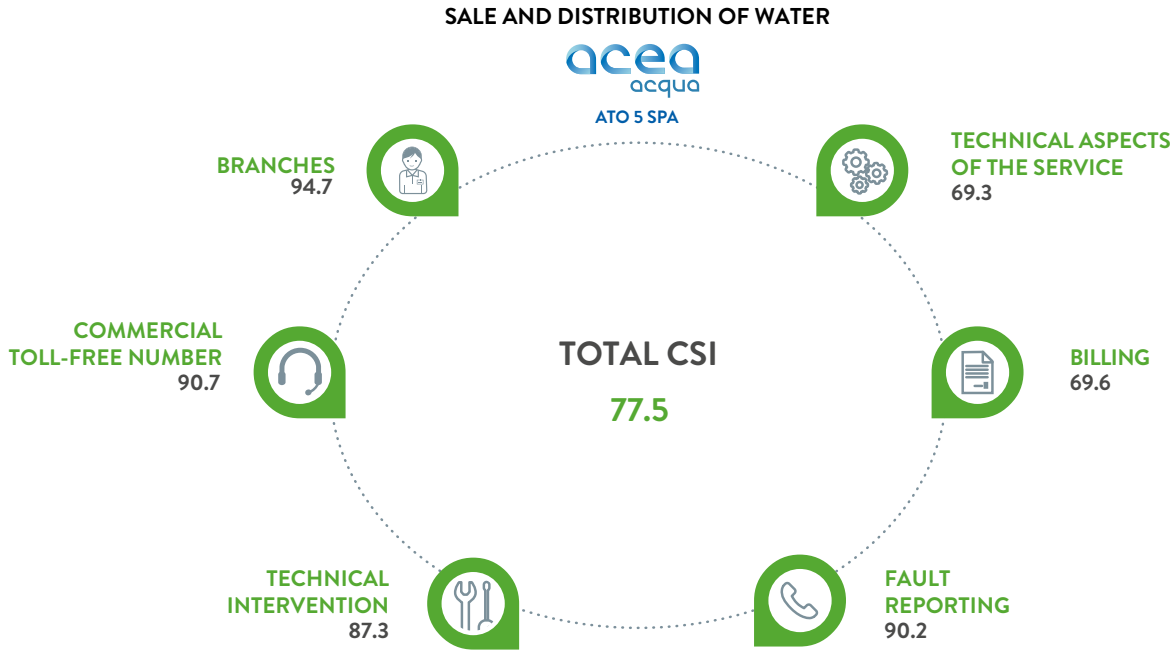
SURVEYS ON CUSTOMER SATISFACTION WITH WATER SERVICE DELIVERED IN OTHER ATO 2 MUNICIPALITIES - CENTRAL LAZIO

Customer satisfaction surveys were also conducted in some other municipalities in the province of Rome. The two half-yearly surveys in 2018, conducted in April/May and in October, involved a sample of 2,000 residents, representative of all of the direct or condominium utilities present in the four "sentinel" municipalities: Frascati, Guidonia, Monterotondo and Tivoli – within the framework of Optimal Area of Operation 2 – Central Lazio. The **overall rating** recorded was **7.5 out of 10**, in line with the previous year (7.4 out of 10).
The overall service satisfaction index, as an average of the two surveys, is **84.7 out of 100** (it was 83.7 out of 100 in 2017). With regard to the individual **aspects** subject to **assessment**, **all satisfaction indexes relating to commercial aspects and contact channels have improved: branch service** 74.6 out of 100 (was 69.8 out of 100), **fault reports** 77.8 out of 100 (was 71.6 out of 100), **toll-free number** 79.9 out of 100 (was 77 out of 100) and **billing** 92.2 out of 100 (88.8 out of 100 the previous year). Although it remained positive, the satisfaction index on **technical service** fell to 79.6 out of 100 (was 92.1 out of 100), while the evaluation of **technical aspects** (continuity of service and water pressure) remained very high and in line with the previous survey cycle at 91.7 out of 100 (91.8 out of 100 in 2017).

In the **Frosinone** area, the surveys on the **perceived quality of the water service** were conducted in April/May and October/December 2018. The telephone interviews involved an overall sample of **4,000 residents** in the municipalities of Optimal Area of Operation 5 - Frosinone, consisting in direct users, domestic and non-domestic.
The **overall assessment** of the water service, as an average of the two surveys, is **5.7 out of 10** (5.3 out of 10 in 2017), not yet in an area of full satisfaction but slightly higher.

Looking at the indices, however, there was a higher level of satisfaction. **The overall service satisfaction index rose** to **77.5 out of 100** as an average of the two semi-annual surveys (in 2017 it was 70.8 out of 100). **Satisfaction indices on almost all aspects of the service assessed also improve**, in particular the **technical or continuity aspects** (from 58.8 out of 100 in 2017 to **69.3 out of 100**), **billing** (**69.6 out of 100**, was 64.9 in 2017), the **commercial toll-free number** (**90.7 out of 100**, from 84.1 in the last survey cycle) and **branch services** (which rose to **94.7 out of 100** from 87.1). For the percentages of satisfaction with the individual quality elements see also Table no. 12.

CHART NO. 20 - OVERALL CSI AND ON ASPECTS OF THE WATER SERVICE - SALE AND DISTRIBUTION OF WATER IN FROSINONE AND VICINITY (2018) (INDEX 0-100)



NB The Customer Satisfaction Indexes – overall and on the individual aspects of the service – shown in the chart are the average of the two semi-annual surveys.

As regards **Gesesa**, the operating company in **Benevento and its province**, a **first customer satisfaction survey was carried out in the second half of 2018** [34]. To this end, in September/October 2018 **telephone interviews** were conducted with a sample of **500 people** living in the municipalities of the managed Area, representing direct households or apartment complexes.

The **overall assessment** of the water service was rather good, at **7.3 out of 10**. More specifically, satisfaction with both the **technical aspects** of the service and the **billing aspects** was noted. For the former, the **"continuity of service"** was assessed, considered the most important quality factor, for which **92% of customers said they were satisfied**, and the **"water pressure level"** with **93.8% of satisfied customers**. Among the quality elements of the billing, the items considered by customers as the most relevant were the **"correctness of the amounts reported on the bill"** and **"the regular sending of invoices"**. For both a **high level of satisfaction** was found, equal to 88.9% and 88.7% respectively.

[34] The results of the survey, which refer only to the second half of 2018, are illustrated only in the text and not also in graphic form and in the table since the data would not be comparable with the other surveys presented.

TABLE NO. 12 - SOCIAL INDICATORS: CUSTOMER SATISFACTION (2017-2018)

(average of the two interim reports)

	u. m.	2017	2018	
ELECTRICAL SERVICE - SALE OF ENERGY (Rome and Formello)				
PROTECTED MARKET CUSTOMERS				
sales activity (CIS inclusive)	**0-100**	**88.9**	**92.2**	
ASPECTS OF THE SERVICE AND ELEMENTS OF QUALITY				
billing	**0-100**	**95.0**	**95.2**	
correctness of the amounts	*%*	*95.2*	*94.9*	
bill clear and easy to read	*%*	*96.2*	*95.3*	
internet website	**0-100**	**92.3**	**91.6**	
range of available operations	*%*	*91.7*	*93.0*	
ease of browsing the website	*%*	*92.7*	*93.6*	
commercial toll free number	**0-100**	**83.6**	**90.0**	▲
operator's competence	*%*	*83.2*	*89.7*	▲
clarity of answers provided	*%*	*83.6*	*89.2*	▲
branch	**0-100**	**85.7**	**89.9**	
operator's competence	*%*	*86.4*	*89.1*	
clarity of the information provided	*%*	*85.6*	*88.6*	
FREE MARKET CUSTOMERS				
sales activity (CIS inclusive)	**0-100**	**86.7**	**90.9**	
ASPECTS OF THE SERVICE AND ELEMENTS OF QUALITY				
billing	**0-100**	**88.5**	**92.4**	
correctness of the amounts	*%*	*87.6*	*91.3*	
bills sent regularly	*%*	*89.0*	*94.4*	▲
internet website	**0-100**	**87.3**	**86.6**	
range of available operations	*%*	*87.3*	*87.4*	
operation user friendliness	*%*	*88.6*	*83.3*	▼
commercial toll free number	**0-100**	**84.0**	**89.7**	▲
operator's competence	*%*	*83.5*	*88.9*	▲
clarity of answers provided	*%*	*82.5*	*89.2*	▲
branch	**0-100**	**88.8**	**91.7**	
operator's competence	*%*	*89.2*	*90.4*	
clarity of the information provided	*%*	*89.6*	*90.7*	
ELECTRICAL SERVICE - ENERGY DISTRIBUTION (Rome and Formello)				
distribution activity (CIS inclusive)	**0-100**	**93.2**	**95.5**	
ASPECTS OF THE SERVICE AND ELEMENTS OF QUALITY				
technical aspects of the service	**0-100**	**98.4**	**98.3**	
service continuity	*%*	*98.6*	*98.3*	
voltage constancy	*%*	*97.6*	*98.4*	
planned interruption	**0-100**	**90.5**	**95.0**	
correctness of information about recovery times	*%*	*91.2*	*95.4*	
prior notice of suspended supply	*%*	*90.0*	*95.2*	▲
fault reporting	**0-100**	**91.8**	**96.7**	▲
clarity of the information provided	*%*	*92.4*	*96.1*	
operator's courtesy and availability	*%*	*95.3*	*97.7*	
technical intervention	**0-100**	**86.7**	**89.5**	
technicians' competence	*%*	*90.8*	*92.7*	
intervention speed following the request	*%*	*80.8*	*85.2*	▲
PUBLIC LIGHTING SERVICE (Rome and Formello)				
lighting service (CIS inclusive)	**0-100**	**75.7**	**82.2**	▲
ASPECTS OF THE SERVICE AND ELEMENTS OF QUALITY				
technical aspects of the service (*)	**0-100**	**73.5**	**75.3**	
(directly depending on Acea)				

TABLE NO. 12 - SOCIAL INDICATORS: CUSTOMER SATISFACTION (2017-2018) (follow)

	u. m.	2017	2018	
ASPECTS OF THE SERVICE AND ELEMENTS OF QUALITY				
service continuity	%	*71.6*	*72.7*	
light colouration	%	*77.5*	*83.4*	▲
(not directly depending on Acea)				
presence/network of the lighting service in the city	%	*74.2*	*73.9*	
degree/level of lighting (intensity)	%	*70.6*	*74.7*	
fault reporting	0-100	**78.6**	**92.1**	▲
operator's courtesy and availability	%	*82.5*	*93.4*	▲
clarity of the information provided	%	*83.3*	*91.0*	▲
WATER SERVICE - SALE AND SUPPLY OF WATER - ACEA ATO 2 (Rome and Fiumicino)				
water service (CIS inclusive)	0-100	**84.7**	**88.8**	
ASPECTS OF THE SERVICE AND ELEMENTS OF QUALITY				
technical aspects of the service	0-100	**97.0**	**97.7**	
service continuity	%	*98.3*	*98.3*	
water pressure level	%	*92.3*	*95.5*	
billing	0-100	**80.9**	**86.6**	▲
correctness of the amounts	%	*84.9*	*88.7*	
bills sent regularly	%	*83.6*	*87.6*	
fault reporting	0-100	**87.2**	**90.7**	
clarity of the information provided	%	*84.0*	*89.5*	▲
operator's courtesy and availability	%	*91.8*	*93.5*	
technical intervention	0-100	**64.6**	**70.8**	▲
intervention speed following the request	%	*53.3*	*57.7*	
understanding the problem and resolution skills	%	*73.0*	*81.2*	▲
commercial toll free number	0-100	**85.1**	**89.3**	
operator's competence	%	*84.2*	*89.0*	▲
clarity of the information provided	%	*84.0*	*88.8*	▲
branch	0-100	**83.8**	**88.5**	▲
operator's competence	%	*83.0*	*87.8*	▲
clarity of the information provided	%	*82.0*	*87.7*	▲
WATER SERVICE - SALE AND SUPPLY OF WATER - ACEA ATO 5 (municipalities covered by ATO 5 - Frosinone)				
water service (CIS inclusive)	0-100	**70.8**	**77.5**	▲
ASPECTS OF THE SERVICE AND ELEMENTS OF QUALITY				
technical aspects of the service	0-100	**58.8**	**69.3**	▲
service continuity	%	*57.3*	*68.6*	▲
water pressure level	%	*66.5*	*73.3*	▲
billing	0-100	**64.9**	**69.6**	▲
correctness of the amounts	%	*68.5*	*69.2*	
bill clear and easy to read	%	*63.6*	*68.6*	▲
fault reporting	0-100	**86.8**	**90.2**	
clarity of the information provided	%	*88.0*	*91.5*	
operator's courtesy and availability	%	*92.8*	*94.0*	
technical intervention	0-100	**91.0**	**87.3**	
understanding the problem and resolution skills	%	*98.3*	*87.7*	▼
intervention speed following the request	%	*80.0*	*83.5*	
commercial toll free number	0-100	**84.1**	**90.7**	▲
operator's competence	%	*83.0*	*88.7*	▲
clarity of the information provided	%	*84.8*	*92.0*	▲
branch	0-100	**87.1**	**94.7**	▲
operator's competence	%	*90.3*	*95.7*	▲
clarity of the information provided	%	*87.5*	*94.7*	▲

(*) The average of the assessments of the technical aspects dependent on and not dependent on Acea is shown below.

NB The table **only includes quality factors that the sample interviewed deems to be most important in 2018**; this may give rise to consequent changes in column 2017. Furthermore, in the right hand column there are **significant differences, equal to 5 points or more**. In any case, it must be taken into consideration that the **value indicating adequate customer satisfaction is equal or more than 75%** (threshold value).

QUALITY DELIVERED

Through the operators managing the services, Acea ensures that the **infrastructures (network and systems) are renovated or expanded** and works towards **optimising the management processes** to make **restoration more effective and punctual** after faults, so that the end quality of the services provided is progressively and constantly improved. The same attention is paid to the processes that make **the customer contact channels more efficient**, taking advantage of the opportunities offered by the digital age and the **management of commercial aspects**.

Some factors of the **"quality delivered"** are **measured on the basis** of **reference parameters established by the sector Authorities** or indicated in the **service contracts and management agreements** with local authorities:

- for the **public lighting** service, the contract between Acea and Roma Capitale also regulates the qualitative parameters (performance standards);
- the **technical and commercial quality standards in the energy sector** (for both distribution and sales) **and for the water sector are established** by a single national Authority: **the Regulation Authority for Energy, Networks and the Environment** (ARERA) and, for the water sector alone, by the local Authorities.

As far as the latter is concerned, after having defined the **regulation of the contractual quality of the integrated water service** by means of resolution 655/15, establishing specific and general levels of contractual quality that are uniform throughout the country, with resolution 90/2017 the Authority initiated a further procedure **for the regulation of its technical quality**. After consultations, this procedure led to the final measure that in 2018 introduced the discipline of the *"Regulation of the technical quality of the integrated service or of each of the individual services that compose it (RQTI)"* (Resolution no. 917/2017/R/Idr). The new discipline is divided into three levels: the **specific standards** (all related to service continuity) that identify the performance parameters to be guaranteed in the services provided to the individual user and whose non-compliance requires the application of automatic compensation; the **general standards** (divided into macro-indicators and simple indicators related thereto) that describe the technical conditions for the provision of the service and the **prerequisites**, which represent the conditions that management must meet to be **eligible for the incentive mechanism (rewards/penalties)** associated with the general standards. While for the specific standards there are single national standards, for the macro-indicators a logic of gradualness and selectivity has been implemented, providing for different objectives according to the starting level of each operator. On **1 January 2018, the new system of indicators for technical quality came into force**, together with the consequent **obligation to monitor** the data. **From 1 January 2019 operators are subject to the obligations of recording and archiving data** as envisaged in the Resolution, while the first quantification of premiums/penalties will be in 2020 on the basis of the performance achieved by operators in the years 2018 and 2019.

For **the electricity sector**, after what came into force in 2016[35] (fifth regulatory period 2016-2023), on the subject of **technical quality** and with the help of operators, with resolution 668/2018/R/eel the Authority defined a mechanism that establishes **rewards/penalties** to encourage distribution companies that will invest in actions to make the network more **resilient** to the stresses resulting from severe weather events. The mechanism will have its effects **on interventions** with certain characteristics that will be **completed in the period 2019-2024**. Distribution companies will also be able to access this mechanism for interventions, started in 2017 and presented in the 2018-2020 Resilience Plans, provided that they are completed in 2019 or 2020. With subsequent measures, the Authority will complete the regulation by **harmonising the risk analysis methodologies** that are currently carried out by distribution companies in total autonomy.
The Authority is also considering – again through discussion with operators – to define an incentive mechanism for the benefit of those apartment buildings that, currently powered by old infrastructure, will allow the **modernisation of the distribution network**.
During the year, ARERA defined the mechanism for reimbursing the general system costs paid by distributors to the Cassa per i Servizi Energetici e Ambientali (CSEA) and to the Gestore dei Servizi Energetici (GSE), thus enabling them to be reimbursed.
As far as **commercial aspects** are concerned, ARERA had to harmonise the previous regulatory rules following certain provisions introduced by Law no. 205/2017 (Budget Law 2018), like, in the electricity sector, the two-year limitation of the right to compensation for electricity consumption and electronic billing[36].
The Authority **introduced**[37] **PLACET offers** (Free Price at Equivalent Protected Conditions) that from January 2018 the sellers of electricity and gas must offer to customers entitled to protection by applying pre-established contractual conditions but at prices freely established, according to a clear, understandable and comparable structure, and has **prepared**[38] **a Offer Portal** (www.arera.it/it/portaleofferte.htm, online from July 2018) through which families and small businesses can search for the offer that best suits their needs.
Finally, the **end of the market for greater protection**, initially scheduled for 1 July 2019, **has been further postponed** to 1 July 2020, and with Resolution no. 639/2018/R/Com ARERA updated certain parameters for calculating the WACC for the period 2019-2021[39].

In addition to regulatory measures, for many years now the **UNI EN ISO certified management systems** used by the companies, based, as is well known, on a **logic of continuous improvement**, have contributed to increasing the quality of the services provided (see also *Company identity*, paragraph *Management systems*).

35 TIQE - Output-based Regulation for electricity distribution and measurement (Attachment A to resolution 646/15/R/eel as amended.); TIT - Provisions for the supply of transmission and distribution services; TIME - Provisions for the supply of the measurement service and TIC - Economic conditions for supplying the connection service (Attachments A, B and C to resolution 654/15/R/eel as amended).

36 See Resolution 712/2018/R/Com. For further information, please refer to the website of the Authority.

37 With Resolution 557/2017/R/ Com.

38 With Resolution 51/2018/R/ Com.

39 The WACC is the weighted average cost of the resources the company uses to finance itself. In this case, it is the basis for calculating the rate of return on investment for infrastructure services.

QUALITY IN THE ELECTRICITY AREA

CONTINUITY OF SERVICE:
the transformation of the Disaster Recovery service was completed in 2018
(INTERVENTIONS ON BUSINESS CONTINUITY AND NETWORK MANAGEMENT SYSTEM)

MODERNISATION AND UPGRADING OF THE MV AND LV NETWORKS: APPROXIMATELY
231 km OF 20 KV MV CABLE AND APPROXIMATELY
377 km OF LV CABLE (PREPARATORY TO THE VOLTAGE CHANGE FROM **230 V** TO **400 V**)

130 substations were built or expanded and 1,010 stations were rebuilt during operations, TO ADAPT THEM TO **20 kV** RENEW THEIR EQUIPMENT AND **prepare them for remote control**

IN 2018:
6,876 MV remote controlled nodes

Areti manages the **electricity distribution service in Rome and Formello**. It plans and carries out **modernisation and expansion work on the infrastructures**, comprising **high, medium and low voltage electricity lines, stations and substations, systems for remote control and for measuring energy** drawn from and fed into the grid.
The activities are carried out in compliance with procedures under the **QASE** (Quality, Environment, Safety and Energy) **Management System certified according to UNI EN ISO and OHSAS Standards**.

Infrastructure works are aimed at increasing the quality of the service provided, also taking into account the objectives established by the National Authority (ARERA) and the energy efficiency of the networks; they are implemented in accordance with the concession, sector regulations and service requirements, in particular for connecting new customers related to urban expansion and **increasing electricity applications**.
The **Regulatory Plans** of the HV, MV and LV grids represent the operational tool for the **integrated development of the electricity grids**. Among other things, they aim to **create an adequate and enabling network configuration for future smart city scenarios**: distributed generation, electrical mobility, storage systems, end user involvement, connectivity.
As part of the progressive implementation of the **MV and LV Regulatory Plans**, Areti's interventions provide for the construction of **new backbones** aimed at **rationalising and upgrading the networks** and, at the same time, **changing the voltage** from 8.4 kV to 20 kV on the MV network and from 230 V to 400 V on the LV network. These interventions generate significant **benefits on transport capacity**, which guarantees residual power for new connections, and **a reduction of energy losses and voltage drops** on MV and LV grids.
Infrastructure management and development activities **carried out in 2018** concerned interventions of **construction, expansion, transformation, modernisation, upgrading, decommissioning** – and, as a result, reduction of environmental impacts in specific areas – **measure, protection, ordinary and extraordinary maintenance operations on stations and substations, high voltage** (HV) **lines as well as low and medium voltage** (LV and MV). The works are functional to the **capillary distribution of electricity** and improvement of the service, above all in terms of availability and **continuity of the supply**.
The main interventions realised in 2018 are shown in the relevant box.

THE MAIN INTERVENTIONS IN 2018 FOR THE MANAGEMENT AND DEVELOPMENT OF NETWORKS AND ELECTRICAL SUBSTATIONS

HV LINES AND PRIMARY STATIONS

In 2018 the **demolition of the 150 kV Cassia-Rome North line was completed**, for a total of **9.8 km and 39 supports**, and the **demolition of the 150 kV** Flaminia 2 - Smistamento Est 2 **overhead line was started**, for a total of 22.58 km and 74 supports.
Also in 2018, **construction** of the **150 kV Roma Nord - San Basilio** overhead line **was completed**, with regard to the section to be upgraded for a length of 5.5 km and 18 supports, **the replacement of the 150 kV Belsito - Tor di Quinto cable** (3.6 km) **was completed** and the **replacement of the 150 kV Monte Mario - Belsito cable** (3.6 km) **was started** and almost completed.
Finally, the **construction of the new section** of the **150 kV Roma Nord - San Basilio** overhead line was started, for a total of 4.08 km and 21 supports.
Upgrading, expansion and reconstruction of 9 primary stations were carried out.
The **installation of the Petersen system was started** at the Nomentano primary station, which will have a significant positive effect on **reducing network failures**.
Lastly, the following were carried out: **ordinary and extraordinary maintenance** on the primary stations equipment and, in particular, on **111 HV switches; scheduled maintenance** on **799 MV switches**; the **overhaul of 10 live power** transformer variators. **36 HV voltage transformers** and **6 HV current transformers** were replaced.

THE MAIN INTERVENTIONS IN 2018 FOR THE MANAGEMENT AND DEVELOPMENT OF NETWORKS AND ELECTRICAL SUBSTATIONS (follow)

HV AND MV PROTECTION AND MEASURES	Interventions were carried out to install, calibrate and commission **power protection systems for 47 new MV line bays** and **interventions on the electrical protection systems** present in the primary stations for operation testing purposes (58 HV towers, 291 MV towers, 29 HV/MV and MV/MV transformers). Ground resistance was **measured in 3,201 substations** and step and touch voltage measurements and total ground resistance measurements were carried out at 26 primary stations and 51 substations.
MV AND LV LINES	For the **modernisation and boosting of the network**, gradually changing from 8.4 kV to 20 kV, about **231 km of 20 kV MV cables were installed** in 2018 (217 km for refurbishment and 14 km for expansion). As part of **extraordinary maintenance, heliport inspections were carried out on 444 km of MV overhead lines**, which allowed the implementation of timely interventions to replace equipment, supports, conductors and everything else necessary for the preservation and maintenance of the systems' operations. Between expansion and refurbishing work aimed at replacing obsolete parts or upgrading inadequate parts, **about 377 km of LV cable was installed, 65 km for network expansion**, while on the remaining **312 km**, refurbishment was carried out as part of the **plan for the overall modernisation** of the LV network, preparatory to the subsequent **voltage change** on the LV network, from 230 V to 400 V.
SUBSTATIONS (MV AND LV) AND REMOTE CONTROL	To meet the applications for new connections to the grid and voltage increase filed by existing customers, **130 substations were built or expanded**. **1,010 operational stations** were (totally or partially) **rebuilt** to **upgrade them to 20 kV**, to **ready them for remote control or upgrade their equipment**. Furthermore, the following activities were completed on substations: **642 extraordinary maintenance operations** and **3,410 inspections** to check the maintenance and operating status of equipment and premises and to bring about the necessary related ordinary maintenance operations. **Remote control was extended** to a further 374 substations and 141 reclosers, with **remote controlled MV nodes totalling 6,876 units** as at 31.12.2018. Lastly, 5,518 maintenance operations were completed (on TLC and Reclosers).

CONTINUITY OF SERVICE: THE CENTRAL SYSTEMS FOR REMOTE CONTROL

In 2018, the transformation of the existing Disaster Recovery service was completed. The tasks completed, which led to significant improvements in the reduction of network losses and downtime in the event of a disaster, were focused on three areas:
Business continuity - the **remote management** of the electricity grid is located in **two geographically distant nodes** in the urban area, connected by a high-speed, low-latency fibre optic connection. Compared to the previous service reactivation architecture, in the event of a disastrous event – Disaster recovery – which would have resulted in a few hours of disruption, **today**, thanks to the works carried out during the year, **the system has evolved and is able** to ensure the **continuity of the remote management service** – Business Continuity – even in the event of a partial or total fault of one of its two nodes.

Network Management System – the telecommunications networks supporting the remote management of the electrical grid consist of several sub-networks built over the years with different technologies and monitored by systems that were not integrated in the past. For some years now Areti has been carrying out the "Network management system" project for the upgrading of the network management system. 2018 saw the **completion and launching of the first network management system** capable of providing real-time **diagnostics and automatic identification of telecommunications equipment faults** on the network, monitoring the different portions in a comprehensive manner.
Scaling/normalisation of network and security architectures – during the year activities also continued in this specific area aimed at **protecting systems from external attacks**.

In synergy with other industrial parties, **Areti developed several projects** that include research activities and **application of innovative technology**, also considering the initiatives proposed by national institutional bodies and the opportunities offered by the European Community. In particular, in the areas of **smart grids, advanced network management systems** (automation and digitisation), **network resilience, distributed storage** (storage systems) and **smart cities** (e.g. with interventions on public lighting infrastructures) (see, for further information, the chapter *Institutions and the company*).
In 2018, for example, the implementation of **algorithms for calculating resilience metrics on company systems** was **completed**. These algorithms allow dynamically classifying each branch and node of the **high- and medium-voltage electrical grid according to their risk for the continuity of service**. The risk is estimated on the basis of the impact that would be caused by a failure and an index of the failure rate for the element itself. In the area of "grid losses", a project is also under way to **define specific algorithms to measure/estimate low-voltage grid losses**, starting with measurements in the substations, measurements of customer consumption and grid topology.
Again, for example, for the impact that these innovative projects may have on customers and the community, we mention here (and also referring to the paragraph dedicated to innovation in the chapter *Institutions and the Company*) the **"car park project"** which envisages the creation of a car park for **charging electric vehicles** equipped with photovoltaic system and **storage system** in order to test methods for managing prosumers; the **"blockchain project"**, which exploits technology capable of recording exchanges and information securely and permanently without the need for intermediaries or third parties to intervene to ensure the shared data, aims to verify the feasibility of a system capable of **certifying the energy exchanges between producer-storage-consumer** and assign them penalties or rewards depending

on the effects that they have on the network in terms of phase shift and voltage; the **"light+ project"** that involved the **development of a prototype of an intelligent public lighting pole** able to manage a series of sensors and functions typical of the public lighting service, but also to provide useful services to the electrical distributor (e.g. integrated modems etc.) and third parties (e.g. ambient sensors, video analysis etc.); finally, the continuation of the **"drone project"**, launched in 2017, thanks to which a **remote piloted aircraft system was created** to **periodically check the status of the overhead power transmission lines** operated by Areti, and the project will continue with the development of a "land-based drone".
In **the "optical fibre" area, in 2018 the optical fibre laying activities acquired in IRU** from Telecom and Wind were completed for the creation of a primary network between the HV/MV transformation plants, useful for the integration of present and future services in primary stations.

With regard to **digital meters** and **smart metering systems**, in 2018 Areti **completed its technical investigations** linked to the development and consolidation of new standards and **experimental tests in the field** initiated in 2016 **on products from foremost meter manufacturers, equipped with advanced technologies**. As a result, a working group was set up to define technical specifications, which led to the completion at the end of 2018 of the **preparation of the documentation required to carry out a public tender** (through competitive dialogue) for the supply of the 2G electronic meter system.
Also **completed during the year was the development** of a **multi-service concentrator** for electronic meters, which **came into operation** after the necessary **tests** had been completed. It is a modular apparatus consisting in a **main control and processing unit** and one or more **additional units, each one dedicated to a specific service (electricity, water, etc.)**.
Activities on the development of multi-service reading for the **testing of multi-functional remote reading technologies** applicable to several sectors continued: for Acea Ato 2, Areti developed a device for remote reading of water meters (equipped with lance-pulses) **with NB-IoT technology**, which has been added to the previous version with GPRS technology. **The project was completed** and moved on to the field operation phase. The solution identified led to the **filing of a patent for an industrial invention** in March 2018.
Lastly, the **installation of digital meters under remote management** continued for **low voltage users** for a **total of 1,613,050 meters installed on active low voltage users as at 31.12.2018**, equal to **99.68%** of the total LV meters.

THE QUALITY LEVELS REGULATED BY ARERA IN THE ELECTRICITY SECTOR

The electrical - commercial service quality parameters (i.e., quotes, work, supply activation/deactivation, replies to complaints) and **technical** aspects (supply continuity) - **are established** at a national level by the **Regulation Authority for Energy, Networks and the Environment** (ARERA), which reviews them on a regular basis, gradually introducing more stringent standards.
Since 2016 the **new regulatory cycle** was launched regarding the quality of **distribution, measuring and transmission services for the 5th regulatory period 2016-2023**.
Such regulatory framework requires that customers be indemnified in the event certain quality standards are not met and comprises a fine/bonus system applicable to service operators, so as to encourage them to continually improve their services.
The **commercial quality** aspects of the service consist of **"specific" levels** and **"general" levels** [40], applicable to the operations pertaining to the electricity **distribution** company (divided into low and medium voltage supplies) as well as those of the **seller** (see Tables 13, 14 and 15). A quality criterion also governs the timely communication of technical data between the energy distributor and seller (see Table 13). Every year **Acea submits the results achieved to the ARERA** for review **and then notifies** such results to **its own customers**, as required, **by enclosing them with the bill**.

As regards **performance 2018 for commercial quality**, related to the distribution and measurement of electricity, we present **estimated data** herein which may differ from those sent to the Authority (ARERA) according to the deadlines set by the latter.
As regards the **"specific" commercial quality levels**, both for low voltage supplies to domestic and non-domestic customers and for medium voltage supplies, in many cases there was a slight improvement in performance. With regard to the **"general" levels** of responses to written complaints/requests for information, there was a substantial improvement in performance compared to 2017 (see Table 13).

The system contemplates automatic indemnities [41] to be granted to customers in the event of failure to comply with "specific" quality levels starting from a basic amount [42], which can either double (in the event operations are performed in a timeframe between twice and three times the required standard) or treble (if operations are performed in a timeframe three times the required standard).

For Acea Energia, 2017 was the year of the launch of a new information system, implemented with the aim of developing and improving performance linked to the customer contact channels. The system had the usual need for fine-tuning that had an impact on performance. **In 2018, the first improvements began to become evident** with higher percentages of compliance with the standards set by ARERA for certain services: for example, for the specific levels of commercial quality, the billing adjustments for the protected market and the reasoned response to written complaints in the free market; the percentages of services performed within the maximum time imposed by the general levels of quality also improved (see Table no. 14).

The **Authority** also defines and updates the benchmark parameters of **"technical" quality** of the service [43], in relation to **continuous electricity supply**, envisaging an incentive system for the operator (bonuses and fines) and indemnities for customers.
It should be stressed that the continuity indicators supplied related to financial year 2018 are not those communicated to

40 "Specific quality standards" are defined as the deadline within which the service provider must provide a given service and, in the event of non-compliance, they require that automatic compensation is granted to customers; the general quality standards" are defined as the minimum percentage of services to be provided within a given deadline.

41 Compensation as pursuant to the Authorities provisions is paid to customers by deducting the amount from the bill or by issuing a cheque within 30 days of the date of the service in question or, at the latest, by three times the period of standard time established for such service, excluding automatic compensation for failure to comply with the punctuality range for appointments, in respect of which the time will commence on the date of the appointment.

42 The amount currently set by the Authority starts from a basic amount of 35 Euros for domestic low voltage customers; 70 Euros for non-domestic low voltage customers and 140 Euros for medium voltage customers.

43 Resolution 654/15/R/eel.

ARERA but rather the highest possible estimate at the time of publication of this document [44].

With regard to the **duration of disruptions** and the **number of disruptions** for LV users, the first available data concerning 2018 and shown in Table no. 15 indicate a decrease in the results compared to 2017.

Disruptions occurring at any voltage level within the electricity system are also regulated **for MV customers**. The regulatory system entitles medium-voltage customers to receive automatic compensation provided that they can certify the adequacy of their systems [45] in the event of **a number of disruptions in the supply of electricity exceeding that stated by a specific standard**.

Prolonged or extended disruptions, in other words **service disruptions exceeding the duration established by standards**, are also regulated for both **LV customers** and **MV customers**. In such eventualities, the operator is required to pay a fine, calculated on the basis of the number of LV customers cut off as a result of disruptions due to "other causes", to the extraordinary event fund set up with the Energy and Environmental Services Fund. In addition, the distributor will automatically indemnify customers affected by disruptions.

TABLE NO. 13 - SOCIAL INDICATORS: SPECIFIC AND GENERAL LEVELS OF COMMERCIAL QUALITY - ENERGY DISTRIBUTION (2017-2018) - (ARERA PARAMETERS AND ARETI PERFORMANCE - 2017: DATA SUBMITTED TO AREA; 2018: ESTIMATED DATA)

ENERGY DISTRIBUTION

SPECIFIC LEVELS OF COMMERCIAL QUALITY

PERFORMANCE	ARERA PARAMETERS - Max. time for service delivery	Service delivery average actual time	Percentage of services carried out within time limit	Service delivery average actual time	Percentage of services carried out within time limit
		2017		2018	
LOW VOLTAGE (LV) SUPPLIES					
DOMESTIC CUSTOMERS		ARETI'S PERFORMANCE			
estimates for work on LV networks (ordinary connections)	15 working days	8.97	93.26%	7.17	96.89%
completion of simple work (ordinary connections)	10 working days	8.97	84.96%	8.05	86.12%
completion of complex works	50 working days	26.49	83.48%	16.08	94.51%
supply activation	5 working days	2.26	94.61%	1.82	96.69%
deactivation of supply on customers request	5 working days	1.29	97.48%	1.18	98.72%
reactivation of supply following disconnection for late payment	1 working day	0.10	99.19%	0.15	99.16%
resumption of the supply following faults of the metering equipment (requests sent during business days from 08:00 to 18:00)	3 hours	2.24	82.56%	2.29	80.83%
resumption of the supply following faults of the metering equipment (requests sent during non-business days or from 18:00 to 08:00 hrs.)	4 hours	2.34	89.88%	2.49	89.52%
notification of outcome of metering equipment check on customers request	15 working days	10.54	92.08%	12.62	93.07%
notification of outcome of voltage supply check on customers request	20 working days	/	/	/	/
maximum punctuality band for appointments with customers	2 hours	n.a.	84.61%	n.a.	88.16%
replacement of faulty metering equipment	15 working days	49.93	41.38%	71.96	21.69%
resumption of correct supply voltage	50 working days	/	/	/	/
estimates for work on LV networks (temporary connections)	10 working days	/	/	/	/
completion of simple work (temporary connections not exceeding 40 kW)	5 working days	/	/	/	/
completion of simple work (temporary connections exceeding 40 kW)	10 working days	/	/	/	/

44 The data for 2018 are the best estimate available at the time of publication, certified data shall be made public by the Authority and available on the website www.arera.it.

45 In order to be entitled to compensation, medium voltage customers must prove that they have installed protection devices at their plants that can prevent any interruption caused by faults within their utility plants from having repercussions on the network, damaging other customers connected nearby. Furthermore, in order to access compensation customers will be required to have arranged for the distribution company to receive a plant adequacy statement issued by parties with specific technical and professional expertise. Failure by customers to meet the requirements whereby compensation may be sought will cause the amount of the compensation to turn into a fine, which the distribution company is required to transfer to the Energy and Environmental Services Fund.

NON-DOMESTIC CUSTOMERS		ARETI'S PERFORMANCE			
estimates for work on LV networks (ordinary connections)	15 working days	8.27	94.31%	7.33	96.44%
completion of simple work (ordinary connections)	10 working days	8.63	86.04%	7.74	87.44%
completion of complex works	50 working days	20.02	89.64%	16.31	94.81%
supply activation	5 working days	2.86	92.78%	2.13	95.73%
deactivation of supply on customers request	5 working days	2.26	96.25%	7.78	94.66%
reactivation of supply following disconnection for late payment	1 working day	0.14	99.08%	0.20	98.86%
resumption of the supply following faults of the metering equipment (requests sent during business days from 08:00 to 18:00)	3 hours	2.36	80.21%	2.72	76.67%
resumption of the supply following faults of the metering equipment (requests sent during non-business days or from 18:00 to 08:00 hrs.)	4 hours	2.34	88.91%	2.53	88.99%
notification of outcome of metering equipment check on customers request	15 working days	10.52	90.98%	11.83	92.28%
notification of outcome of voltage supply check on customers request	20 working days	21.00	0%	21.50	50.00%
maximum punctuality band for appointments with customers	2 hours	n.a.	90.12%	n.a.	90.84%
replacement of faulty metering equipment	15 working days	37.89	44.44%	59.91	34.78%
resumption of correct supply voltage	50 working days	/	/	/	/
estimates for work on LV networks (temporary connections)	10 working days	4.77	95.26%	3.79	97.55%
completion of simple work (temporary connections not exceeding 40 kW)	5 working days	3.81	92.08%	3.07	94.88%
completion of simple work (temporary connections exceeding 40 kW)	10 working days	4.09	96.47%	4.54	96.61%
MEDIUM VOLTAGE SUPPLIES (MV)					
FINAL CUSTOMERS		ARETI'S PERFORMANCE			
estimates for work on MV networks	30 working days	41.84	65.57%	18.64	83.08%
completion of simple work	20 working days	23.71	85.71%	5.27	100.00%
completion of complex works	50 working days	48.64	78.57%	16.67	95.83%
supply activation	5 working days	5.50	77.78%	7.13	60.00%
deactivation of supply on customers request	7 working days	20.04	57.69%	29.7	64.52%
reactivation of supply following disconnection for late payment	1 working day	2.89	55.56%	1.52	82.35%
notification of outcome of metering equipment check on customers request	15 working days	8.55	90.91%	6.37	100.00%
notification of outcome of voltage supply check on customers request	20 working days	/	/	16	100.00%
maximum punctuality band for appointments with customers	2 hours	n.a.	90.18%	n.a.	82.29%
replacement of faulty metering equipment	15 working days	/	/	/	/
resumption of correct supply voltage	50 working days	/	/	/	/
COMMUNICATION OF TECHNICAL DATA FROM DISTRIBUTOR TO SELLER					
technical data (**that can be obtained by reading** a metering system)	10 working days from receipt of the request	11.20	82.86%	69.48	58.07%
technical data (**that cannot be obtained by reading** a metering system)	15 working days from receipt of the request	63.47	29.96%	21.23	86.99%

GENERAL LEVELS OF COMMERCIAL QUALITY					
PERFORMANCE	ARERA PARAMETERS - minimum percentage of services to be performed within a maximum time	Service delivery average actual time	Percentage of services performed within the maximum time	Service delivery average actual time	Percentage of services performed within the maximum time
		2017		2018	
LOW VOLTAGE (LV) SUPPLIES					
DOMESTIC CUSTOMERS		ARETI'S PERFORMANCE			
reply to written complaints/enquiries regarding distribution operations	95% within 30 calendar days	59.14	43.88%	39.00	76.00%
reply to written complaints/enquiries regarding metering operations	95% within 30 calendar days	43.00	61.22%	25.00	81.00%
NON-DOMESTIC CUSTOMERS		ARETI'S PERFORMANCE			
reply to written complaints/enquiries regarding distribution operations	95% within 30 calendar days	69.09	38.76%	47.00	69.00%
reply to written complaints/enquiries regarding metering operations	95% within 30 calendar days	45.73	56.38%	29.00	79.00%
MEDIUM VOLTAGE SUPPLIES (MV)					
FINAL CUSTOMERS		ARETI'S PERFORMANCE			
reply to written complaints/enquiries regarding distribution operations	95% within 30 calendar days	47.67	67.12%	35.00	72.00%
reply to written complaints/enquiries regarding metering operations	95% within 30 calendar days	79.11	33.33%	28.00	73.00%

TABLE NO. 14 - SOCIAL INDICATORS: SPECIFIC AND GENERAL LEVELS OF COMMERCIAL QUALITY - ENERGY SALE (2017-2018) - (ARERA PARAMETERS AND ACEA ENERGIA PERFORMANCE; DATA SUBMITTED TO THE ARERA)

ENERGY SALES

SPECIFIC LEVELS OF COMMERCIAL QUALITY(*)			
PERFORMANCE	ARERA PARAMETERS maximum time by which the service must be performed	Percentage of services carried out within time limit	Percentage of services carried out within time limit
		2017	2018
MORE PROTECTED SERVICE		ACEA ENERGIA'S PERFORMANCE	
billing adjustments	90 calendar days	69.2%	80.0%
double billing adjustments	20 calendar days	/	100.0%
reasoned reply to written complaints	40 calendar days	76.3%	76.0%
FREE MARKET		ACEA ENERGIA'S PERFORMANCE	
billing adjustments	90 calendar days	86.7%	60.0%
double billing adjustments	20 calendar days	100.0%	/
reasoned reply to written complaints	40 calendar days	77.6%	85.5%

GENERAL LEVELS OF COMMERCIAL QUALITY			
PERFORMANCE	ARERA PARAMETERS Minimum percentage of services to be performed within a maximum time	Percentage of services performed within the maximum time	Percentage of services performed within the maximum time
MORE PROTECTED SERVICE		ACEA ENERGIA'S PERFORMANCE	
Reply to written enquiries	95% within 30 calendar days	97.1%	99.9%
FREE MARKET		ACEA ENERGIA'S PERFORMANCE	
Reply to written enquiries	95% within 30 calendar days	97.1%	98.8%

(*) In the event of failure to meet the standards, more protected service customers (mainly domestic customers and small businesses) will receive an automatic compensation of 20 Euros.

NB The symbol "/" is used when services were not requested during the year, n.a. means the data is not applicable.

TABLE NO. 15 - SOCIAL INDICATORS: SERVICE CONTINUITY DATA - ENERGY DISTRIBUTION (2016-2018) - (ARERA PARAMETERS AND ARETI PERFORMANCE - 2016-2017: DATA CERTIFIED BY ARERA; 2018: ESTIMATED PROVISIONAL DATA)

ENERGY DISTRIBUTION - CONTINUITY INDICATORS - LV CUSTOMERS					
DURATION OF DISRUPTIONS AND PERCENTAGE CHANGES					
SERVICES	average aggregate duration of lasting disruptions without prior notice of the operator's responsibility per LV customer per year (minutes)			percentage changes	
	2016	2017	2018	2018 vs. 2016	2018 vs. 2017
high concentration	27.88	34.93	43.7	57%	25%

medium concentration	31.46	39.51	51.4	63%	30%
low concentration	45.76	53.63	54.4	19%	1%

AVERAGE NO. OF DISRUPTIONS AND PERCENTAGE CHANGES(*)

SERVICES	average no. disruptions without prior notice of the operator's responsibility per LV customer per year			percentage changes	
high concentration	1.42	1.78	1.99	40%	12%
medium concentration	1.67	1.92	2.22	33%	16%
low concentration	2.51	2.57	3.01	20%	17%

(*) The yearly average number of disruptions per low voltage customer considers both lasting disruptions (>3 minutes) as well as short disruptions (≤3 minutes but longer than 1 second).

NB The three territorial areas are defined on the basis of the degree of concentration of the resident population: more than 50,000 inhabitants is defined as "high concentration"; between 5,000 and 50,000 inhabitants is defined as "medium concentration"; less than 5,000 inhabitants is defined as "low concentration".

QUALITY IN THE PUBLIC LIGHTING AREA

199,783 FIXTURES AND **225,619** BULBS MANAGED IN ROME

85% OF THE TOTAL NUMBER OF LAMPS ARE LED: ENERGY CONSUMPTION DECREASES AND THE AVERAGE EFFICIENCY PER LAMP INCREASES

REINSTALLED **704** CORRODED SUPPORTS AND REPLACED **3,713** BULBS

ARTISTIC LIGHTING WITH LED TECHNOLOGY: THE **historic fountains of Rome**, THE AREA OF THE **Colosseum** ARCHAEOLOGICAL PARK, THE **Castle of Santa Severa** AND THE **Roman Theatre of Benevento**

In 2018, through **a dedicated unit** Areti[46] managed the works on the **functional** and **monument artistic public lighting** infrastructure of **Rome and Formello** for **more than 199,700 points of light** located in a territory with an extension of approximately 1,300 km² (equal to approximately 7 times that of Milan), under the *Service Contract*[47] stipulated between Acea SpA and Roma Capitale.

The company is responsible for the **design, construction, operation, maintenance and restoration of networks and lighting systems** and operates in compliance with procedures under the **QASE (Quality, Environment, Safety and Energy) Management System** certified according to UNI EN ISO and OHSAS Standards.

Work is scheduled ensuring that **the management and technical staff of the company work together on the basis of the instructions given by local public administration and supervisory departments and authorities** responsible for new urban developments, improvement projects and the cultural heritage. In addition to the service provided to Roma Capitale, public lighting services are also made available to other stakeholders.

TABLE NO. 16 - PUBLIC LIGHTING IN ROME IN FIGURES (2018)

lighting points (no.)	**199,783** (+ 0.4% compared to 2017)
Monumental artistic lighting points (no.)	*· about **9,900***
bulbs (no.)	**225,619** (+0.5% compared to 2017)
MV and LV network (km)	**7,981** (+ 0.3% compared to 2017)

It should be noted that, although **the number of lamps installed has increased** over the years, the **overall power consumed by the lamp inventory has continued to decrease**, from 32.64 MW in 2016 to 17.83 MW in 2018 (almost halved), while the **average efficiency per lamp has increased**. This is also due to the **transformation of systems** in recent years: in 2018 out of a total of 225,619 lamps, **191,200 – or about 85% of the total – use LED technology** (see also the *Environmental accounts*).

Among the **main public lighting projects** carried out during the year with respect to **functional and monumental artistic lighting**, the progressive implementation of the **"LED Plan for the Capital"** is worthy of note, having led to the **overall installation as at 31.12.2018** of more than **170,000 light fixtures**, with benefits in terms of **energy savings** and reduction of the effects of light dispersion. In the same context, towards the end of 2017 the Municipal Administration approved the plan for the **transformation of tunnel lighting into LEDs**, which during 2018 allowed the **completion of works in the tunnels of Corso Italia, Lungote-**

[46] Areti SpA, which manages the distribution of energy in Rome and Formello, absorbed the activities of Acea Illuminazione Pubblica SpA in December 2016, implementing the project of partial proportional demerger of the latter. Therefore Acea Illuminazione Pubblica is not included in the reporting boundary of this document.

[47] By Resolution of the City Council No. 130 dated 22 December 2010 regarding the *Updating of the Service Agreement between Roma Capitale and Acea SpA*, effective 15 March 2011, the agreement was extended to 31.12.2027.

vere Arnaldo da Brescia, Lungotevere Michelangelo, Via di Tor Vergata, Viale Oxford and, on an experimental basis, the transformation into LEDs of the **first section** (about 1.6 km) of the **Giovanni XXIII tunnel** (see the dedicated box). As part of the road works connected to the Tiburtina Station, Acea, which had already taken charge of the functional lighting system of the **New Inner Ring Road** (NCI), built by RFI, **modernised the systems, replacing the high-pressure sodium lamps with LED lighting fixtures** (about 1,350 fixtures).
The **new LED lighting** for the **Piazza del Campidoglio** and the **Naiads, Gianicolo and Moses fountains** (see the box) was also carried out, and the area of the **Colosseum Archaeological Park** was re-activated as it had been subject to vandalism and damage to the fixtures over the past few years, and a **project aimed at raising security levels** was also launched (see the box). During the year, **two monumental artistic lighting projects were also carried out outside Rome**, which had a particularly **positive impact on the territory**: the lighting of the **Castle of Santa Severa** and the lighting of the **Roman Theatre in Benevento** (see the dedicated boxes).

SMART POLES FOR THE SECURITY OF THE COLOSSEUM ARCHAEOLOGICAL PARK

As part of the re-activation of the Colosseum archaeological area in December 2018, by virtue of an **agreement between MIBAC - Parco Archeologico del Colosseo and Acea a first trial** was started with a feasibility test of a **video surveillance solution with innovative functions** in a limited area of the Park, **also making use of the lighting infrastructure**. The system involved the activation of 4 main macro functions: **anti-intrusion, facial recognition, behavioural analysis and video surveillance**. The support infrastructure used has minimised the impact on existing plants.

With its customer satisfaction surveys regarding the services provided (perceived quality), for some years Acea has been monitoring the public's **opinion and perception of the ongoing transformation of LED lighting**. The average results from the two half-yearly surveys in 2018 highlighted that about **66% of the 2,900 interviewees** (+7% compared to 59% reported in 2017 out of a panel of 2,400 people) **had notice the LED lighting on the road. 84.2% of the interviewees believe that the LED lighting transformation project is important for the city** (this was the case for 82% of the interviewees last year) and the three main reasons given are: **energy saving and efficiency** (lower consumption) for about **79%, better visibility of colours on the road**, for about **25%** and, for about **26%, respect for the environment**.

TABLE NO. 17 - MAIN PUBLIC LIGHTING WORKS ON LIGHTING POINTS (2018)

TYPE OF WORK	(NO. LIGHTING POINTS)
Installation of **new lighting points** (including artistic)	**706** lighting points
Actions to **improve energy efficiency/technological innovation** (fixture replacement)	**18,229** lighting points
Safety measures	**4,008** lighting points

NB The table includes operations carried out for the Municipality of Rome and third parties.

THE GIOVANNI XXIII TUNNEL

In August 2018, the initial section of the southern end of the Giovanni XXIII tunnel was experimentally transformed into LED lighting. The system, owned by the Municipal Administration, consists of lighting fixtures that are now old and partly switched off. Taking advantage of the suspended traffic due to unplanned works on the road surface, the Administration asked Acea to intervene and replace the existing lighting fixtures **with a new LED system**. The planned activity should have concerned about 300 metres of tunnel, while technical reasons made it possible to **extend the works to about 1,600 metres**, equal to more than half of the overall tunnel. The new lighting consists of **223 lamps of the reinforcement system** and **231 asymmetrical lamps of the permanent system**. The fixtures were wired into the existing system and will not be taken over by Acea until the completion of the works. The experimental works were applauded by the Municipal Administration, which has confirmed its intention to complete all the transformation works during 2019.

Each year Acea carries out **scheduled and unscheduled maintenance** on the systems (see Table no. 18) aimed at ensuring safety and maintaining an adequate level of illumination.

TABLE NO. 18 - REPAIRS AND PLANNED AND EXTRAORDINARY MAINTENANCE OF PUBLIC LIGHTING (2018)

TYPE OF WORK	(NO.)
Checking corrosion on lamp posts	**42,339** lamp posts checked (functional and artistic)
Replacing bulbs prior to luminous flux loss	**3,713** bulbs replaced
Reinstalling lamp posts that were corroded or knocked down due to accidents	**704** slamp posts reinstalled

Acea monitors the **quality parameters of the public lighting service** with regard to **fault repair times**, which are calculated starting from the arrival of the notification [48].
The **service standards** are **expressed by an average admitted recovery time** (TMRA), within which the repairs shall take place and a **maximum time** (TMAX), after which a **penalty system** is activated [49]. The **average recovery time** (TMR) **for systems** used by Acea **in 2018** for the different types of faults (see Table no. 19), which in some cases showed a **slight increase** compared to the service levels recorded in 2017, fell within the average recovery time allowed.

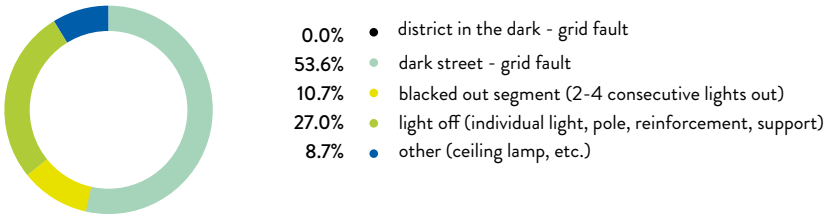
TABLE NO. 19 – FAULT RECOVERY PUBLIC LIGHTING: FINES, STANDARDS AND ACEA PERFORMANCE (2017-2018)

FAULT TYPE	FINE PER DAY OF DELAY	SERVICE LEVEL AGREEMENT(*)		ACEA PERFORMANCE	
	(€)	TMRA (average recovery time allowed) (working days)	TMAX (maximum recovery time) (working days)	TMR (average recovery time) (working days)	
				2017	2018
Blacked out neighbourhood - MV network failure	70	1 day	1 day	<1 day	<1 day
Blacked out street - MV or LV network failure	50	5 days	8 days	2.8 days	2.6 days
Blacked out stretch (2-4 consecutive lights out)	50	10 days	15 days	6.7 days	9.9 days
Lighting points out: single lamps, posts, supports and armour	25	15 days	20 days	8.5 days	9.3 days

(*) Consistent with previous years, data were monitored in compliance with provisions under Annex D/2 to the *2005-2015 Service Agreement* between the Municipality of Rome and Acea SpA.

The fault is detected by control systems like remote management, and, as already mentioned, can be reported to the company, the public and the Municipality of Rome through the various contact channels (call centre, web, fax or letter) [50]. **25,421 fault reports were received in 2018** [51] **and 81% of them were dealt with** by the end of the year. The **percentage distribution of reports by type of fault** is shown in Chart no. 21. The most significant incidents concern "blacked out street", in relation to a network fault (53.6%) and "lighting point out" (27%), having the lowest impact in terms of safety, the "blacked out stretch" is more contained (10.7%). Finally, there have been no cases of "neighbourhood in the dark" due to grid failure.

CHART NO. 21 - TYPES OF PUBLIC LIGHTING FAULTS OUT OF TOTAL REPORTS RECEIVED (2018)



In agreement with the relevant authorities, **Acea enhances the monumental and architectural heritage of the capital through artistic lighting,** with about **10,000 dedicated points of light**. The company, which has significant expertise in this area, also makes itself available for actions requested by third parties (e.g. ecclesiastical bodies, hotels, etc.).

In 2018 a **number of important tasks** were performed, as already mentioned at the beginning of the paragraph. The boxes that follow illustrate works done on historical fountains and other two projects outside of Rome.

48 For the purpose of calculating service levels, reports pertaining to damages caused by third parties will not be considered.

49 Fines are calculated using the following criteria: each repair completed beyond the TMAX will be sanctioned; repairs completed within the TMAX but exceeding the TMRA will be sanctioned only if TMR>TMRA. At the time of publication of this document, the accurate data on reports concerning 2018 subject to fines being calculated is not available.

50 More detailed information on call centre performance and written complaints is provided in the Customer Care section.

51 The datum excludes reminders and repeated reporting of the same fault.

NEW LED LIGHTING FOR THE FOUNTAINS

At the request of Roma Capitale, Areti prepared a project for the **conversion of the incandescent lighting systems of some historical fountains to LEDs**. The objective was achieved by **maintaining the same cast brass fixture**, replacing the incandescent system with a **specially designed and produced 20 W LED plate**, equipped with a temperature sensor to help deal with any overheating.
The works were carried out for the **Acqua Paola fountain** in Via Garibaldi (Gianicolo); the **Moses fountain** in Largo di Santa Susanna and for the **Naiads fountain** in Piazza della Repubblica.
The **Acqua Paola fountain** consists of five large arches flanked by columns, a large basin and a large attic with the dedicatory inscription and papal coat of arms. Behind it is a small garden with a staircase and a "terrace" overlooking the city. The existing system illuminated each of the parts listed above, including the basin, thanks to underwater projectors. **The new lighting system was able to maintain the same number of fixtures and the same system geometry**: inside the fountain, fixtures were installed with a special 20 W LED plate, as mentioned above, while the other fixtures were replaced with others equipped with LED technology and specific optics chosen in order to achieve the best result and prevent leakage of the light. The project **made it possible to switch from the use of 4,412 W to 1,012 W nominal**. For the **Moses fountain** it was also possible to maintain the geometry of the existing system by **replacing the fixtures** with others equipped with LED technology using 20 W of power and a colour temperature of 4000 K. For the more complex lighting system of the **Naiads fountain**, it was possible to maintain the same configuration as the underwater systems, as in the other cases replacing the previous ones with LED technology devices, while for the lighting of the upper part a new system was created with 4 LED projectors installed on two supports in the piazza in front of the fountain.

ILLUMINATION OF THE CASTLE OF SANTA SEVERA

In May 2018 Acea was awarded an important new **permanent artistic lighting project** for the **Castle of Santa Severa**, as part of a wider **site redevelopment project** carried out by the Lazio Region.
Built between the 10th and 11th centuries and renovated several times until reaching its present 16th century form, the castle is considered an architectural jewel, set in a context of particular historical interest – the medieval village surrounding the Castle is in the area of the ancient Etruscan site known as Pyrgi – and natural beauty, situated along the Lazio coast.
The project sought to skilfully use lighting to enhance the distinctive elements of the imposing building: the Saracen tower, the front facing the sea, the front facing the beach, the corner tower, the rear elevation, as well as the archaeological area inside the court.
A total of **94 linear fixtures and projectors with the latest LED technology were used**, for a total power of about 3,000 W, bringing out the colours of the masonry structure. **The lighting is mainly from the bottom shining up on the external elevations**, while the **inner parts of the castle are illuminated with projectors**. The fixtures were positioned in such a way as **not to alter the perception of the architectural complex**.
The permanent lighting was combined with other renovations, which provided for the opening of a hostel and new areas used as a museum, and allowed the **use of the area also for evening visits**. This project was the first Art Bonus for the Acea Group.

ILLUMINATION OF THE ROMAN THEATRE IN BENEVENTO

In July 2018 the lighting of the Roman Theatre in Benevento was inaugurated with a dedicated event – a concert by Nicola Piovani in front of a large public – in the area where **Gesesa** operates, an Acea Group company active in the water sector.
The Roman Theatre, built by Emperor Hadrian in 126 AD and then enlarged by Caracalla between 200 and 210 AD, is semicircular in shape, with a diameter of 90 metres and space for up to 15,000 spectators. With full usability and still perfect acoustics, the **archaeological site is of particular importance for the city**, and, thanks to the works done by Acea, has returned to new life.
For the lighting system created by Acea SpA thanks to an agreement with Mibact and Gesesa, with the placet of the Superintendence and in agreement with the Municipality, **it was decided to light both the exterior** (top of the crown, pillars and apses) of the architectural structure of the Theatre **and the interior** (auditorium and stalls) with **120 LED fixtures** with a high level of environmental sustainability (the overall power is in fact 3,200 W), in **two different colours (white and yellow-gold)**, which made it possible to **highlight the differences in the materials the structure is made of**.

QUALITY IN THE WATER AREA

The Acea Group manages the integrated water service (IWS) in several Optimal Areas of Operations (ATO) in Lazio, Tuscany, Campania and Umbria, through investee companies.
In compliance with the reporting boundary (see *Disclosing Sustainability: methodological note*) the following is a description of the activities of **Acea Ato 2 in Optimal Area of Operations 2 - Central Lazio** (Rome and another 111 municipalities in Lazio, with about 3.7 million inhabitants served in 2018), the **historical area of the Group's operations**[52], by **Acea Ato 5, also operating in Lazio** (Ato 5 - southern Lazio and Frosinone, with 86 municipalities and about 470,000 inhabitants served during the year) and, by **Gesesa**, operational in **Campania** (in the district of Benevento and province, 22 municipalities managed, and more than 137,000 inhabitants served in 2018)[53].
The management of the integrated water service (IWS) follows the entire cycle of drinking water and wastewater: from the collection of the natural resource from the springs until its return to the environment. It is regulated by a **management agreement** stipulated **between the company that takes charge of the service and the Area Authority** (EGA - Ente di governo dell'Ambito). The **"Stand-**

[52] Acea has been entrusted with the running of the capital's aqueduct service since 1937, the water treatment system since 1985 and the entire sewerage system since 2002, effective 1 January 2003. The Rome and Fiumicino network is therefore defined as "historical".

[53] These are the main companies of the Acea Group, operating in the water sector in Italy and consolidated in the financial statements using the line-by-line method (100% Acea SpA), with the exception of Gori SpA, which entered the full scope of consolidation in November 2018. They alone account for 50% of the population served in the water sector by all Group companies. The other companies operating in Tuscany, Umbria and Campania, owned by Acea, are consolidated using the equity method, consequently they are not included in the reporting boundary, with the exception of certain global data aimed at representing the general dimension of the Group, as specified in the text from time to time (see also *Relations with the environment* and the *Environmental accounts*, as well as the chapter, outside of the boundary of the DNF pursuant to Legislative Decree 254/2016, *Water company data sheets and overseas activities*).

ard Agreement" that **governs the relations between the entrusting bodies and the operators**, at the time subject to regulation by ARERA [54], defined the minimum essential contents **in a uniform manner throughout the country**. The model agreement concerns the instruments for **keeping the economic and financial balance of the management systems** and updating of the data and information on the basis of the planning activities required by the Authority for the approval of the tariff preparation and takeover procedures, with consequent payment of the reimbursements due. For the main regulatory interventions on the water sector undertaken during the year by ARERA, see the beginning of paragraph *Quality delivered* and, for more details, the Authority's website.

The ***Integrated water service charter*** [55] annexed to the Agreement defines the **general and specific quality standards** that the manager must respect in relation to the users, **in compliance with Resolution 655/15** as regards **contractual quality** and, from 2018, **also in compliance with Resolution 917/17 for technical quality aspects**. Customer relations are also disciplined by the ***User Regulations***, also annexed to the Agreement, which establishes the technical, contractual and economic conditions which the managers must respect in supplying the services. For the **contractual quality performances** supplied by the water companies, see sub-paragraph *Levels of quality regulated by ARERA* in the water segment hereunder.

THE IWS OF ATO 2 - CENTRAL LAZIO

A **new infrastructure for supplying water to the Capital:** LAID THE FOUNDATIONS FOR THE CONSTRUCTION OF THE NEW UPPER SECTION OF THE PESCHIERA

REMOTE MANAGEMENT: **7,292 km** OF DRINKING WATER NETWORK, **670** WATER CENTRES AND OVER **400** PRESSURE POINTS

SYSTEMATIC **search for** HIDDEN **losses continued: 63 interventions** DURING THE YEAR FOR THE COMPLETE REPLACEMENT OF THE HYDRAULIC COMPONENTS IDENTIFIED

77 active Water Kiosks (23 IN ROME AND 54 IN THE PROVINCE): **about 19.2 million litres of water supplied, 385 tonnes** OF PLASTIC/YEAR SAVED AND **680** TONNES OF CO_2 NOT EMITTED INTO THE ATMOSPHERE

Acea Ato 2 performs the **design, construction, maintenance and restoration of networks and plants** across the Ato 2 area - Central Lazio and operates in respect of the procedures in the **QASE (Quality, Environment, Safety and Energy) management systems, certified according to UNI EN ISO and OHSAS standards** (see *Corporate identity, Management Systems*).
The company **continues to progressively acquire the management** of the municipalities falling within the Optimal Territorial Area of reference, after having carried out **reconnaissance of the state of the infrastructure** (networks and plants) in agreement with the local administrations. In case of situations of non-conformity, it must however wait for the execution of the works necessary for their compliance, which are carried out by the municipalities concerned if they have economic capacity, or by Acea Ato 2 after acquiring only the water service and the prior authorisation of the Operational Technical Secretariat for the coverage of the tariff. In 2018, the IWS (integrated water service) of the Municipalities of **Civitavecchia**, **Capena** and **Morlupo** was acquired, although the start of the transfer of the sewerage and treatment sectors, as mentioned above, was subject to the completion of works to upgrade the municipal sewerage treatment plants and pumps. As at **31 December 2018**, out of the 112 municipalities in Ato 2 - Central Lazio, Acea Ato 2 managed the **integrated water service** - aqueduct, sewerage and waste water treatment - **in 79 municipalities**, equal to about 94% of the total population in Ato 2; the IWS was **partially** managed **in another 17 municipalities**.

According to georeferenced data, the **infrastructure managed** in the area includes **about 11,250 km of networks** (aqueduct, transport, distribution) [56] **for drinking water** and **about 5,800 km of sewerage networks**. The networks are connected to a complex **system of facilities and plants** making the aqueduct, wastewater treatment and sewerage services operational. The company follows the development of new urban development and carries out work every year for the **modernisation and efficient use of the systems** and **completion, expansion or reclamation of pipelines and networks**.

During 2018 Acea Ato 2 continued its work on some projects started in the previous year **aimed at improving the management of operational processes** through **re-engineering** – in particular processes of water budgeting and meter checks requested by the customer – and the implementation of **computerised functions** for the **precise monitoring of the "technical quality"**, according to the orders of the Authority.

With regard to infrastructure, in 2018 the **80th year of the inauguration** of the upper section of the **Peschiera aqueduct** was celebrated with various events (see also the section on *Communication, events and solidarity*), and on these occasions significant strides were also made with respect to the **construction of the new upper section of the Peschiera**, which, starting from its springs, **will have to complement the existing aqueduct** providing an alternative to **ensure the water supply of the metropolitan area of Rome and many other municipalities** (see the dedicated box).

54 With Resolution 656/15.

55 The *Integrated water service charter* is applied progressively in the municipalities under management. The *Service charters* of Acea Ato 2 and Acea Ato 5 are available online on the website www.gruppo.acea.it. Specifically, Acea Ato 2 has adopted the *Service Charter* as modified in ARERA resolution no. 655/2015/R/idr and the Conference of Mayors in Ato 2 - Central Lazio and Rome on 27 July 2016, no. 1/16 "adoption of the 2016-2019 regulatory scheme" and no. 3/18 "adoption of the regulatory framework relating to the updating of the 2018-2019 tariff guidelines".

56 The data are progressively georeferenced and therefore increasingly accurate. Specifically: 729 km of aqueduct, 1,029 km transport networks, 9,486 km distribution.

NEW INFRASTRUCTURE FOR THE CAPITAL'S WATER SUPPLY

In 2018 the foundations were laid for the construction of infrastructure of extraordinary importance for the security of the water supply in a territory like Rome and its province. It is the new upper trunk of the Peschiera aqueduct. The 27 km long aqueduct currently in existence and in operation has in fact reached such an age that major maintenance work is necessary and cannot be "taken out of service" without having a significant impact on the adequacy of the water supply in the area.
For this and other reasons, the **new Upper Section of the Peschiera** represents **the main project that Acea Ato 2 intends to carry out** and that will keep it busy for the next few years, to ensure the reliability of the drinking water supply of a very large area and of particular importance. Following the request of the Lazio Region of 12 December 2017, the Minister of Infrastructure and Transport ordered the establishment of a **Steering Committee** with note 987 on 11 January 2018, and appointed it at the **Superior Council of Public Works** for the purpose of **"securing the supply of Rome and purification of drinking water sources in Lazio"**, including through the **coordination of the work's pre-design and design activities**. Acea Ato 2 prepared the so-called "requirements framework" [57] for the project, based on the indications of the Steering Committee as envisaged by Article 23, paragraph 3, of the Public Contracts Code and Article 3 of the Planning Decree. **In September 2018**, the application for renewal of the diversion concession for the Peschiera-Capore springs for the Municipality of Rome was also admitted for preliminary processing.

In view of the massive replacement of the meter inventory – by virtue of the provisions of Ministerial Decree 93/2017 – in recent years Acea Ato 2 has **developed and patented** (through Areti) **an innovative system for remotely reading the new meters**. Acea Ato 2 started the first "smart metering" experiments in 2016 with some pilot projects that offered some positive results. The remote reading system requires that a pulse launcher and radio module be installed with the new meters, thus allowing remote reading of the consumption recorded by the meters, the data being collected by a special Management Centre. **The installation of the meters equipped with the remote reading system was started at the end of 2018** (see also below) and will allow the achievement of various benefits and efficiencies in 2019 like:

- billing based on **actual consumption**, thus minimising the use of estimates and consequent adjustment bills;
- monitor consumption in a precise, frequent manner so as to be able to make comparisons with data relating to the quantities input into the network in order to ensure a **correct water balance**.

During the year, **the systematic search for hidden leaks in the distribution network in Rome continued and was extended to other municipalities**, with the aim of recovering resources and coping with emerging problems related to climate change, like the exceptional drought that occurred in 2017. For further information, see also the section *"Attention to water consumption"* in the section *"Relations with the environment"* and, in particular, the sub-section *"Water losses"*.
At the same time as the search for hidden leaks, in February 2018 **the last repairs to the underground structures** already noted in 2017 were completed. **About 90 structures** were identified by this activity and a **comprehensive upgrade programme** was launched to **replace all the plumbing components in them** and which ended in 2018 with **63 interventions carried out**. It should be noted that the execution of such jobs necessarily involves disruptions in the water supply (out of service) that often impact many users and in particular many special users, requiring careful planning and scheduling to minimise inconveniences.

Finally, as part of the progressive digitisation of the Ato 2 water and sanitation networks with the inclusion of data in the **GIS information system**, by 31 December 2018 **more than 95% of the drinking water network and 85% of the sewerage network had been georeferenced**.

THE AQUEDUCT SERVICE OPERATED BY ACEA ATO 2

The aqueducts and the transport network are controlled remotely, from a **qualitative and quantitative** viewpoint, and remote sensing provides information useful for knowing the status of the network and its operation (set up of the plants, status of the pumps, position of the valves, measurements, alarms and the possibility of performing remote controlled manoeuvres). According to the data extracted from the GIS system, **the total network subject to remote management, including that of the aqueduct, is about 7,292 km**. Thanks to the progressive implementation of the system, **670 water stations** were partially or totally remotely controlled (with pressure and/or flow and/or level measurements) in 2018, and **288** of them (amongst which the **Water Kiosks** active in the year) were equipped with remotely controlled quality measurement capabilities. Furthermore, **more than 400** pressure points were equipped with remote control, spread along the distribution network.

As a result of higher rainfall during the autumn-winter period, **2018 benefited from a better situation** than 2017 in terms of **greater availability of spring water**. Nevertheless, **in order to secure the water supply of the area served, Acea Ato 2 has implemented important initiatives**, some of which mentioned above (search for water leaks and upgrading of infrastructure, start of the project for the construction of the new trunk of the Acquedotto del Peschiera). In order to **increase the resilience of the Roman water system with respect to extreme events** that may occur as a result of climate change, the **Grottarossa plant has been adapted and upgraded to purify the water of the Tiber river** (about 500 l/s), to be used **only in emergency situations** to supply the City of Rome, to supplement the water reserves of Lake Bracciano. The plant – **completed at the end of October in an exceptionally short time – is equipped with the most advanced and innovative water treatment and quality control systems** and is able to produce water that is absolutely safe from the point of view of hygiene in compliance with sector regulations.

[57] By "requirements framework" is meant "the document drawn up and approved by the administration prior to the planning of the project that identifies – based on the available data and in relation to the type of work or project to be carried out – the general objectives to be pursued through the implementation of the project, the needs of the community being served by the project, the specific qualitative and quantitative requirements that must be met through the completion of the project, also in relation to the specific type of users for which the projects are intended...". www.codiceappalti.it/DLGS_50_2016/Art__3__Definitions/8368.

In order to improve its management and **optimise pressure in the distribution network**, in 2018 **extensive controls were carried out on the aqueducts and large supply pipelines** and interventions were carried out in the water centres. In many areas affected by critical situations during the drought of 2017, necessary works were carried out to **ensure the monitoring of operating pressures** through tools capable of managing the control in a dynamic, effective manner (hydraulic valves, pressure reducers, etc.). Furthermore, in some rural areas taps have been installed to regulate the flow rates of individual water meters in order to reduce consumption in the event of improper use of the water supply.
In this context, about 30 pressure regulating valves were installed in the municipalities of the Castelli area to create water districts at constant and controlled pressures so as to **reduce the volumes of water loss**.
Considering the entire territory of the Ato 2 managed, interventions were also carried out across approximately 63 km to reclaim the water network.
In August, the derivation from the Marcio Aqueduct (8th Siphon) to supply the Municipality of Frascati was completed, an intervention that made it possible to save on the supply that came from the Simbrivio Aqueduct and redistribute it to other municipalities.
The actions taken have made it possible to face the summer season without particular problems by optimising the available water resources and **limiting shifts** to the municipalities of Civitavecchia and Velletri, with a marked improvement over the situation of previous years.
In the area of the Municipality of Rome work continued dividing the networks into districts and installing new pressure points. The measures mentioned above, implemented to control and regulate the pressure in the water distribution network, have made it possible to recover significant quantities of water, with a reduction in the quantities injected into the network compared to previous years, particularly in the "historical network" – Rome and Fiumicino – (see the section on *Relations with the environment* in the paragraph **Attention to water consumption**).

Finally, during the year **various experimental projects were launched**, including:

- the mapping of the territory of Roma Capitale potentially subject to structural failure due to the presence of underground cavities and on which to start an alert system in the event of failure of the infrastructure and/or establish a driver to direct the planned renewal thereof;
- satellite soil analysis to identify areas potentially affected by water/surface damage and on which to start widespread leak search activities;
- the use of the GIS platform to identify urbanised areas where, despite the presence of water infrastructure, there are no active supply contracts. Such situations indicate potential unauthorised use, supplies that have not been reactivated, contracts that have not been correctly transferred from previous management systems, etc.

The **installation of new meters** or **the replacement of those that did not function properly** also continued. **In 2018** this involved about **40,000 new installations and replacements**, including interventions within the framework of the mass replacement project. As already mentioned, in fact, at the end of 2018, by virtue of Ministerial Decree 93/2017, a **mass replacement project was started** with the installation of **about 18,000 new meters and approximately 600 remotely monitored meters**. The installation of the **remote modules** started in the last days of the year, following the positive test of the entire infrastructure necessary for the project (private VPN for remote data communication to the Management Centre and release of the SAP-WFM-CG application map integration). The activity will continue throughout 2019.

Also carried out during the year were important **routine maintenance activities** – such as closing pipelines for repairs; washing and disinfection of tanks and ducts – to **ensure flexibility and efficiency in the transport system**. During these interventions reclamations and replacements of hardware, valves, etc. were carried out in order to optimise the water distribution.
Table 20 shows the main **ordinary and extraordinary maintenance work** carried out during the year on the water networks in Rome and the other managed municipalities, and **the tests performed on the quality of supplied drinking water**.

TABLE NO. 20 - MAIN INTERVENTIONS ON THE AQUEDUCT NETWORKS AND CONTROLS ON DRINKING WATER IN ATO 2 - CENTRAL LAZIO (ROME AND OTHER MANAGED MUNICIPALITIES) (2018)

TYPE OF WORK	(NO.)
Interventions due to aqueduct network failure/leak detection (water network and derivations of users)	**21,963 interventions** (**17,263** due to faults, **4,700** leak detection)
Meter installations (including new installation and replacement)	about **40,000 interventions** (about 12,000 new installation and about 28,000 replacements)
Water network extension	**15.4 km** water network extension
Water network reclamation	**62.8 km** of reclaimed network
Drinking water quality control	**10.751 samples** collected and **359,491 analytical tests performed** on drinking water

With regard to the **continuity of water supply** in 2018, **1,032 interruptions and water reductions** were recorded; of these, **830 were urgent interruptions** (due to accidental breakdowns of pipelines/plants) and **202 were planned**. About 4.4% of the overall shutdowns lasted for more than 24 hours.

TABLE NO. 21 - NUMBER, TYPE AND DURATION OF DISRUPTIONS IN THE SUPPLY OF WATER IN ATO 2 - CENTRAL LAZIO (2016-2018)

	2016	2017	2018 (*)
urgent disruptions (no.)	1,874	1,915	830
planned disruptions (no.)	76	143	202
total disruptions (no.) (**)	**1,950**	**2,058**	**1,032**
suspensions lasting > 24hrs (no.)	193	242	45

(*) The 2018 data refer to the reports prior to the reclamation activity currently under way and to all the cases reported in the register of service interruptions envisaged by "ARERA" by resolution 917/2017, i.e. interruptions of less than < one hour and more than > one hour. **The reclamation work in progress will lead to an increase in the values shown** and their probable alignment with those of 2017. The adjustments, after data consolidation, will be reported in the next reporting cycle.
(**) The data for total disruptions includes shutdowns (due to damage to pipes/pipelines and network manoeuvres) and the interruptions due to disruptions and plant anomalies.

Acea is committed to protecting the areas where water supply sources are present and controls the **quality of the water distributed for drinking use** and water returned to the environment (see *Relations with the environment*, *Water segment* and *Environmental accounts*). Acea Ato 2, with the support of Acea Elabori, performs tests on samples collected from springs and wells, supply systems, reservoirs and along the distribution networks. The **frequency of the tests** and **sample collection points** are defined taking into consideration a number of variables, such as volumes of water distributed, population covered, network and infrastructure conditions and specific characteristics of local springs. **Comprehensively**, during the year in the municipalities of Ato 2 - Central Lazio under management, **10,751 samples were collected** and, in total, both by Acea Elabori and Acea Ato 2, **359,491 tests performed** on drinking water. The data on water quality, periodically updated, are also available online (www.gruppo.acea.it). In 2018 Acea Ato 2 started implementing **Water Safety Plans**, starting from the new Grottarossa water purification plant that treats the waters of the Tiber in accordance with Ministerial Decree 14/06/2017 (see also the section on *Relations with the environment*).

The quality of the spring water collected to supply the **areas of Rome and Fiumicino** ("historical network" of Acea) **is at excellent levels**. In the **Castelli Romani** area and other areas of **northern Lazio**, the **volcanic nature of the terrain** causes the **presence in groundwater of mineral elements** such as fluorine, arsenic and vanadium in **concentrations exceeding** those envisaged by the law. This has made it indispensable to supply some municipalities notwithstanding these legal provisions and the **planning and realisation of numerous operations aimed at overcoming these issues**, such as the decommissioning of some local sources of supply to replace them with higher quality springs. In recent years, **a number of drinking water plants** were built, which were gradually been put under remote management.

In 2018, the **drinking water plants serving the municipalities of Allumiere ("5 Bottini") and Genazzano** ("Pozzo San Filippo") entered into operation. The degasser of Barozze has also been requalified in the Municipality of **Rocca di Papa**, for which the final testing is under way. Finally, **projects were launched** and the works assigned for the construction of new drinking water plants and/or upgrades and reinforcement of existing ones in Ariccia ("Montetondo" and "Orsini"), Bracciano ("Pozzo del Pero" and "La Lega"), Castel Gandolfo ("Madonna di Coccio"), Trevignano ("Madrid") and Marino ("Camporesi").

Acea **measures customer habits and perceptions regarding the quality of the water supplied**. Customer satisfaction surveys conducted twice yearly call for an in-depth review of this topic both in Rome as well as in other municipalities of Ato 2. The **opinion on taste, smell and clearness of the water distributed in Rome and Fiumicino**, given by the sample of interviewees, **was good** and equal, on the average of the two surveys to **7.6 out of 10**; the same datum of global satisfaction, **in the province, is 7.1 out of 10**, both in line with the previous year. **In Rome 52% of the interviewees say they normally drink tap water at home** whereas **29% states they never drink it**; such percentages, **in provincial areas**, change to **37.4%**, for those **routinely drinking tap water** and to **43.1%**, for those who do not. Among **the reasons given by those who never drink tap water**, for Rome and Fiumicino, the **habit to drink mineral water prevails**, in 51.9%; unlike in previous years, the same reason is given for the first time in the province in 46.4% of cases.

During the year, the installation of ***Water Kiosks*** continued – **free dispensers of natural or sparkling chilled water available to citizens and tourists** for a total of **77 active Water Kiosks** at the end of the year: **23 in the city of Rome and 54 in province of Rome**. The water distributed is the same as the aqueducts and the quality is **certified by strict regular checks** conducted by Acea and the relevant local health authorities. These water dispensers have a **180 l/h flow rate**, allowing a 1 litre bottle to be filled in 20 seconds. Each Water Kiosk is fitted with a **monitoring device** linked to the Acea Ato 2 remote control systems and is also equipped with USB power supply sockets for recharging devices such as mobile phones or tablets and a screen for transmitting company/local information. **The initiative continues to enjoy a high level of popularity: in 2018** the Kiosks **dispensed** a total of **19,250,000 litres of water**, of which about 57% was sparkling water. In addition to obvious **social benefits**, it is also important to stress the **environmental benefits**: the dispensed litres are in fact equivalent to **about 385 tonnes of plastic saved in the year** (equal to about **12.8 million 1.5 litre bottles**) and about **680 tonnes of CO_2 not emitted into the atmosphere** due to bottles not being produced [58] and net of emissions due to energy consumption by the Kiosks and the CO_2 added to produce sparkling water.

Acea Ato 2 manages **9 of the main artistic and monumental fountains of the Capital**: the Triton Fountain, the three Fountains in Piazza Navona (the Fountain of the Four Rivers, the Moor Fountain and the Fountain of Neptune), the Trevi Fountain, the Fountain of Turtles, the Fountain of Moses, the Naiads Fountain and the "Fontanone Mostra dell'Acqua Paola" on the Janiculum hill.
In the Municipality of Rome the company also manages the pumping stations, reservoirs that feed the non-drinking water network and irrigation network supplying water for "jeux d'eau" in major artistic fountains. Acea Ato 2 is also responsible for the water segment up to the "point of delivery" for the drinking foun-

[58] Although significant, this figure is certainly underestimated, as it does not consider the saving in emissions due to bottles not being transported by road/railway.

tains and fire hydrants and intervenes in the event of damage to the water supply system and for water flow opening and closing operations.

THE WATER TREATMENT AND SEWERAGE SERVICE MANAGED BY ACEA ATO 2

As is known, the integrated water service includes the **collection of wastewater** and its **treatment prior to being returned to the environment**.

The treatment system in **Ato 2 - Central Lazio** consists of a **configuration organised in "areas"**, territorial units comprising **wastewater treatment plants, sewerage networks** connected thereto and the associated **water pumping stations**. According to georeferenced data, the infrastructure managed at **31/12/2018** includes about **5,830 km of sewerage networks** (of which over **4,000 km** managed in Rome) **625 sewerage pumping systems** (**195** of which in the municipality of Rome) and **170 treatment plants** (**33** of which in the municipality of Rome).

With regard to the sewerage and treatment system, the **progressive implementation of remote management** of the entire sector continued: **565 pumps and 167 small purifiers were remotely managed**, with signals being transmitted to the central remote control room.

The main treatment plants are managed by local control rooms (COBIS, North Rome, Ostia, South Rome, East Rome), which are being modernised with the connection of the entire inventory of meters and controls to the central control room. In 2018, the **modernisation of the local control room of the COBIS treatment plant was completed**, making it possible to remotely command it from the centre as well.

Apart from the management and maintenance activities during the year there were works on **extension, integration and reclamation of the sewerage network, together with controls on wastewater** (see Table no. 22). In 2018, **about 5,900** interventions were carried out including repairs and scheduled maintenance. **In addition to repairing any damage identified**, work on the network often involves an **inspection of longer sections** and this allows for **reclamation to be planned** in order to improve operating conditions.

TABLE NO. 22 - MAIN INTERVENTIONS ON THE SEWERAGE NETWORKS AND CONTROLS ON WASTEWATER IN ATO 2 - CENTRAL LAZIO (ROME AND MANAGED MUNICIPALITIES) (2018)

TYPE OF WORK	(NO.)
Interventions due to sewerage network failure	**4,709 interventions**
Planned maintenance work on sewerage network	**1,205 interventions**
Network extension	**3.5 km extension of the sewerage network**
Network reclamation	**8.2 km reclaimed network**
Wastewater quality control	**7,050 samples** collected and **127,378 tests performed** on wastewater

Acea **surveys parameters that specify the quality of water entering and exiting treatment plants and the impact on receiving water bodies**: the **Tiber** and **Aniene** rivers (see also *Relations with the environment, Water segment*). In 2018, **263 samples were taken at 17 sampling points** on the Tiber and Aniene rivers and at 10 points on Lake Bracciano. The **Acea Ato 2 Environmental Operations Centre constantly monitors data** recorded by remote control, thanks to the adoption of avant-garde technology, relating to **hydrometric and rainfall information** concerning the Rome area, shared with the Rome Hydrographic and Tide Gauge Operations Office, as well as data on the **quality of the water along the urban stretches of the Tiber and Aniene rivers. Currently there are 7 continuous monitoring units**.

In October 2018, in particular, the new **Acea Ato 2 Environmental Operations Room** was inaugurated, a further step forward in terms of innovation, modernity, safety and operational efficiency at the service of the local region and the public. The new operations room is equipped with an array of innovative **solutions for identifying leaks and troubleshooting faults**, as well as tools for monitoring all Roman districts to ensure a constant and timely supply, 24 hours a day, in response to the needs of the population.

THE IWS IN ATO 5 - SOUTHERN LAZIO-FROSINONE

APPROX. **5,200 km** OF NETWORKS MANAGED FOR THE DRINKING WATER SYSTEM AND **1,775 km** OF SEWERAGE SYSTEMS

LAUNCH OF THE FOUR-YEAR PLAN OF INTERVENTIONS FOR **leak identification**, DIVISION OF THE NETWORK INTO DISTRICTS AND EXPANSION OF REMOTE CONTROLS

32 interventions OF EXTRAORDINARY WATER NETWORK RECLAMATION FOR ABOUT **42.4 km** OF **reclaimed network** MORE THAN **10,530 interventions** FOR NEW INSTALLATIONS AND REPLACEMENT OF METERS

115,345 analytical tests OF DRINKING WATER **35,064 analytical tests** OF WASTEWATER

Acea Ato 5 performs network and plant design, construction, maintenance and restoration interventions on networks and plants across the **Ato 5 area - Southern Lazio - Frosinone** and operates in accordance with the procedures in the **QASE (Quality, Environment, Safety and Energy) management systems, certified according to UNI EN ISO standards, also with regard to health and safety (ISO 45001:2018)** (also see *Corporate Identity, Management systems*).

The municipality of Cassino came under management during the year. As at **31 December 2018 the integrated water service** – aqueduct, sewerage and treatment – was managed in **86 municipalities**, equal to approximately 95% of the total population of Ato 5, including the **management of two municipalities outside the area** (Conca Casale and Rocca d'Evandro) and the acquisition of the management of the municipality of Atina during the year[59].

According to progressively georeferenced data, Acea Ato 5 managed a total of about **5,200 km of network** (including supply and distribution)[60], serving the drinking water system, and **about 1,775 km of sewerage networks**. The networks are connected to a complex system of equipment and plants that make the aqueduct, treatment and sewerage services possible.

During 2018, the modernisation of the **technological infrastructure** to serve operating processes continued, with particular attention to the management aspects involved in the interventions of the sector's regulatory authority.
With regard to the progress of the georeferencing of networks and plants, with the **entry of data in the GIS** - Geographic Information System, as mentioned above, during the year **all the active plants** – water sites (wells, springs, reservoirs) and sewerage and purification pumping plants – **were mapped and loaded into the IT platform**, including the relative functional schemes, making it easier and more effective for technicians to intervene. A **four-year plan was also launched** in January 2019 for the precise surveying of the **water and sewerage networks** of all the municipalities in the area, the **search for leaks and their division into districts** and the extension of **remote management**.
As at 31.12.2018, 4,027 km of the water network had been digitalised (**227 km** of the supply network and **3,800 km** of the distribution network), as shown in the Area Plan documentation. All the locations of the **user meters** are also present in the GIS, updated on a daily basis.

The company intervenes on the infrastructures each year, through the modernisation or efficient use of the plants and the completion, extension or reclaiming of the pipelines and networks. In 2018, **the analysis of the water network structures** involved the municipalities of Arce, Roccasecca, Colfelice, Castrocielo and Supino, with the support of another Group company, and similar activities were carried out with internal resources in a portion of the municipalities of Arpino, Pico and Villa Santa Lucia.
In addition, **2,654 orders for leak searches have been scheduled** for the entire territory.
In Frosinone and Ceccano, reclamation works were carried out on the water networks that allowed a **recovery of water** estimated at about 4 l/s for the municipality of Ceccano and about 10 l/s for the municipality of Frosinone (see also *Relations with the environment*).

THE AQUEDUCT SERVICE MANAGED BY ACEA ATO 5

Some of the water sites managed by Acea Ato 5 – consisting of supply sources and distribution plants (dividers and reservoirs), sewerage lifting systems and purification plants – **are equipped with remote control-enabled technology**. In particular, both telemetry and command and control activities are carried out; hydraulic parameters are also recorded, such as water flow, network pressure, reservoir levels, operating status of the electric pumps, with relevant electrical parameters, and, lastly, qualitative parameters (clearness and residue colour).
During the year, the number of sites managed remotely increased: **the remotely control systems totalled 187 sites at 31/12/2018** (equipped with hydraulic measures – flow, pressure and levels – and 13 also equipped with water quality control systems).
The **installation of new meters** or **replacement of those not working properly** continued, leading to over **10,530 interventions in 2018**. With regard to the **evolution of meters**, Acea Ato 5 will implement **a project similar to the one carried out in Acea Ato 2** that envisages the development of a solution for **remote reading of water meters**, with the definition of a connectivity solution and the development of a management centre (managed by Areti) with an architecture integrated in the Acea application map.

Table 23 shows the main reclamation and replacement **ordinary and extraordinary maintenance** works completed, functional to improving the supply service in Frosinone and in the other municipalities under management, as well as the **tests on the drinking water supplied**.

TABLE NO. 23 - MAIN INTERVENTIONS ON THE AQUEDUCT NETWORKS AND TESTS ON DRINKING WATER IN ATO 5 - SOUTHERN LAZIO (FROSINONE AND MANAGED MUNICIPALITIES) (2018)

TYPE OF WORK	(NO.)
Interventions due to aqueduct network failure	**10,084 interventions** of repair
Planned maintenance work on aqueduct network	**73 interventions** (18 on the supply network and 55 on the water distribution network)
Meter installations (including new installation and replacement)	**10,536 interventions**
Water network extension	**1 intervention on water network extension,** for about **0.4 km of extended network**
Water network reclamation	**32 interventions** of extraordinary network reclamation for about **42.4 km of reclaimed network**
Drinking water quality control	**2,272 samples** collected (including samples collected for extraordinary testing) and **115,345 tests performed** on drinking water

[59] The acquisition of the management of the municipality of Atina was completed after a long dispute between Acea Ato 5 and the municipality. At the end of November 2018 there was also the final decision of the Council of State, which imposed the transfer of the management of the IWS of the Municipality of Paliano to Acea Ato 5 and for which the procedures for acquisition are under way with the Operational Technical Secretariat.

[60] In detail: about 1,200 km transport network and 4,000 km drinking water distribution network. The data have been revised in light of the relevant activities of the networks and their digitisation in GIS.

With respect to **water supply continuity**, in 2018 **702 network shutdowns** were necessary, of which **552 urgent** (pipeline or plant faulty, interrupted energy, etc.) and **149 planned**; just **2 shutdowns lasted more than 24 hours**.

TABLE NO. 24 - NUMBER, TYPE AND DURATION OF DISRUPTIONS IN THE WATER SUPPLY IN ATO 5 - SOUTHERN LAZIO (2016-2018)

	2016	2017	2018
urgent disruptions (no.)	355	303	552
planned disruptions (no.)	375	270	149
total disruptions (no.) (*)	**730**	**573**	**702**
suspensions lasting > 24hrs (no.)	2	6	2

(*) The data for total disruptions includes shutdowns (due to damage to pipes/pipelines and network manoeuvres) and the interruptions due to disruptions and plant anomalies. The number of total out of service cases was therefore used for the calculation.

Acea Ato 5 **monitors the quality of drinking water** with the support of Acea Elabori. Tests are carried out on **samples collected from springs and wells**, supply plants, reservoirs and **along distribution networks**, as well as samples collected for extraordinary testing (users, local health authority requests, etc.). The frequency of the tests and sample collection points are defined taking into consideration volumes of water distributed, population covered, network and infrastructure conditions and specific characteristics of local springs. In 2018, more than **115,345 tests** were performed as a whole on 2,272 samples collected. The main water quality parameters are also available online on the website (www.gruppo.acea.it).

Customer satisfaction surveys for Acea Ato 5 customers also required an in-depth review of **drinking water quality perception** with respect to taste, smell and clearness of the water distributed. The overall rating expressed has **not yet reached full satisfaction and is 5.6 out of 10**. The percentage of respondents who say they habitually drink tap water, 20.1%, and consequently the percentage of those who say they never drink it, 65.3%, remains limited, although it is **slightly increasing**. Three main reasons were given for this: 32.1% stated "I don't trust the factors of hygiene", 30% said "I am used to drinking mineral water", and in 27.5% of the cases, "it is not good for my health (too much calcium, presence of minerals)".

THE WATER TREATMENT AND SEWERAGE SERVICE MANAGED BY ACEA ATO 5

The collection of wastewater and its treatment prior to being returned to the environment are part of the integrated water service. The treatment system in **Ato 5 - Southern Lazio** consists of a **configuration organised in "areas"** comprising **wastewater treatment plants, sewerage networks** connected thereto and the associated **water pumping stations**. The infrastructures managed at 31.12.2018 included **213 sewerage pumping stations**, **131 treatment plants** and **1,775 km of dedicated networks**.
The **mapping of the sewerage network in GIS**, as for the water networks, continued during the year: as at 31.12.2018 the digitised network in the cartographic system was **224 km** (217 km of primary section, 6 km of connections and about 1 km of discharge section).

Like every year, **planned maintenance** and **faulty repair** works were completed on the networks servicing the sewerage and purification system, work progressed on the **replacement or realisation of collectors** and realisation and **extension of the sewerage network** (see Table no. 25).

Wastewater testing was carried out on 2,910 samples, for a total of **35,064 analytical tests**.

TABLE NO. 25 - MAIN INTERVENTIONS ON THE SEWERAGE NETWORKS AND TESTS ON WASTEWATER IN ATO 5 - SOUTHERN LAZIO (FROSINONE AND MANAGED MUNICIPALITIES) (2018)

TYPE OF WORK	(NO.)
Interventions due to sewerage network failure	**924 interventions**
Planned maintenance work on sewerage network, of which:	**12 planned interventions**
planned network extension	***4 interventions*** to expand the sewerage network, on **about 1.6 km of extended network**
planned network reclamation	***8 interventions*** of network reclamation for **about 3.8 km of reclaimed network**
Wastewater quality control	**2,910 samples** collected and **35,064 tests performed** on wastewater

THE IWS IN ATO - CALORE IRPINO

APPROX. **1,541 km** OF NETWORKS MANAGED FOR THE DRINKING WATER SYSTEM AND **553 km** OF SEWERAGE SYSTEMS

291 SEARCH AND LEAK RECOVERY **interventions** AND **1.4 km** OF RECLAIMED NETWORK APPROXIMATELY **2,732 interventions** BETWEEN NEW INSTALLATION AND REPLACEMENT OF METERS

STARTED IN THE SECOND HALF OF 2018, THE FIRST CYCLE OF **customer satisfaction surveys**

6,101 analytical tests OF DRINKING WATER **4,702 analytical tests** OF WASTEWATER

Gesesa performs design, construction, maintenance and restoration interventions on networks and plants in **Benevento and provincial areas**, across the **Ato - Calore Irpino** and operates in accordance with the procedures in the **QASE (Quality, Environment, Safety and Energy) management systems, certified according to UNI EN ISO and OHSAS** standards (also see *Corporate Identity, Management systems*).

The municipality of Morcone was acquired during the year, therefore as at **31 December 2018, the integrated water service** – aqueduct, sewerage and treatment – was managed in **22 municipalities**, with **a population served equal to about 137,300 people**.
As a whole, according to the data the company managed about **1,541 km of networks** (including supply and distribution) [61], serving the **drinking water system,** and **about 553 km of sewerage networks** (including outfalls, main and secondary collectors); the networks are connected to a complex plant and construction system that make it possible to operate the aqueduct, purification and sewerage service.
Digitalisation is under way on the drinking water and sewerage networks using GIS (Geographic Information System), also with a view to integrating other information systems.

The company intervenes on the infrastructures each year, through the modernisation or efficient use of the plants and the completion, extension or reclaiming of the pipelines and networks. In 2018, the analysis of the set-up of the water networks and **leak detection and recovery** led to **291 interventions and the reclamation of about 1.4 km** of water supply network. The "division into districts" method was developed for water networks, progressively extending the **reduction in pressure** in all the managed municipalities.

As mentioned above, **digitisation of the networks in GIS** has continued, and as at 31.12.2018 **the aforementioned lengths of water and sewerage networks have been mapped**. The data **are always being modified and updated**.
The **water sites** (wells, springs, reservoirs/dividers) and the **sewerage pumping and treatment plants** have already been geo-referenced, including the relevant functional schemes, making technical intervention easier and more effective. However, upgrades are also taking place here as well.

THE AQUEDUCT SERVICE MANAGED BY GESESA

The network is remotely controlled in one sole entry point in the **district of Santa Colomba** in the municipality of Benevento, **where input flow and pressure** is measured and the pressure in the less advantaged point. **The sites** (provisioning sources and distribution plants, sewerage pumping and purification plants) **have been progressively equipped with remote control-enabled technology, 25 of them** as at 31.12.2018. It is planned to progressively expand the system.
The interventions undertaken in 2018 include the revamping of the San Nicola pumping station.
The **installation of new meters** and **replacement of those not working properly** was carried out in the year and totalled **2,732 interventions**.
Table no. 26 shows the **main ordinary and extraordinary maintenance works**, including extension and reclamation performed on the water networks, functional to the drinking water supply service, as well as **testing on the supplied drinking water**.

TABLE NO. 26 - MAIN INTERVENTIONS ON THE AQUEDUCT NETWORKS AND TESTS ON DRINKING WATER IN ATO - CALORE IRPINO (BENEVENTO AND MANAGED MUNICIPALITIES) (2018)

TYPE OF WORK	(NO.)
Interventions due to aqueduct network failure/leak detection	**2,544 interventions** (**2,253** due to fault and **291** leak detection)
Planned maintenance work on aqueduct network	**90 interventions**
Meter installations (including new installation and replacement)	**2,732 interventions** (including new installation and replacement)
Water network extension	**0.84 km** water network extension
Water network reclamation	**1.4 km** of reclaimed network
Drinking water quality control	**297** samples collected and **6,101** analytical tests performed on drinking water

[61] Specifically: 166 km transport network and 1,375 km drinking water distribution network.

Gesesa **monitors the quality of drinking water**. Tests are carried out on samples collected from springs and wells, supply plants, reservoirs and along distribution networks, as well as samples collected for extraordinary testing (users, local health authority requests, etc.). The frequency of the tests and sample collection points are defined taking into consideration volumes of water distributed, population covered, network and infrastructure conditions and specific characteristics of local springs. In 2018, more than **6,101 tests were performed** as a whole on **297 samples** collected. Moreover, parameters concerning radioactivity were analysed on 14 samples (pursuant to Legislative Decree 28/2016). The main water quality parameters are also available online on the website (www.gruppo.acea.it).

Gesesa launched its customer satisfaction surveys **in the second half of 2018, with an initial questionnaire given to a sample of 500 people** representing the user base (see the *Perceived quality* section). They were also asked to **express an opinion on the quality of the water**, and in particular an overall assessment of the taste, smell and clarity of the drinking water distributed. The overall rating was **average, equalling 6.7 out of 10**. Questions were also asked about **customers' habits in their use of tap water**. There was a **low percentage of respondents stating that they usually drink tap water, 20.4%**, as was the high percentage of those stating that they never drink any, 61.4%. For the latter, the main reason given in 42.3% of cases is the habit of drinking mineral water; in 24.4% of cases, moreover, the reason given is "I don't like its taste".

In relation to **water supply continuity, Gesesa is still implementing an information system** which shall **record incoming calls** to the operations room due to urgent interventions requested by users. Therefore, data for the year are not available. However, the summer period has involved scheduled manoeuvres of closing and opening water in some areas of the municipalities served due to scarcity of water resources.

THE PURIFICATION AND SEWERAGE SERVICE MANAGED BY GESESA

The collection of wastewater and its treatment prior to being returned to the environment are part of the integrated water service. The treatment system **in Ato - Calore Irpino** consists of a **configuration organised in "areas"** comprising **wastewater treatment plants, sewerage networks** connected thereto and the associated **pumping stations**. The infrastructures managed at 31.12.2018 included **18 sewerage pumping stations, 32 treatment plants** and **553 km of dedicated networks**.
The city of Benevento is not served by a centralised purification plant and the Municipality of Benevento is planning the design for its realisation and the connection outfalls.
In 2018, **195 interventions due to fault** and **16 planned interventions** were completed on the networks servicing the sewerage and purification system. Apart from the management and maintenance activities, work progressed on the **extension, integration and reclamation of the sewerage network** (see Table no. 27).
Wastewater monitoring was carried out on **346 samples** during the year, for a total of **4,702 analytical tests performed**.

TABLE NO. 27 - MAIN INTERVENTIONS ON THE SEWERAGE NETWORKS AND TESTS ON WASTEWATER IN ATO - CALORE IRPINO (BENEVENTO AND MANAGED MUNICIPALITIES) (2018)

TYPE OF WORK	(NO.)
Interventions due to sewerage network failure	**195 interventions**
Planned maintenance work on sewerage network	**16 planned interventions**
Network extension	**0.04 km** extension of the sewerage network
Network reclamation	**0.08 km** reclaimed network
Wastewater quality control	**346 samples** collected and **4,702 tests performed** on wastewater

THE QUALITY LEVELS REGULATED BY ARERA IN THE WATER SEGMENT

The Regulation Authority for Energy, Networks and the Environment (ARERA) ruled **on the matter of contractual quality for the water segment** in 2015 (655/15/R/idr), **defining the specific and general quality levels**, in force for most of the aspects from July 2016 (see the start of paragraph *Quality delivered*). In May 2018 the second edition of the "Data collection - contractual quality of the IWS" was closed, which allowed ARERA, as part of its regulatory and control functions, to make an initial "annual" assessment of the levels of contractual quality guaranteed to users during 2017[62].

In 2016 **Acea Ato 2** was **one of the few companies at national level** to have proposed **improvement levels on the minimum standards** of contractual quality and **the Authority accepted the application from the Area Regulatory Agency** (Mayors' conference of Ato 2 Central Lazio) aimed at **recognising awards related to contractual quality** associated with the identification of stricter improvement standards respect to those defined by resolution 655/15[63].
In particular, the **improvement standards** regarding Acea Ato 2, concern **43 indicators out of the 47 set out by the resolution**, having an average value of improvement of 46.5% in 2016 and 38.3% in the following years[64]. **The tariff related recognition of the award** intervened in the year after that of the communication on performance[65] and **within the limits that the proposed improvement**

62 ARERA, *Annual Report on the state of services and activities carried out* (31 March 2018, based on 2017 data), Volume 1, Chapter 5.

63 With the exception of those related to processes not present in the operational organisation or having stricter levels in the Service Charter.

64 Some partial changes with respect to the original application were proposed when updating the 2018-2019 fee schedule (Resolution of the Conference of Mayors of Ato 2 - Central Lazio Rome no. 3/18). Most of these amendments would enter into force in 2019. Almost all of those that would be applied from 2018 (i.e. with tariff recognition in 2020) appear to confirm mechanisms and constraints already implemented in the validation of 2017 results.

65 For example, regarding performance in 2016, communicated in 2017, the recognition of the award, equal to about € 23 million, shall take place in the tariffs of 2018.

levels were reached and aggregated (see also the box relating to prizes and sanctions in the chapter *Institutions and the company*). It was also established that, so as to allow the Operating Technical Secretariat for the Area (STO) to control and assess performance, as from 2017 **Acea Ato 2** is **bound to producing, by 20 January of each year** (early in respect of the term of 31 March set out by resolution 655/15) **the Lists bearing data on performance for the previous year** [66]. Having completed the appropriate assessments, the Technical Secretariat proceeds with quantifying the award of economic competence to the year of reference.

Commercial performance, as mentioned, is separated into specific and general levels regarding which the national Authority has defined service standards expressed in various units of measurement. **The table illustrating the performance of Acea Ato 2 shows the improvements proposed by the company next to the standards provided by the ARERA**, as well as, where pertinent, the average actual completion time for the services and, as prescribed, the degree of compliance of the improvement standard. **The performance 2018 for Acea Ato 2** (see Table no. 28), shows **an average compliance equal to about 91.4%**, with **excellent results achieved in the following macro-areas**: reactivation and deactivation of supply, meter and pressure checks, account changes, complaints, billing, branches and call centres. The indicators related to the completion of works and connections represent an area of improvement to be focussed upon in the short/medium term.

Resolution 655/2015 provides for a mechanism of **automatic indemnities to be granted to customers** in the event of off standard services related to one of the specific indicators. From 2017 onward the unit value indemnity varies according to the delay in service execution (30, 60 and 90 Euros according to whether the service is completed in a time less than double the standard, at time ranging between double and triple the standard, or in triple or more than triple time of the standard). In 2018, Acea Ato 2 accrued automatic indemnities to customers amounting to approximately € 0.74 million.

Acea Ato 5 and Gesesa did not propose improvement standards with respect to those set out by the Authority and comply every year with the **consignment times for performance data as provided by the latter** (31 March 2019). **It shall therefore not be possible to publish the available estimates on performance data herein**. As these are not definitively aggregated data officially communicated to ARERA, **such estimates are to be understood as exclusively indicative of the service performance** and the publication of aggregated data 2018 is deferred to the next reporting cycle.
With this in mind, the estimates of **Acea Ato 5**'s 2018 contract quality performance, as defined by ARERA (see Table no. 29), have for the most part shown improvement compared to the final performance of 2017. For example, providing estimates and making water connections, the verification of the pressure level (intervention and communication), the arrival on site for urgent service, waiting times at the branch, while other parameters, like the execution of the sewerage connection or the execution of simple works is reduced by the percentage indicating the degree of compliance.
Also with regard to **Gesesa**, the performance estimates for the year (see Table no. 30) show, in some cases – e.g. for services related to billing, or arrival on site for urgent service – improvements with respect to the actual data for 2017, while the compliance percentages for other services, like the execution of simple and complex works or the activation of the supply, show a decrease.
During the year, Acea Ato 5 accrued automatic indemnities to customers amounting to € 330,000 (estimated), excluding the Municipality of Cassino, and Gesesa accrued automatic indemnities to customers amounting to € 60,000, most of which relate to indicators for the issue of the bill and the frequency of billing.

Acea Ato 2 and Gesesa, furthermore, as required by the Authority, communicate performance data to users in bills once a year [67], whereas at the moment only Acea Ato 2 makes these available online as well (www.gruppo.acea.it). Again in compliance to the regulatory interventions already intervening on the topic, companies operating in the water segment also make information about the quality of supplied drinking water available for the consultation of users.

[66] With reference to 2017, on 20 January 2018 Acea Ato 2 sent the STO data on the achieved contractual quality levels for each indicator, according to the regulations under resolution 655/2015, for the recognition of the award system related to 2017 and following the completed assessments, the Secretariat granted Acea Ato 2 an award of about 30 million Euros. On 21 January 2019, Acea Ato 2 sent the data related to performance for 2018 and the Secretariat has 40 days to quantify the award for the year.

[67] The obligation to notify all end customers of the levels of quality achieved in the previous year in the bill by 30 June is in force (art. 78.1 Resolution 655/2015).

TABLE NO. 28 - SOCIAL INDICATORS: SPECIFIC AND GENERAL LEVELS OF CONTRACTUAL QUALITY IN THE WATER SEGMENT (2017-2018) - ACEA ATO 2 - (ARERA PARAMETERS, ACEA ATO 2 IMPROVEMENT STANDARDS AND PERFORMANCE - DATA COMMUNICATED TO THE STO)

CONTRACTUAL QUALITY WATER SEGMENT - ACEA ATO 2

SPECIFIC LEVELS OF QUALITY

SERVICES	ARERA STANDARD(*)	ACEA ATO 2 IMPROVEMENT STANDARD	Service delivery average actual time	Degree of compliance	Service delivery average actual time	Degree of compliance
			ACEA ATO 2 PERFORMANCE			
			2017		**2018**	
estimate for water connection with inspection	20 working days	15 working days	9.6	90.6%	9.5	90.3%
estimate for sewage connection with inspection	20 working days	15 working days	6.8	100%	/	/
execution of the water connection with simple work	15 working days	10 working days	10.3	76.0%	13.5	73.1%
execution of the sewage connection with simple work	20 working days	15 working days	/	/	/	/
supply activation	5 working days	3 working days	11.0	77.5%	12.9	74.1%
reactivation or takeover of the supply without changing the meter rate	5 working days	3 working days	2.4	93.9%	2	92.3%
reactivation or takeover of the supply with changes to the meter rate	10 working days	6 working days	3.4	95.0%	1.3	100%
reactivation of supply following disconnection for late payment	2 weekdays	1 weekday	1.6	77.5%	1.2	87.6%
deactivation of supply	7 working days	3 working days	2.5	93.6%	5.4	91.9%
transfer of registration	5 working days	3 working days	0.1	99.8%	0	99.8%
estimates for works with inspection	20 working days	15 working days	11.2	85.2%	11.6	90.3%
completion of simple work	10 working days	6 working days	15.6	46.2%	4.3	42.9%
punctuality band for appointments	180 minutes	120 minutes	-	94.9%	-	96.0%
intervention to check the meter	10 working days	5 working days	3.8	87.9%	3.8	97.9%
notification of outcome of the meter check in situ	10 working days	6 working days	1.8	96.1%	0.9	98.7%
notification of the outcome of the verification of the meter carried out in the laboratory	30 working days	20 working days	35.3	66.7%	/	/
replacement of a faulty meter	10 working days	5 working days	0.0	100%	0.2	99.9%
intervention to check pressure level	10 working days	3 working days	1.4	97.8%	2.3	90.7%
notification of the outcome of the pressure level check	10 working days	5 working days	1.0	97.8%	0.8	99.7%
bill issued	45 days	30 days	2.1	98.9%	1.3	99.9%
billing frequency (consumption ≤ 100m^3/year)	2 bills/year	3 bills/year	4.9(**)	97.5%	5.1(**)	98.9%
billing frequency (100 < consumption ≤ 1000 m^3/year)	3 bills/year	4 bills/year	5.4(**)	91.8%	5.6(**)	97.8%
billing frequency (1000 < consumption ≤ 3000 m^3/year)	4 bills/year	6 bills/year	9.0(**)	92.2%	7.3(**)	98.8%
billing frequency (consumption > 3000 m^3/year)	6 bills/year	12 bills/year	13.2(**)	82.3%	12.1(**)	99.4%

bill payment term	20 days	30 days	30.7	99.9%	30.6	100%
reply to complaints	30 working days	20 working days	11.1	96.8%	7.3	99.2%
reply to written enquiries	30 working days	20 working days	12.4	97.0%	8.9	98.3%
billing adjustment	60 working days	55 working days	6.2	98.4%	7	99.1%
separate management - request received from the end user forwarded to the sewage and/or purification service operator	5 working days	3 working days	0.0	100%	/	/
separate management - communication received from the sewage and/or purification service operator forwarded to the end user	5 working days	3 working days	/	/	/	/
GENERAL LEVELS OF QUALITY						
completion of complex water connection	90% of the services within 30 working days	90% of the services within 20 working days	21.2	76.0%	25.2	70.5%
completion of complex sewage connection	90% of the services within 30 working days	90% of the services within 25 working days	14.0	100%	/	/
completion of complex works	90% of the services within 30 working days	90% of the services within 20 working days	47.3	41.8%	41.9	47.6%
maximum time for the agreed appointment	90% of the services within 7 working days	90% of the services within 5 working days	3.8	82.2%	3.5	90.2%
minimum prior notice for cancelling the agreed appointment	95% of the services within 24 hours before the start of the agreed punctuality bracket	95% of the services within 48 hours before the start of the agreed punctuality bracket	173.9	87.0%	169.2	92.3%
arrival at the location of the emergency call	90% of the services within 3 hours from the telephone conversation with the operator	90% of the services within 2 hours from the telephone conversation with the operator	35.1	61.5%	21.9	62.2%
reply to written billing adjustment requests	95% of the services within 30 working days from receipt of the request	95% of the services within 20 working days from receipt of the request	10.2	97.2%	7.0	99.1%
maximum waiting time at helpdesk counters	95% of the services within 60 minutes	95% of the services within 55 minutes	8.1	98.6%	5.9	99.8%
average waiting time at helpdesk counters	20 minutes	15 minutes	8.1	100%	5.9	100%
accessibility to the telephone service (AS)	> 90% for at least 10 months out of 12	> 95% for at least 10 months out of 12	-	100%	-	100%
average waiting time for the telephone service (TMA)	≤ 240 seconds for at least 10 months out of 12	≤ 180 seconds for at least 10 months out of 12	110	100%	106	100%

telephone service level (LS)	≥ 80% for at least 10 months out of 12	≥ 85% for at least 10 months out of 12	110	89.7%	106	100%
reply to the emergency call (CPI)	90% of the services within 120 seconds	90% of the services within 110 seconds	120.7	85.1%	63.1	95.1%
separate management - notification of completed activation, deactivation, takeover, discontinuance, transfer of registration	90% of the services within 10 working days from the date of execution	90% of the services within 5 working days from the date of execution	1.6	99.8%	0.9	100%

(*) The times provided under the Authority's reference standards, also where not expressly indicated in the table, are to be understood, case by case, as related to a certain moment, for example: starting from the date of receipt of the request, the date of acceptance of the estimate, the date the agreement was stipulated, etc. See resolution (655/15/R/Idr), available on the ARERA website.

(**) The average time for billing frequency refers to the average number of issued bills.
The Symbol "/" is used when there have been no services during the year, whereas "-" indicates that the average time cannot be calculated because the services is on/off.

TABLE NO. 29 - SOCIAL INDICATORS: MAIN SPECIFIC AND GENERAL LEVELS OF CONTRACTUAL QUALITY IN THE WATER SEGMENT (2017-2018) - ACEA ATO 5 - (ARERA PARAMETERS AND ACEA ATO 5 PERFORMANCE - 2017: FINAL DATA, 2018: ESTIMATED DATA, IN THE VALIDATION PHASE - REPORTING TO ARERA SCHEDULED FOR 31.03.2019)

CONTRACTUAL QUALITY WATER SEGMENT - ACEA ATO 5

SPECIFIC LEVELS OF QUALITY

SERVICES	ARERA STANDARD(*)	Service delivery average actual time	Degree of compliance	Service delivery average actual time	Degree of compliance
		ACEA ATO 5 PERFORMANCE			
		2017		2018	
estimate for water connection with inspection	20 working days	6	95%	4	98%
estimate for sewage connection with inspection	20 working days	4	91%	5	99%
execution of the water connection with simple work	15 working days	12	88%	3	97%
execution of the sewage connection with simple work	20 working days	12	100%	23	50%
supply activation	5 working days	9	67%	6	80%
reactivation or takeover of the supply without changing the meter rate	5 working days	3	95%	2	99%
reactivation or takeover of the supply with changes to the meter rate (**)	10 working days	1	100%	n.a.	n.a.
reactivation of supply following disconnection for late payment (**)	2 weekdays	n.a.	n.a.	n.a.	n.a.
deactivation of supply	7 working days	5	93%	2	97%
transfer of registration	5 working days	3	98%	0.2	99%
estimates for works with inspection	20 working days	7	92%	5	99%
completion of simple work	10 working days	9	86%	9	69%
punctuality band for appointments	180 minutes	-	97%	-	99%
intervention to check the meter	10 working days	7	85%	5	90%
notification of outcome of the meter check in situ	10 working days	8	90%	8	92%
notification of outcome of the meter check in a laboratory	30 working days	/	/	/	/

replacement of a faulty meter	10 working days	1	100%	1	100%
intervention to check pressure level	10 working days	12	65%	1	100%
notification of the outcome of the pressure level check	10 working days	5	79%	1	100%
bill issued	45 days	/	99%	/	98%
billing frequency (consumption ≤ 100m^3/year)	2 bills/year	n.a.	100%	n.a.	97%
billing frequency (100 < consumption ≤ 1000 m^3/year)	3 bills/year	n.a.	99%	n.a.	97%
billing frequency (1000 < consumption ≤ 3000 m^3/year)	4 bills/year	n.a.	93%	n.a.	97%
billing frequency (consumption > 3000 m^3/year)	6 bills/year	n.a.	87%	n.a.	97%
bill payment term	20 days	45	100%	35	100%
reply to complaints	30 working days	11	88%	6	90%
reply to written enquiries	30 working days	14	67%	12	70%
billing adjustment	60 working days	8	99%	11	77%
separate management - request received from the end user forwarded to the sewage and/or purification service operator	5 working days	/	/	/	/
separate management - communication received from the sewage and/or purification service operator forwarded to the end user	5 working days	/	/	/	/

GENERAL LEVELS OF QUALITY

SERVICES	ARERA STANDARD(*)	Service delivery average actual time	Degree of compliance	Service delivery average actual time	Degree of compliance
		ACEA ATO 5 PERFORMANCE			
		2017		**2018**	
completion of complex water connection	90% of the services within 30 working days	10	93%	7	93%
completion of complex sewage connection	90% of the services within 30 working days	14	100%	12	67%
completion of complex works	90% of the services within 30 working days	11	95%	13	93%
maximum time for the agreed appointment	90% of the services within 7 working days	6	95%	3	98%
minimum prior notice for cancelling the agreed appointment	95% of the services within 24 hours before the start of the agreed punctuality bracket	n.a.	20%	n.a.	86%
arrival at the location of the emergency call	90% of the services within 3 minutes from the telephone conversation with the operator	0.9	100%	0.8	100%
reply to written billing adjustment requests	95% of the services within 30 working days from receipt of the request	16	86%	17	55%

maximum waiting time at helpdesk counters	95% of the services within 60 minutes	33	70%	40	97%
average waiting time at helpdesk counters	20 minutes	n.a.	39%	n.a.	97%
accessibility to the telephone service (AS)	> 90% for at least 10 months out of 12	n.a.	98%	n.a.	100%
average waiting time for the telephone service (TMA)	≤ 240 seconds for at least 10 months out of 12	68	98%	90	62%
telephone service level (LS)	≥ 80% for at least 10 months out of 12	n.a.	88%	n.a.	90%
reply to the emergency call (CPI)	90% of the services within 120 seconds	n.a.	80%	66	96%
separate management - notification of completed activation, deactivation, takeover, discontinuance, transfer of registration	90% of the services within 10 working days from the date of execution	/	/	/	/

(*) The times provided under the Authority's reference standards, also where not expressly indicated in the table, are to be understood, case by case, as related to a certain moment, for example: starting from the date of receipt of the request, the date of acceptance of the estimate, the date the agreement was stipulated, etc. See resolution (655/15/R/Idr), available on the ARERA website.

(**) In these two cases the standard does not apply as the company does not foresee "reactivation" but rather termination and the creation of a new contract.
The symbol "/" is used when there have been no services during the year, whereas "-" indicates that the average time cannot be calculated because the services is on/off.

TABLE NO. 30 - SOCIAL INDICATORS: MAIN SPECIFIC AND GENERAL LEVELS OF CONTRACTUAL QUALITY IN THE WATER SEGMENT (2017-2018) - GESESA - (ARERA PARAMETERS AND GESESA PERFORMANCE - 2017: FINAL DATA, 2018: ESTIMATED DATA, IN THE VALIDATION PHASE - REPORTING TO ARERA SCHEDULED FOR 31.03.2019)

CONTRACTUAL QUALITY WATER SEGMENT- GESESA

SPECIFIC LEVELS OF QUALITY

SERVICES	ARERA STANDARD(*)	Service delivery average actual time	Degree of compliance	Service delivery average actual time	Degree of compliance
		GESESA PERFORMANCE			
		2017		**2018**	
estimate for water connection with inspection	20 working days	13.7	84.6%	3.7	98.9%
estimate for sewage connection with inspection	20 working days	/	/	/	/
execution of the water connection with simple work	15 working days	6.0	100%	15.6	70.6%
execution of the sewage connection with simple work	20 working days	/	/	/	/
supply activation	5 working days	1.5	100%	18.7	54.5%
reactivation or takeover of the supply without changing the meter rate	5 working days	1.7	98.6%	1.4	98.0%
reactivation or takeover of the supply with changes to the meter rate	10 working days	/	/	/	/
reactivation of supply following disconnection for late payment	2 weekdays	45.0	100%	0.5	100%
deactivation of supply	7 working days	4.1	96.2%	2.0	97.3%
transfer of registration	5 working days	0.1	99.5%	1.2	96.8%
estimates for works with inspection	20 working days	3.8	100%	2.8	100%
completion of simple work	10 working days	3.5	100%	5.7	75.0%

punctuality band for appointments	180 minutes	93	81.2%	122	92.2%
intervention to check the meter	10 working days	0.7	100%	1.9	98.6%
notification of outcome of the meter check in situ	10 working days	/	/	18.7	33.3%
notification of outcome of the meter check in a laboratory	30 working days	/	/	/	/
replacement of a faulty meter	10 working days	/	/	0	100%
intervention to check pressure level	10 working days	3.7	100%	0.8	100%
notification of the outcome of the pressure level check	10 working days	3.8	100%	/	/
bill issued	45 days	/	/	4	99.8%
billing frequency (consumption ≤ 100m^3/year)	2 bills/year	-	100%	-	98.5%
billing frequency (100 < consumption ≤ 1000 m^3/year)	3 bills/year	-	98.5%	-	95.3%
billing frequency (1000 < consumption ≤ 3000 m^3/year)	4 bills/year	-	85%	-	98.8%
billing frequency (consumption > 3000 m^3/year)	6 bills/year	-	81.4%	-	97.3%
bill payment term(**)	20 days	30.4	100%	n.a.	n.a.
reply to complaints	30 working days	23.5	96.5%	24.7	87.5%
reply to written enquiries	30 working days	23.3	89.4%	25.7	92.1%
billing adjustment	60 working days	0.0	100%	/	/
separate management - request received from the end user forwarded to the sewage and/or purification service operator	5 working days	/	/	/	/
separate management - communication received from the sewage and/or purification service operator forwarded to the end user	5 working days	/	/	/	/

GENERAL LEVELS OF QUALITY

SERVICES	ARERA STANDARD(*)	Service delivery average actual time	Degree of compliance	Service delivery average actual time	Degree of compliance
		GESESA PERFORMANCE			
		2017		2018	
completion of complex water connection	90% of the services within 30 working days	19.2	87.5%	33.8	69.6%
completion of complex sewage connection	90% of the services within 30 working days	/	/	/	/
completion of complex works	90% of the services within 30 working days	8.7	100%	28.8	75.8%
maximum time for the agreed appointment	90% of the services within 7 working days	2.0	97.8%	2.2	98.1%
minimum prior notice for cancelling the agreed appointment	95% of the services within 24 hours before the start of the agreed punctuality bracket	103	66.7%	/	/

arrival at the location of the emergency call	90% of the services within 3 minutes from the telephone conversation with the operator	1.4	66.7%	0.6	100%
reply to written billing adjustment requests	95% of the services within 30 working days from receipt of the request	20.5	88.2%	31	0%
maximum waiting time at helpdesk counters	95% of the services within 60 minutes	60	95%	60	100%
average waiting time at helpdesk counters	20 minutes	20	95%	20	/
accessibility to the telephone service (AS)	> 90% for at least 10 months out of 12	-	100%	-	100%
average waiting time for the telephone service (TMA)	≤ 240 seconds for at least 10 months out of 12	81	95%	/	/
telephone service level (LS)	≥ 80% for at least 10 months out of 12	-	95%	-	91.4%
reply to the emergency call (CPI)	90% of the services within 120 seconds	-	88%	-	84.5%
separate management - notification of completed activation, deactivation, takeover, discontinuance, transfer of registration	90% of the services within 10 working days from the date of execution	/	/	/	/

(*) The times provided under the Authority's reference standards, also where not expressly indicated in the table, are to be understood, case by case, as related to a certain moment, for example: starting from the date of receipt of the request, the date of acceptance of the estimate, the date the agreement was stipulated, etc. See resolution (655/15/R/Idr), available on the ARERA website.
The symbol "/" is used when there have been no services during the year, whereas "-" indicates that the average time cannot be calculated because the services is on/off.

(**) The data will be available in the reporting phase, at present Gesesa envisages a standard of 30 days compared to the 20 days envisaged by the Authority.

TARIFFS

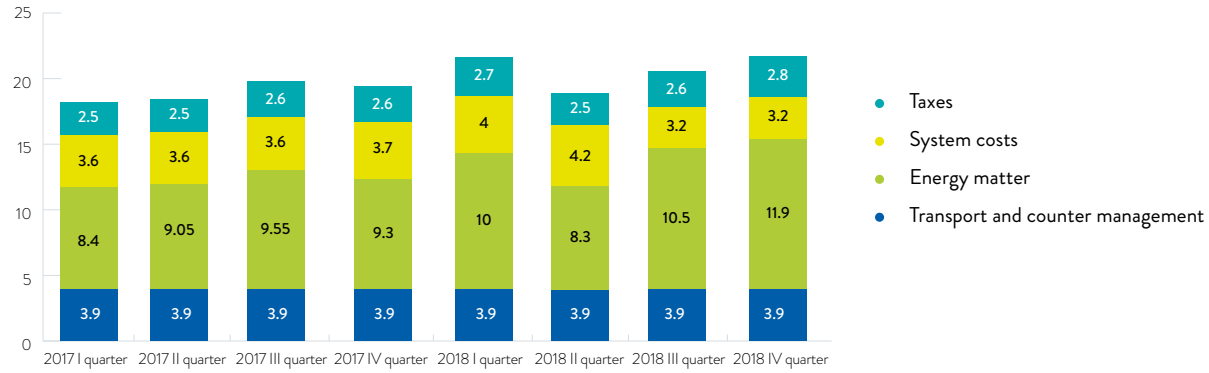
ELECTRICITY SERVICE PRICING

The electricity market consists of the following segments: the **"free market"**, in which the consumer directly chooses the operator from which they receive supply of the service, the **"more protected market"** where the service is provided to the customer under the **contractual terms and conditions and pricing** [68] **laid down by the Regulation Authority for Energy, Networks and the Environment (ARERA)** – the national regulatory body for the sector – and the remaining "safeguard service".

The **costs** included in the energy bill **cover four items of expenditure: energy**, consisting of a fixed fee and an energy fee, with prices differentiated by hour for users with electronic meters; **transport and meter management**, consisting of a fixed fee, a power fee and an energy fee, which refer to activities for the delivery of electricity to end customers; **system charges**, which cover costs for general interest activities of the electricity system and are borne by all end customers; and **taxes** (consumption tax and VAT).

The **more protected** service, while recording constant decreases in favour of the free market, continues to represent **the segment most used** by Italian customers (domestic and non-domestic), with a membership rate of 58.1% (62.6% in the previous year). However, observing the volumes of sold energy, the ratio is inverted and the **free market** customers consume **78.8% of the energy comprehensively sold** to the end market (77.6% in the previous year) [69]. In this segment, with **"standard" consumption** – amounting to **2,700 kWh/year**, with 3 kW power – **the overall annual expenditure** for electricity amounted to about **548 Euros in 2018** (20.3 € cent/Wh), **an increase** compared to last year (when it had been 19.2 € cent/Wh, totalling about 518.4 Euros). The final price was substantially affected by the **increase in the energy component**. There was also an uneven trend in system costs, with a marked change in the first half then reabsorbed in the second half of the year, while transport and meter management costs remained stable.

CHART NO. 22 - ELECTRICITY PRICE TREND FOR A STANDARD DOMESTIC CUSTOMER (€ CENT/KWH) (2017-2018)



Source: ARERA website - statistical data.

WATER SERVICE PRICING

With **resolution 664/2015, ARERA** established a framework of fair, certain and transparent rules concerning the tariff in the water sector for the period 2016-2019.
Such method, based on **regulatory schemes**, ensures an efficient and economically-financially balanced management, able to incentivise investments and improve services in light of **full cost recovery** principles (full coverage of industrial and environmental costs of the service) and "who pollutes pays".

With **Resolution 918/17** issued at the end of December 2017, the Authority intervened to amend and supplement Resolution 664/15, regulating the **updating criteria for the two-year period 2018-2019** regarding the cost components eligible for tariff recognition. With this measure, starting in 2018, it was possible to request the recognition of an additional component ($Opex_{QT}$) that can be traced back to the **adaptation to the technical quality standards** as per resolution 917/2017.

TABLE NO. 31 - AVERAGE WATER PRICES APPLIED (2018)

Company	€/m³
LAZIO/CAMPANIA	
Acea Ato 2 SpA	1.57
Acea Ato 5 SpA	2.31
Gesesa SpA	1.65

[68] Tariffs are defined by ARERA and updated every quarter, based on the costs that the Sole Purchaser (AU) bears, minimising costs and risks connected to the various methods of provisioning, to cover the more protected clientele demand on the electricity wholesale market.

[69] Based on the number of served collection points and the volumes sold in 2017 (ARERA *Annual report 2018*).

CUSTOMER CARE

A **24%** REDUCTION IN THE **volume of calls received** BY TOLL-FREE NUMBERS IN 2018 AND A **13%** REDUCTION IN THE **number of customers received** AT THE HEAD BRANCH

DIGITAL PDC, WITH BIOMETRIC SIGNATURE AND DEDICATED APP: THIS IS **Acea Energia's innovative sales channel**, WHICH ELIMINATES THE RISK OF ERRORS OR TAMPERING

39 tonnes OF **paper/year saved**, THANKS TO THE CUSTOMERS OF ACEA ENERGIA (FREE AND PROTECTED MARKET) AND ACEA ATO 2 WHO HAVE CHOSEN ELECTRONIC BILLING

+16% "green" energy SOLD BY ACEA ENERGIA TO CUSTOMERS OF THE FREE MARKET, REACHING **27.5%** OF THE TOTAL (WAS 20.5% IN 2017)

Two agreements WERE SIGNED BETWEEN ACEA ATO 5 AND ATER AND WITH THE TRADE ASSOCIATIONS

CUSTOMER CARE POLICY

Enhancing **customer focus** is one of the **Group's strategic and sustainability objectives**. In particular, Acea's intention is to **improve the customer journey**, namely the customer's experience when entering into contact with the Group companies and with the Acea Brand. The **operating companies** pursue such objective in their **customer relations**, while the **Performance & Quality Unit (ITS)** in the holding company endeavours to provide **consistent and integrated customer management** to the maximum extent possible, in compliance with industry regulations and specific local conditions, focussing on activities **measuring customer experience**.
2018 was a **good year for customer relations. Contacts with traditional channels have decreased** while the number of operations via the web continues to grow. The marked reduction in flows is the result of years of commitment to improving systems and processes, both technical and administrative, with greater recourse to digitisation, training of operators and monitoring of activities. Lower inflows led to a marked **improvement in telephone and physical branch performance** for all Group companies (see below for *Contact channels and performance*).

The attention paid to improving relations between customers and Group companies also includes **listening to the requests made by consumer associations**, which Acea oversees through a dedicated unit within the **External Relations and Communications Department** of the Parent Company, **together with the operating companies**.
During 2018, a number of **meetings were organised** with the main consumer associations in order to keep an active focus on the requests coming from the areas Acea operates in, and at the same time to continue to raise awareness of the use of digital and telephone channels exclusively dedicated to them. Moreover, with the aim of making the services rendered more efficient, **the opening hours of the telephone contact channels with the Associations have been extended**, with the collaboration of the interested companies.

Acea has for some time activated the **joint settlement procedure**, an **out-of-court commercial dispute settlement process**, in which **customers are represented and supported by the Consumer Associations** recognised by the National Consumer and User Council (CNCU - Consiglio Nazionale Consumatori e Utenti). Following the **Memorandum of Understanding for the ADR** (Alternative Dispute Resolution), signed in 2016 **by 19 consumer associations** and the companies **Acea Energia, Areti, Acea Ato 2 and Acea Ato 5,** the **ADR Body** was established, which since February 2017 by resolution has been included in the list maintained by the Authority. Consequently customers signing the Protocol[70] are able to access the **out-of-court settlement of disputes through the ADR procedure**. In 2018 the Authority received a total of **414 requests for ADR procedures**. In accordance with the rules and regulations, 302 of the requests received were deemed to be valid and 112 were deemed not to be valid. More specifically, for the water sector 232 applications were received (177 processed and 55 not processed) while for the energy sector 182 applications were received (125 processed and 57 not processed).

Acea Ato 5, given the excellent results achieved following the opening of the first "Consumer Branch" in Frosinone, a **physical branch** for the management of commercial practices, active every Friday from 3 pm to 5 pm and **dedicated to the 14 Consumer Associations registered with Otuc** (Body for the Protection of Users' and Consumers' Rights), in June 2018 inaugurated the **"Consumer Branch" of Cassino** in agreement with the same body and with the approval of the Technical Operating Secretariat of Ato 5.
In November 2018, moreover, **Acea Ato 5 and Ater**, the Territorial Agency for Residential Construction of Frosinone, **signed an agreement** with the aim of improving the service offered to citizens living in public residential buildings. The agreement aims to improve the quality of water service to users in public housing and to **prevent and combat the phenomenon of abuse**, which affects both the occupation of public housing and illicit connections to the water system. In particular, Acea Ato 5 will replace the building meters with individual ones for each user, and this will allow the company to independently manage each user and to intervene directly to address specific problems and situations of abuse or default. Acea Ato 5 will **open a communication channel dedicated to the residents of Ater housing** and **provide as much information as possible on the water bonus** available for families

[70] In 2018 Umbra Acque SpA also joined the procedure and, during the year, it received 9 requests for ADR procedures, 6 of which were judged to be valid. The company, which operates in the water sector, is not included in the scope of the non-financial consolidated declaration (see the chapter on *Water Company data sheets and overseas activities*).

in economic difficulty (see also the initial part of the chapter *Customers and the community*).
Moreover, in order to be closer to the needs of companies and small entrepreneurs, in December 2018 Acea Ato 5 **signed an agreement with the trade associations at the headquarters of the Chamber of Commerce of Frosinone**. The agreement, signed with Federlazio, CNA, Confimpreseitalia, Unione Artigiani Italiani and Unindustria, and still other organisations have expressed interest in signing the protocol shortly, has been made possible thanks to the collaboration with the chamber and provides for the **free activation of specific desks at the offices of the Associations**, which will allow members to dialogue directly with Acea Ato 5 for the cases they are interested in, simplifying and accelerating administrative procedures.

The **judicial dispute which took place during the year** between Acea and the customers is explained in the dedicated box.

DISPUTES WITH CUSTOMERS 2018

Legal proceedings **brought by customers** against companies of the Acea Group mainly concerned disputes relating to **charges for service supply, adjustments, pricing structures and service activation delays**. Disputes in 2018 totalled **501**, 109 of which had already been resolved last year.

Compared with 2017, the number of **customer disputes increased** due mainly to challenges to payment orders filed by Acea Ato 5 (383 disputes began in 2017). Customer litigation continues to be the most rapid solution and less costly procedure.

In 2018, focusing its attention on customers, **Acea Energia** also implemented **procedures aimed at preventing and combating the phenomenon of "disputed activations/contracts"** according to ARERA resolution 228/17, **and "unsolicited supplies"** as per art. 66 quinquies of the Consumer Code. To this end:

- customers who have **signed a contract proposal (PDC)** on the open market **via door-to-door sales networks** were contacted by telephone (**Confirmation Call**) after signing to **verify that the content of the contract** signed **had been clearly explained** and that the **agent's conduct had been proper** if such customers gave an email address and/or mobile phone number when completing the contract, they **received a notification** of activated process for the supply so as to remind the customer that they had **signed a contract**, limiting both the risk of any misunderstandings and the risk of delay in the customer exercising their right of withdrawal.
  Acea Energia carried out **formal checks** for completeness and absence of alterations **in the paper contracts produced by sales agents**. If the tests failed, the information systems stop the activation of the new offer from continuing;
- customers having adhered to a **contract proposal (PDC)** on the **free market by means of telesales** received, before completing the contract, **all precontractual and contractual information on an Acea platform on durable medium**. Thereafter, by means of a **Confirmation Call** the clients had to **confirm** their intention to become Acea Energia customers and conclude the contract, after having examined and understood the contractual conditions of the offer, or they independently confirmed their intention to join by interacting on a web page set up on the platform. Such platform also allows **voice recordings to be made available**. Acea Energia **listened to all the telephone recordings produced by sales agents**. In the event of a negative result of such checks, the information systems stop the activation process for the new offer from continuing.

In addition, **in March 2018 Acea Energia introduced an innovative sales channel** called **PDC Digitale**, which joins the traditional door-to-door sales channel and provides for **the signing of the contract** using a **biometric signature on a tablet and a special app**, suitably designed and certified in compliance with legal obligations regarding the Italian Civil Code and privacy. The process is intrinsically oriented towards **overcoming almost all the causes that can lead to the irregular conclusion of a contract** based on a series of elements including: the certainty of the signer (biometric signature); identification documents acquired digitally and attached to the contract; end-to-end submission to the back end systems of Acea Energia, thereby **eliminating the risk of errors and/or tampering** during uploading; automatic and complete sending to the customer of all pre-contractual documents, economic and contractual conditions, both on durable media and on paper, depending on the choice of the customer. This procedure therefore eliminates the need for a Confirmation Call and formal checks for completeness and the absence of alterations in **digital contracts** produced by sales agents.

As regards the **Agency Mandate** which governs relations with the sales agents network, Acea Energia continued to run **checks on the services, analysing**, over 2018, **641 contract offers subject matter of complaint** (for the two specific cases: "disputed activations/contracts" or "unwanted supplies"). **It reported 539 contracts to the Agencies, deemed as "incorrect commercial practices"** and **issued pecuniary sanctions** amounting to 112,000 Euros. Acea Energia has once again carried out a **compulsory training programme for sales representatives** (see the *Suppliers chapter*) and has **maintained bonus/malus mechanisms linked to the quality of acquisitions** in its contracts with its sales agents.

The commercial action of **Acea Energia on the free market** is aimed at **satisfying customer requirements**: from families of large business customers, **diversifying the offers** (see dedicated box). Also in 2018 **the "green" energy sold to customers in the free market continued to increase** (**+16%** compared to 2017 volumes) (see the box illustrating commercial proposals).

ACEA ENERGIA'S 2018 COMMERCIAL PROPOSALS FOR THE FREE MARKET

The commercial proposals of Acea Energia to the **mass market segment** – residential customers, freelance professionals, commercial activities and Small and Medium Enterprises – were circulated with the identification of dedicated and differentiated offers, both for market target and that of the clientele. In particular, the products for residential customers sought to respond to **well-defined needs of the targets**:

- the **Acea Unica** product, designed for the needs of **households**, has a fixed price for components that cover the cost of purchasing electricity and gas and has been enriched by the possibility of activating value-added services that facilitate the management of the supply, which have been linked to economic benefits (bonuses);
- the **Acea Rapida** product, dedicated to **customers who sign up via the web**, gives those who choose it the chance to manage their energy supply completely online;
- the product **Acea Viva**, which **supplies "green" energy** produced from renewable sources with a Guarantee of Origin, with the aim of responding to the needs of **customers who are more attentive to the environment**, has been linked to the activation of the bill delivered via web and a bonus for those who choose the method of payment with domiciliation. For large **Business clients**, choosing the **Acea Viva** product constitutes an **asset of strategic positioning**, strengthened by personalised solutions of communication which Acea Energia makes available to each single customer. The overall volume of **green energy sold in 2018 was around 915,000 MWh**, with an **increase of 16%** compared to 2017 value (790,000 MWh). **The incidence** of such item **on the total energy sold to customers of the free market by Acea Energia** (about 3,323 GWh, also see the *Environmental accounts*) **rose to 27.5%** (it was 20.5% in 2017).

During the year, **differentiated products were added to the various purchasing channels**:

- with the opening of the **physical branch dedicated to the Free Market** in Ostia was born the product **Acea Special Shop** (see the dedicated box);
- at the end of March 2018, the **Acea Innova** product was launched, which is part of Acea Energia's broader innovation project with which the company enriches its commercial offerings with technological devices.

In addition, in compliance with the provisions of the ARERA (resolution 557/2017/R/Com), Acea Energia has prepared the differentiated **PLACET offers** (Free Price at Equivalent Protected Conditions), aimed at families (domestic use) or small businesses (non-domestic use). PLACET offers are included in the package of commercial proposals at freely determined prices but **with contractual conditions defined by the Authority**. In summary, in Placet's offers the economic conditions (price) are freely decided by the seller and renewed every 12 months; the price structure and the contractual conditions (e.g. guarantees, instalments) are both determined by the Authority. The uniformity of the price structure and contractual conditions and the exclusion of any additional service with respect to the supply of electricity or natural gas make PLACET offers **easily comparable with each other**. Moreover, these offers do not provide for the joint supply of electricity and natural gas (dual fuel); the customer can activate both energy supplies (electricity and gas) but only by signing two separate contracts.

See also the websites: www.acea.it for customers in the free market and www.servizioelettricoroma.it for customers in the protected market.

The **"Acea con Te" loyalty programme** for free-market domestic electricity and gas customers recorded a growth in memberships and interest of customers. Initiatives were proposed with competitions to reward customers in light of **virtuous conduct with focus on the use of online services** (e-bill, domiciliation, regular payments, etc.). In 2018 the **Emozioni da Prima Fila** (First Row Emotions) competition continued, offering prizes of admission to exclusive events and experiences. In July the **loyalty programme was updated** by migrating to a new, more flexible interactive platform and focusing on **greater customisation of the customer experience**, with online and offline discounts, local benefits and gamification. At the same time, a **restyling of the visual identity** was also carried out to allow users an optimal use even from mobile devices.

THE FIRST ACEA ENERGIA SHOP IN OSTIA

At the end of July 2018 **Acea Energia opened its first Acea Energia Shop in the Ostia district**, where customers can **find out about new offers** to choose the one that best suits their needs, sign contracts and request assistance in managing their supply. In addition, a special offer – "Acea Special Shop" – is reserved for Shop customers and can only be activated at the point of sale. The Shop's spaces, open from Monday to Friday, are modern and **built with ecological materials**. Customers can connect to the Internet and use the workstations available to connect to the MyAcea reserved area. Acea Energia has set a goal of making **its presence in the region more widespread and flexible**. With this first shop, the firm has launched an initiative to strengthen its sales network with a new communications channel that is closer – even physically – to customers.

CONTACT CHANNELS AND PERFORMANCE

In all customer relations, Acea is committed to **guaranteeing** the **respect of privacy in the management of personal data**, as required by the reference laws in force. In this regard, it should be noted that in 2018 the new European regulations on the protection of personal data (**General Data Protection Regulation - GDPR**)[71] came into force in our country[72] and Acea promptly adapted its organisation (see also *Corporate identity*, *Corporate governance and management systems*).

In 2018 the process of **digitising contact channels** continued. The percentages of use of remote channels and **assistance chat** in **MyAcea** in particular have increased significantly. Customers can request **most operations online** which regard their utility and for the **more protected** electricity service, there is a **procedure for digital acceptance of commercial forms**: customers are able to download and accept, simply and in real time, all contractual documentation, overcoming the need to return the signed package by traditional post. This led to an **overall im-**

[71] Regulation EU 679/2016 (GDPR).

[72] Legislative Decree no. 196/2003 as amended and supplemented by Legislative Decree no. 101/2018 and subsequent amendments and additions.

provement in the call centre activity. A relevant effort was also put into circulating the use of the **e-bill** with satisfactory results (see also hereunder).

The **MyAcea** self-care platform, also available as an **app** for mobile devices, saw a further period of growth in the user base in 2018. From **one sole account**, within the reserved area MyAcea, the customer can **manage all water, electricity and gas utilities active with the Group companies**, with a view to **simplifying** and **concurrent expanding of the available operations**, while the processing of documents continues to be ensured by the proprietary companies of the various services. The **MyAcea app** was **installed by about 110,000 people**. For **Acea Energia**, more than **390,000 contracts were managed by online customers**.

During the year, **Acea Ato 2**'s digital services offering was further expanded through the MyAcea customer area. Among the **main innovations introduced**: the launch of the **new CBILL payment channel**, the ability to even **pay bills related to quotes** online by credit card, the **improvement of the user experience** through new features like the **automatic association of accounts** for customers with multiple active contracts and **Facebook-style notifications** to guide customers, reminding them of the most important actions to be taken online in their accounts.
To further develop the **digital communication channel** (so-called "DEM" - Direct Email Marketing), Acea Ato 2 created a **monthly calendar of initiatives** based on the needs of the company and its customers, like: a reminder to submit a meter reading, **information on how to protect the meters** in case of frost, **advice on saving water**, etc. Various communication initiatives were also executed (emails, notices on the website, attachments to bills, etc.) to support **projects or events of particular importance**, like the **campaign to replace meters on a mass scale** or the introduction of new forms of **water bonuses** to support customers in economically disadvantaged conditions (see also in the section on Customers, the section on *Customers of the Acea Group: electricity and water services*).
In addition, when the meter replacement campaign was launched, **a webform for customers was created** to update their personal data, with the aim of helping the customers and allowing them to replace the meters according to their availability.
The expanded array of offers and better usability of online services, thanks to the actions mentioned above, have made it possible to further increase the number of subscribers to the MyAcea customer area belonging to Acea Ato 2 (**158,466 associated accounts** as at 31.12.2018 equal to **35% more** since the beginning of the year).

Acea Ato 5 has also encouraged local customers to use alternative channels at the branch thanks to the first **Acea web point inaugurated in Frosinone at the end of 2017 and fully operational during 2018**. The expected benefit is that customers will be able to carry out **their main business transactions remotely**, following an end-to-end process logic. The **Acea website** is in fact **entirely dedicated to multimedia services** and provides users with tablets, PCs and phones with the aim of promoting the **knowledge and use** of the app for smartphones, the MyAcea area and the call centre, with the support of qualified personnel.
Thanks to the My Acea **web assistance service**, which facilitates customers in website registration/access or in the execution of procedures available online, **Acea Ato 5 has deactivated** (from 28 February 2018) **its toll-free number and replaced it with assistance via chat** (from 1 March 2018), available during the same hours as the discontinued telephone service. In the chat access box a menu has been made available that allows the customer to **select the company** to be contacted.

For Gesesa, present since 2017 on the corporate website www.gruppo.acea.it, the customer area is called **MyGesesa** for reasons of brand awareness in the region of reference (Benevento and province) and is **also available as an app**. In 2018 Gesesa carried out **two information campaigns** under the common name ***Gesesa Digitale***, one to promote customers' knowledge and use of web channels and smartphones for business relations with the company, the other to disseminate the **new guide to reading one's own meter**, also containing information on how to send data via text message. Both campaigns lasted two months, with posters, social media and advertising in online news sites and the press. The new guide has also been **delivered to all users** of the municipalities served and promoted through **meetings with consumer associations.** In particular, Gesesa has based its strategy on **social media marketing**, with the objectives of improving its image; **strengthening the bond with customers, establishing a dialogue with them**; receiving more feedback. Customers, although still in a limited number, are beginning to activate the web bill option.

Acea8cento manages some **remote channels** – telephones, faxes, web forms, post, social networks – for the main operating companies in the Group, mainly for commercial use[73]. The service provided by the contact centre is managed with a **One Call Solution** (OCS) approach in order to promptly meet the needs expressed by customers in a single contact.
Acea8cento gave its full support to the process under way, for reviewing and simplifying the contact channels. In particular, the main actions to improve the service implemented in 2018 were:

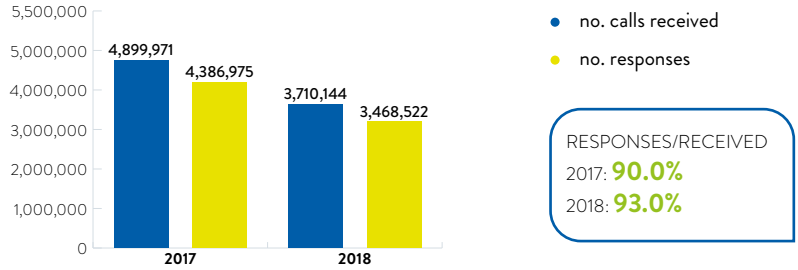
- the enhancement of the service for the Acea Energia free market based on the **operations carried out, tracked on the Customer Relationship Management system** (SIEBEL CRM), always with the aim of maximising the ability to resolve requests received from customers (OCS);
- the implementation of the **Net Promoter Score** (NPS) for the more protected service, the free market and for the water service managed by Acea Ato 2, which guarantees an objective measurement of the level of customer satisfaction with the service just provided;
- the management of the **social channel** (Facebook) **for Acea Energia** for customers in the free market, ensuring the moderation and management of private messaging;
- **the consolidation of the Chat channel**, aimed both at **assisting in MyAcea** and at **processing the commercial requests** received from customers of the more protected service, the free market and the water service managed by Acea Ato 2 and Acea Ato 5, through the use of the SnapEngage Live Chat software.

The Parent Company regularly performs **checks on the quality of the telephone channels and branches through mystery customer surveys**. The results are shared with Service Managers and contact operators and **facilitate the identification of areas for improvement** in each contact channel and take the necessary corrective measures. In 2018 the activity continued with the aim of systematically correlating the results of the surveys on perceived quality with the actual quality supplied, including the data from the mystery clients.

[73] In addition to the commercial channels, Acea8cento handles the number for cemetery lighting managed by Areti.

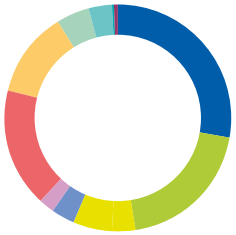
In 2018, **Acea toll-free numbers received about 3.7 million calls, more than 24% fewer than in 2017** (about 4.9 million calls[74]), reinforcing the **trend of positive reduction** already recorded in the previous two years. The **comprehensive service level**, representing the answers on the total calls received, **was 93.5%**, an improvement of 3 percentage points compared to 2017.
The **decrease in the number of calls** was seen in **all the Group's toll-free numbers. In particular in the (commercial) energy sector**, where the improvement in processes and response performance further reduced the need for contact compared to the past, going **from about 2.5 million calls** in 2017 (free and protected market) to **about 1.7 million calls** in 2018. Contacts **have also decreased with the water toll-free numbers** of Acea Ato 2, Acea Ato 5 and Gesesa, thanks above all to the path of technological innovation and digitalisation that gives customers the opportunity to make requests and carry out operations independently through the dedicated web channel. The **contacts for electrical malfunction reports** (Areti) show substantial stability for the private grid, where the reduction in contacts due to grid improvement measures was partly compensated by the greater influx during two periods of critical weather conditions. Public lighting reports decreased thanks to the benefits of the LED plan and the priority given to repairing the faults with the greatest impact (see Charts no. 23 and 24 and Table no. 32 at the end of the section).

CHART NO. 23 - TOTAL TELEPHONE CALLS TO ACEA TOLL-FREE NUMBERS (2017-2018)



NB The percentages of service levels are rounded.

CHART NO. 24 - PERCENTAGE BREAKDOWN OF INBOUND CALLS TO ACEA TOLL-FREE NUMBERS (2018)



- 25.8% | electricity protected market commercial (Acea Energia)
- 20.6% | electricity and gas free market commercial (Acea Energia)
- 6.9% | electrical faults (Areti)
- 3.9% | public lighting faults Rome (Acea Areti)
- 2.6% | cemetery lighting (Areti)
- 18.8% | water commercial (Acea Ato 2)
- 13.2% | water faults (Acea Ato 2)
- 5.0% | water commercial (Acea Ato 5)
- 2.4% | water faults (Acea Ato 5)
- 0.5% | water commercial (Gesesa)
- 0.3% | water faults (Gesesa)

The polling survey conducted by the Regulation Authority for Energy, Networks and the Environment (ARERA) in the second half of 2017[75], for the **Acea Energia toll-free numbers** has identified an increase in ICS - Customer Satisfaction Index – as a whole (scale 0-100) – which rose from 85.9 out of 100 for the H2 2016 to **86.8 out of 100**. The improvement is mainly due to the positive trend in the degree of satisfaction regarding the factor "waiting time to talk to the operator", followed by "clarity of the response".
The **service levels of the toll-free numbers**, represented by the percentage ratio of calls answered over total calls received **significantly improved** for most of the toll-free numbers. **The average waiting time is mostly close to or less than one minute**. This is an important result, obtained through **the optimisation of call routing logics** and the consequent commitment of operators, which benefits from the virtuous circle of general improvement described above (training, monitoring, guides for operators, digitisation, etc.). The performance of Acea Ato 5's fault reporting system improved considerably and in 2018 it internalised the service in close liaison with the operations room. The numbers dedicated to public lighting and cemetery lighting also improved significantly. The main performance indicators for the last two years period is given in Table no. 32, at the end of this section.

At the **Acea headquarters** in Rome, Piazzale Ostiense, a **space is made available to customers** of electricity, gas and water services, where those who go to the counters managed by Acea Energia and Acea Ato 2 are welcomed. The number of customers – **194,338** – received in 2018 **is down by 13%** (223,317 in 2017), confirming the positive **trend of decreasing** visits to branches, already underscored in recent years.
The fewer accesses particularly affected the **more protected electricity service** thanks to the improvement of the billing process. **Acea Ato 2 manages a further 12 branches** in Ostia and **in**

[74] The figure, which is slightly higher than what was published in the last edition of the Report (4.8 million calls), has been adjusted by introducing calculations of the volumes aligned with the data communicated to ARERA (see Table 32).

[75] The Authority had not yet shared the results of the survey in the second half of 2018 when this document was published.

the province of Rome, which in 2018 received a total of 74,500 visits. The comparison with 2017 is not significant because in 2018 the monitoring with queue management was extended to "fast" operations in order to streamline and make more comfortable the waiting, as well as allowing a number of minor operations, previously not recorded and thus making possible a more correct sizing of the response capacity.
Since February, **Acea Ato 5 has been changing the opening hours of branches** to take into account customers' needs, with the introduction of continuous working hours from 8.30 am to 4.30 pm. The new working hours ensure the simultaneous presence of all available operators, concentrating shifts in the afternoons when there is a lighter flow of customers. The interventions have made it possible to **improve the level of service and waiting times** despite a slight increase in traffic flows.
Both service levels, for branches expressed by the **percentage ratio between customers served and the total number of tickets issued, and waiting times improved**, also for counters at the **Acea Energia** and **Acea Ato 2** headquarters (see Table 32). The **Gesesa** branches in Benevento hosted **fewer visitors** than in 2017.
The already noted improvement in the performance of the telephone channel and the greater use of the web channel contribute to the lower traffic flows and the general reduction in waiting times at the physical branches.

Operating companies also handle **written complaints, following the processing of cases using information systems: from reporting to resolution**.
For the **energy service**, the "replies to written complaints/enquiries" both by the sale company and the distribution company, are services included among the **levels of commercial quality** subject to regulation by the national Authority (see sub-paragraph *Quality levels regulated by ARERA in the electricity sector*). In the same way, for the **water service, the contractual quality levels**, specific and general, introduced by the Authority, also provide for the procedures of management and response times to enquiries, written complaints and requests for billing adjustment (see sub-paragraph *Quality levels regulated by ARERA in the water sector*).
For the **public lighting service**, responses to **complaints/written requests** were handled directly by Areti. During 2018 a total of **1,285 complaints/requests** were received, **a significant decrease** compared to the 2,292 recorded in 2017. The company **replied to 100% of them** by 31 December.

On the **website www.acea.it** dedicated to the **Free Market** and on the **website www.servizioelettricoroma.it** dedicated to the **More Protected Service of Acea Energia** there are **guides to reading the bill**. A guide to reading the bill is also available for customers of the water service, found in the **Water section** of the Acea Group website **www.gruppo.acea.it**.

With a view to **continuous improvement**, the **total number of pages that make up the Acea Energia bill has been reduced**, the end customer receiving a summary of essential information, with **considerable savings in printed paper**.
The **layout of the bill** is constantly being improved to provide better clarity and transparency. The dynamic communication spaces within the bill are used to convey **messages** dedicated to the promotion of services for the management of the supply in self-service mode, like web bill, domiciliation or the loyalty programme (the latter only for free-market customers).
Finally, thanks to the awareness-raising actions implemented, the number of Acea Energia customers **subscribing** to the **"electronic bill" option continued to grow**. In fact, **during the year about 42,000** customers have made this choice and as at **31.12.2018 Acea Energia** has arrived at **a total number of 235,331 customers** both in the free market and in the protected market receiving **an electronic bill**.
In terms of environmental protection, only with regard to paper sheets not sent[76] thanks to the electronic bill option, **this amounted to 32.5 tonnes/year of paper saved**.
Finally, in July 2017, Acea Energia made available a **summary electricity bill in Braille for blind customers who have requested it**, structured in the same way as the traditional version, including useful tips, e.g. how to save electricity. The initiative, created in collaboration with the non-profit social cooperative Handy Systems, is still little known. The company is planning a summary electricity bill also for visually impaired customers along with **activities aimed at spreading knowledge** to be conveyed through institutional channels and specialised publications. In addition to the Braille bill, Acea Energia has started the first meetings to encourage the development of other initiatives **aimed at customers with other disabilities**.

Acea Ato 2 has made some updates to the layout of the bill with the aim of **making the information to customers more linear and clear**, for example by introducing the description of all the available payment options on the page containing the pre-compiled payment slip. In addition, the company has implemented various actions aimed at **increasing the use of electronic bills** by customers (web bills). In particular, **two email campaigns were executed** and communications were increased via the main customer touch points (e.g. attachments to bills). In addition, **training was provided to all contact personnel** (call centres and counters) in order to **better explain to customers the advantages of choosing a web bill**: environmental sustainability, certainty and speed of delivery and digital archiving. As at **31.12.2018**, the number of user accounts of **Acea Ato 2 with active digital transmission mode** was **80,356** (+144% compared to the beginning of the year). The sheets of paper not sent in the year, thanks to electronic billing, amounted to **6.5 tonnes/year of paper saved**.

[76] The figure includes all the sheets that, in the absence of the web bill option, would have been sent to customers in paper form: bills, reminders and other communications.

TABLE NO. 32 - SOCIAL INDICATORS: TOLL-FREE NUMBER AND HELPDESK COUNTER PERFORMANCE (2017-2018) (*)

TOLL-FREE NUMBERS			
ELECTRICITY SERVICE			
COMMERCIAL TOLL-FREE NUMBER (Acea Energia) - MORE PROTECTED MARKET			
	u. m.	2017	2018
total calls received	no.	1,360,162	958,463
total answers	no.	1,221,168	894,819
service level (% of answers to calls received)	%	89.8%	93.4%
average waiting time before answer	min. sec.	2'24"	1'36"
average conversation time	min. sec.	6'10"	5'51"
COMMERCIAL TOLL-FREE NUMBER (Acea Energia) - FREE MARKET (energy, gas and offers)			
total calls received	no.	1,122,459	765,505
total answers	no.	983,087	696,258
service level (% of answers to calls received)	%	87.6%	91.0%
average waiting time before answer	min. sec.	1'32"	0'55"
average conversation time	min. sec.	4'39"	5'35"
FAULT TOLL-FREE NUMBER (Areti) (**)			
total calls received	no.	259,017	256,984
total answers	no.	235,924	248,879
service level (% of answers to calls received)	%	91.1%	96.8%
average waiting time before answer	min. sec.	2'19"	1'11"
average conversation time	min. sec.	2'51"	3'01"
LIGHTING SERVICE			
LIGHTING SERVICE - FAULT TOLL-FREE NUMBER (Areti) (**)			
total calls received	no.	161,777	143,481
total answers	no.	138,930	135,870
service level (% of answers to calls received)	%	85.9%	94.7%
average waiting time before answer	min. sec.	2'34"	1'06"
average conversation time	min. sec.	2'34"	2'32"
CEMETERY LIGHTING - COMMERCIAL/FAULT TOLL-FREE NUMBER (Areti)			
total calls received	no.	117,942	97,107
total answers	no.	93,705	91,846
service level (% of answers to calls received)	%	79.5%	94.6%
average waiting time before answer	min. sec.	2'02"	0'47"
average conversation time	min. sec.	5'56"	5'53"
WATER SERVICE			
COMMERCIAL TOLL-FREE NUMBER (Acea Ato 2 - Rome and province)			
total calls received	no.	811,766	696,117
total answers	no.	727,934	633,287
service level (% of answers to calls received)	%	89.7%	91.0%
average waiting time before answer	min. sec.	0'53"	0'48"
average conversation time	min. sec.	5'12"	5'13"
FAULT TOLL-FREE NUMBER (Acea Ato 2 - Rome and province) (**)			
total calls received	no.	595,226	488,067
total answers	no.	576,701	485,156
service level (% of answers to calls received)	%	96.9%	99.4%
average waiting time before answer	min. sec.	0'47"	0'23"
average conversation time	min. sec.	3'10"	2'39"

COMMERCIAL TOLL-FREE NUMBER (Acea Ato 5 - Frosinone and province)			
total calls received	no.	225,175	185,446
total answers	no.	197,140	167,374
service level (% of answers to calls received)	%	87.5%	90.3%
average waiting time before answer	min. sec.	1'11"	1'00"
average conversation time	min. sec.	4'17"	4'21"
FAULT TOLL-FREE NUMBER (Acea Ato 5 - Frosinone and province) (**)			
total calls received	no.	204,988	87,767
total answers	no.	173,485	87,404
service level (% of answers to calls received)	%	84.6%	99.6%
average waiting time before answer	min. sec.	1'48"	0'16"
average conversation time	min. sec.	4'46"	2'39"
COMMERCIAL TOLL-FREE NUMBER (GESESA - Benevento and province)			
total calls received	no.	24,945	18,269
total answers	no.	23,703	16,695
service level (% of answers to calls received)	%	95.0%	91.4%
average waiting time before answer	min. sec.	1'21"	n.a.
average conversation time	min. sec.	1'43"	n.a.
FAULT TOLL-FREE NUMBER (GESESA - Benevento and province)			
total calls received	no.	16,514	12,938
total answers	no.	15,198	10,934
service level (% of answers to calls received)	%	92.0%	84.5%
average waiting time before answer	min. sec.	0'49"	n.a.
average conversation time	min. sec.	2'04"	n.a.
BRANCHES			
ELECTRICITY SERVICE			
ACEA ENERGIA - BRANCH FOR MORE PROTECTED MARKET			
tickets issued	no.	109,519	86,908
customers served	no.	102,079	84,032
service level (% customers served/tickets issued)	%	93.0%	97.0%
average waiting time	min. sec.	30'23"	10'04"
average service time	min. sec.	14'20"	12'16"
ACEA ENERGIA - FREE MARKET BRANCH (energy, gas and offers)			
tickets issued	no.	52,707	51,475
customers served	no.	47,778	49,452
service level (% customers served/tickets issued)	%	91.0%	96.0%
average waiting time	min. sec.	34'28"	9'57"
average service time	min. sec.	15'20"	12'25"
WATER SERVICE			
ACEA ATO 2 (Rome - head office branch)			
tickets issued	no.	61,091	55,955
customers served	no.	60,771	55,782
service level (% customers served/tickets issued)	%	99.0%	100%
average waiting time	min. sec.	4'46"	3'20"
average service time	min. sec.	11'09"	12'37"
ACEA ATO 5 (4 branches in Frosinone and province)			
tickets issued	no.	64,945	78,114
customers served	no.	59,478	74,868
service level (% customers served/tickets issued)	%	92.0%	96.0%

ACEA ATO 5 (4 branches in Frosinone and province)			
average waiting time	min. sec.	42'00"	12'25"
average service time	min. sec.	8'34"	7'06"
GESESA (1 branch in Benevento and province)			
tickets issued	no.	18,341	14,868
customers served	no.	18,250	14,868
service level (% customers served/tickets issued)	%	100%	100%
average waiting time	min. sec.	0'56"	n.a.
average service time	min. sec.	8'00"	n.a.

(*) The 2018 volumes of channels subject to sector regulation are consistent with the calculation methods envisaged for reporting to ARERA; to ensure comparability over the two-year period, 2017 data have also been reclassified. Average waiting times for telephone services, in continuity with previous editions, do not include navigation times in the voice tree.
(**) Calls handled by the automatic system or terminated by the customer during navigation within the interactive voice responder are also considered as answers.

COMMUNICATION, EVENTS AND SOLIDARITY

4 events
TO CELEBRATE THE
80th anniversary of the Peschiera Aqueduct

Together for water:
THE NEW INFORMATION CAMPAIGN ON WATER CONSERVATION, CARRIED OUT IN THREE PHASES, BETWEEN JULY AND SEPTEMBER 2018

ACEA SCHOOL 2018:
ABOUT **7,000 students** AT
Think Sustainable!

THE **new website of Acea Energia**
LAUNCHED IN SEPTEMBER

COMMUNICATIONS

The definition of the **communication policies** and development of the image of Acea Group is managed by the **External Relations and Communications Department**, set up in the Parent Company during 2018. By means of appointed organisational Units, this Department draws up, steers and coordinates the initiatives of communication and institutional, journalistic and commercial information.
In particular, for the main external communications, the **Advertising, Brand Image and Events Unit** is entrusted with the enhancement of the brand, the management of the Group's corporate identity, the implementation of institutional, advertising and commercial campaigns and the organisation of public or institutional events, including the annual Shareholders' Meeting, the development and management of environmental education and solidarity projects, as well as special projects and external events aimed at strengthening the link between Acea and the region. In accordance with the strategic guidelines defined by Top Management, the **Digital and Corporate Media Unit** coordinates the process of developing and managing the Group's website and the individual websites of the subsidiaries, as well as developing and managing the Group's communications in the main social media websites, also in coordination with the other corporate structures responsible for customer relations for customer care activities. It ensures the processing and updating of corporate, operational and commercial editorial content for the various Digital, Web and Social channels.
In 2018 the activities of **Acea Communication**, the internal communication and media planning agency serving the Group, were consolidated. The agency was in charge of all phases of the advertising campaigns, from conception to publication and transmission. Acea Communication's team of specialists, analysts, art directors, photographers, graphic designers, copywriters and business and media planners has created creative concepts, executive copy, adaptations, multimedia products, logos, image consulting and planning for all Acea's communications campaigns. This has allowed **speed** of execution and a significant **reduction in production and delivery costs**, with a reinvestment of resources in **advertising plans that have involved national media**.
Some of the campaigns developed during the year include: **"Roma runs on Fibre"**, was dedicated to the agreement between Acea and Open Fiber for the broadband cabling of the city of Rome and involved **national newspapers and magazines** with issues between January and March; **"Together for water"**, on air in Rome for three months in July-September, was designed to **raise awareness of the issue of saving water**, an essential and valuable asset for the life of the planet (see the box); finally, the campaign **"For a new culture of water"** targeted the customers of **Acea Ato** 5 in the province of Frosinone via print, web and TV, seeking to raise awareness among the public and highlighting Acea Ato 5's commitment in the area to fighting phenomena like illegal connections; Acea Ato 5 has also started a project to involve schools, called ***Water in small steps***, aimed at making children aware of the complete water service cycle and to convey to them the importance of saving water.
Finally, in October an information **campaign** was carried out in the local media, on the web and in the national press during the **exhibition organised at the Palazzo delle Esposizioni**, which **opened the celebrations for the 80th anniversary of the Acquedotto del Peschiera** (see the dedicated box in the section *Events and solidarity*). Several communication visuals were also created, which accompanied the numerous events supported by Acea with "dedicated" advertising pages.

TOGETHER FOR WATER: THE 2018 WATER SAVING CAMPAIGN

Seeking continuity with the similar effort made in 2017, **the 2018 water saving campaign** aimed to convey **Acea's commitment to the conservation of water** through maintenance and investment in its plants and, last but not least, to reaffirm **the importance of everyone's commitment** to combat **drought**, which has now become a **global problem**. The campaign, conceived, developed and implemented at no cost internally by Acea Communication, had as its protagonists the employees and was divided into three steps:

- **The launch of a teaser** in July, with the image of the world with an arid landscape, the hands of the clock indicating that time is running out and the simple text *Why?* to attract attention and create curiosity and raise expectations;
- **The Visual *Together for Water***, a central and massive phase of the campaign, which between July and September involved the press, the web and dynamic and static posters; the ads featured several people, all Acea employees;
- **A recall phase** in September, using the same vehicles as the central phase, again featuring a variety of Acea employees.

In light of the Group's strategic planning, the **Digital and Corporate Media Unit** focused on the management and evolution of infrastructure to improve its efficiency and resilience, on the consequent supply of quality services through the levers of innovation, investments and acquired skills, on sustainability and dialogue with the local region has deemed it necessary to **rethink the Group's digital identity**, to arrive at a new digital ecosystem capable of:

- clearly stating the Group's values, mission and new industrial positioning through a dedicated corporate website;
- developing a commercial platform that allows reaching preset sales targets.

It therefore seemed appropriate to separate the commercial content relating to the sale of energy from the corporate content and that of the water companies. In September 2018 the **Acea Energia website went live**, completely verticalised on commercial activities. A new web identity was developed with a **digital platform renewed in its graphic design**, consistent with the Acea Energia brand, with user-friendly navigation that is fluid and immediate, **offering original and innovative usability features**, interactions with all touch points (bots, chat, social channels) and a more effective customer journey.

During the year, the **Group's entire digital ecosystem** was updated, creating a **new family of domains**: to maintain the traffic generated by the domain acea.it, the Acea Energia site remained at www.acea.it, while the corporate site was migrated to www.gruppo.acea.it. A website was also **created for the protected market** (the service of supplying electricity at competitive contractual conditions established by ARERA): www.servizioelettricoroma.it. Finally, in 2018 the project for the development of the new Group website was launched and is still ongoing, with the aim of balancing corporate and business issues, shifting the focus to the company, highlighting the distinctive features that make it an industrial Group at the service of the population and regions where it operates. The website will go live in 2019.

With the move from a single web portal to the separation of commercial content, as mentioned above, the 2018 statistics for www.acea.it and www.gruppo.acea.it **are not comparable with previous years**.

As regards the **Acea Energia website** (www.acea.it), in the period between 24 September[77] and 31 December 2018 935,110 pages were viewed, equivalent to **433,294 accesses** to the website. The connection methods were 69.8% via desktop (302,337 accesses), 26.2% via mobile (113,392 accesses) and 4% via tablet (17,565 accesses). For the website www.servizioelettricoroma.it, dedicated to customers in the protected market, in the last quarter of 2018 (1 October 2018 - 31 December 2018) 73,044 pages were viewed, equal to **38,183 accesses**, with 59.1% of access via desktop, 36.9% via mobile and 4% via tablet.

Finally, in the period between 1 January and 23 September[78] 2018 **the corporate website** www.gruppo.acea.it recorded the display of 22,528,987 pages, equal to **4,041,395 accesses to the website**. The **connection methods** were **68.8% via desktop** (2,780,552 accesses), **27.1% via mobile** (1,096,944 accesses) and **4% via tablet** (163,899 accesses).

The age group with the highest percentage of accesses for all three websites is that from 35 to 44 years of age, with 27.8% of the total accesses for the Acea Energia website, 26.4 for the website for customers in the protected market and 28% for the corporate site.

During the year, the web channel gave **broad visibility to the main events organised by Acea**, as well as to the initiatives it participated in or that it sponsored or supported (see *Events and solidarity* below) through the publication of **press releases**, pages dedicated to **events, photo galleries and videos** in the **Media and events** section of the company website www.gruppo.acea.it.

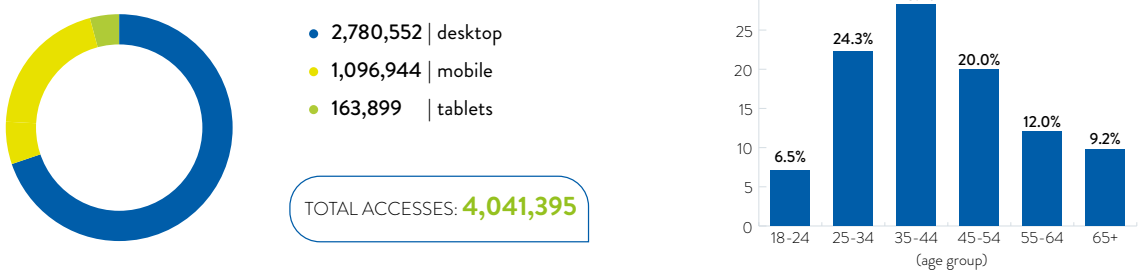
Specific initiatives aimed at customers were also given visibility, like the opening of Acea Energia's first physical shop or the **involvement of the local community**. These include raising public awareness of important battles like the fight against AIDS, childhood and women's cancers, which testifies to the company's **proximity to issues with a high social impact** and to educational and awareness-raising proposals aimed at young people. In this context, in fact, the **section "Acea School"** dedicated to Acea's educational programme **was updated**.

Data related to **emissions** continue to be available on the website, these are monitored in real time and concern the two Acea **waste to energy** plants, the main quality parameters of the water supplied by the companies active in the water segment can be consulted online. From 2018 it is also possible to view online the emissions data of the **district heating plant of Tor di Valle.**

[77] Data related to the publication of the website www.acea.it.

[78] Last day before the migration of the corporate site to the domain www.gruppo.acea.it.

CHART NO. 25 - ACEA CORPORATE WEBSITE 2018: ACCESS METHODS AND AGE GROUPS



Developed and published during the Shareholders' Meeting held in late April, were **the platforms dedicated to the Consolidated Sustainability Report and the Sustainability Report** which can be consulted interactively, with open data and multimedia content. It was chosen to **publish the reports online in a single frame** to highlight the multiple correlations.

Created as a channel for the promotion of electricity and gas offers and for the dissemination of Acea Energia's commercial initiatives for the Free Market, **Acea Energia's Facebook** channel (about 12,900 followers) has also become an important touch point for managing customer requests. In addition, the operators dedicated to the management of the page guide and support the customer in the activation and use of online services available in the MyAcea customer area of the website acea.it.
LinkedIn (about 20,400 followers) also remains active as a professional social network to share initiatives promoted by the **Group** and new career opportunities.
Moreover, in order to tell our stakeholders about all the company's activities and to be present in the social world, in 2019 **we will be developing corporate channels** (Facebook, Twitter, LinkedIn, Instagram and YouTube). Each platform will assume a specific role and will speak to well-defined targets, dealing mainly with issues concerning the life of the company, with a particular focus on innovation and technology, sustainability and community, business and talent.

The communication methods implemented by Acea **with the national and local media** and managed by the **Media Relations Unit** have always pursued objectives of **timeliness, effectiveness and transparency**, with the aim of conveying the correct corporate image and the Group's position through the media.
During 2018, through the circulation of **press releases** and, where appropriate, with the organisation of **press conferences**, the **results achieved** and the initiatives launched were disclosed together with **information of public interest** related to the managed services. In harmony with the appointed functions, such as Investor Relations, Legal and Corporate Affairs and Administration Finance and Control, **the economic-financial communication was managed on the occasion of corporate events** such as the **Shareholders' Meeting**, approval by the Board of Directors, of the financial results and circulation of news classified as "price sensitive".
Through interaction with the relevant operating companies and with the editorial offices of the newspapers that are available to publish the company's responses, Media Relations **has responded to the main reports of inefficiencies** – both in terms of public lighting and the supply of electricity to private individuals, as well as in terms of water services – **published in newspapers**. Other reports are received by post and direct telephone contacts and are promptly answered.

Media Relations has made a special effort to maintain and increase relations with the national, international, local and sector media, seeking to establish a mutual respect for roles, transparency and proper cooperation. The Unit also developed and managed the activities related to the **national and local press review**, which is made **available on a daily basis through the company intranet**. Every day, through the **constant monitoring of press agencies and the web** (web news, social media and blogs), information about the Group and relevant information for business activities is also highlighted.
Below are some moments of particular interest that occurred during the year:

- the **press conference to present the agreement signed with Open Fiber** following the Memorandum of Understanding of the previous August, which defines the terms and conditions of the overall industrial agreement for the development of an ultra broadband communications network in the city of Rome;
- the **management of communications during emergencies related to sinkholes** that came one after another in different areas of the city of Rome, especially in the first part of the year. In this regard, Media Relations has always responded in real time to the numerous requests that came from the media, providing information about the time needed to restore the services and any other information necessary for the correct communication of the facts by journalists;
- the **press release and the media awareness actions** for the water saving campaign **"Together for water"**;
- the **press release drawn up for the presentation of the Memorandum of Understanding signed by Acea and Huawei** with the aim of assessing projects in infrastructure and service innovation, particularly in the area of smart&safe cities and the technological evolution of the networks managed by Acea;
- the **press release** about the opening event of the first **Acea Energia physical shop** in Ostia;
- the **press conference for the presentation of the events organised by Acea for the 80th Anniversary of the Acquedotto del Peschiera** (see the box below);
- the **press release and the media awareness actions** for Ecomondo (see the dedicated box);
- the **press release to formalise the acquisition of 51% of the company "Pescara gas distribution"** which in fact marked Acea's entry into the sector;
- the **press conference** to **announce Acea's entry into the Foundation of the Opera House of Rome** in support of opera music and culture.

Media Relations also provided media coverage of the main events and initiatives carried out by Acea through press articles, television, radio and web services, including those in the field of value liberality and sponsorship.

EVENTS AND SOLIDARITY

The **economic value distributed to the community** in 2018 is equal to **3.9 million Euros**[79] (2.4 million Euros in 2017). Of which about 2.8 million were allocated to sponsoring cultural, social and sporting events.
The appropriations as **donations** to associations for social purposes and to ONLUS were equal to **327,000 Euros** (229,000 in 2017).

Each year, **Acea provides its services**, such as the **supply of electricity and water or turning public lighting on or off** during events that attract a large turnout, of a cultural or sporting nature, or in particular circumstances of a solidarity and symbolic nature. **In 2018**, these services, called **"technical sponsorships", had a total economic value of € 116,650**, in line with the previous year when it had been € 117,000.

In June 2018, Acea's Board of Directors established the Executive Committee with responsibility for Institutional Relations, Sponsorships and Charitable Contributions (see also *Corporate Identity, Corporate governance and management systems*). The **Sponsorship and Value Liberality Unit** reports to this body, with the task of instructing and managing requests from the entire region and from the Group's corporate structures.

Acea actively participates in many events related to its business activities, and supports – even with sponsorships – initiatives considered of high cultural, social and sports value that **benefit the community** and have as their objective the **development of the areas it operates in** (see also the boxes at the end of the section).
Some of the most important events organised by Acea in 2018 include, first of all, the frequently mentioned initiatives aimed at **celebrating the 80th anniversary of the laying of the foundation stone of the Peschiera Aqueduct** (see the box below).
For the third year running, **Acea participated at *Ecomondo***, the international showcase for the recovery of materials and energy, with **a booth** offering **workshops on the circular economy**, and at the ***Maker Faire Rome*** technology trade show, where it once again acted both as a sponsor and exhibitor, presenting its innovative projects applied to industrial sectors. **Acea** also participated in the ***Compraverde Forum*** dedicated to public and private Green Procurement policies, projects, goods and services, where **it was awarded the Compraverde 2018 Social Procurement Award**, an important recognition of its commitment to sustainability issues along the supply chain (see also the *Suppliers* chapter). Always attentive to environmental issues and to future changes, Acea took part in important international conferences on energy, water and sustainability, like ***Environmental governance and sustainable cities*** **promoted** by ICEF, **SMICE 2018** which is part of the specialised conferences of the International Water Association and the Energy Festival, as well as other events of cultural importance related to innovation.

THE 80TH ANNIVERSARY OF THE PESCHIERA AQUEDUCT

Acea celebrated the 80th anniversary of the Peschiera Aqueduct, one of the largest spring aqueducts in Europe, fundamental for the supply of water to the capital, with various initiatives that involved the public and institutions: **an exhibition** with video and photographic contributions in the **foyer of its headquarters**, a **free exhibition** held from 4 October to 4 November 2018 **at the Palazzo delle Esposizioni** in Rome, a **commemorative ceremony held at the site of the springs of Peschiera** and a second **exhibition at the Arches of the Papal Palace of Rieti**.
The exhibition at the Palazzo delle Esposizioni, "*1938-2018 80° dell'Acquedotto del Peschiera*", sought to retrace the history of the aqueduct's life, which today remains the most important water infrastructure serving Rome and part of Lazio: from its design to construction and up to the launch of operations, displaying correspondence between the Rome Governor's office, Acea (then Agea) and Acqua Marcia for the award and approval of the works; procedures and specifications, reports and diagrams, technical drawings of the systems, topographic maps; film clips from Istituto Luce and Rai dating back to the 1920s and 1930s and images from the historical archives.
A **commemorative ceremony** was held at the main site of the Peschiera Aqueduct on 10 October, officiated by the Bishop of Rieti, in memory of the workers who died during the construction of the infrastructure, in the presence of the public and regional and local institutions. As a sign of its closeness to the region, on the same day the free exhibition "1938-2018 80° dell'Acquedotto del Peschiera" was opened to the public until 5 November 2018 at the Arches of the Papal Palace of Rieti.
For the anniversary, a **valuable publication** with the most important historical images and documents was also produced as an exhibition catalogue, and a **commemorative bronze medal** was commissioned and produced, based on an exclusive design by the Scuola d'Arte della Medaglia.

ECOMONDO 2018: CIRCULAR ECONOMY

Acea once again participated in Ecomondo, a point of reference for the **green and circular economy**, with the aim of presenting to the public and professionals the industrial expertise related to the Environment sector, the ongoing projects related to the circular economy and investments for sustainable development in the Environment, Water and Energy industrial segments envisaged in the 2018-2022 Industrial Plan. The event took place on 6-9 November at the Fiera di Rimini Exhibition Centre and saw the

[79] This item also includes costs borne for "fairs and conventions" but not "technical" sponsorships.

ECOMONDO 2018: CIRCULAR ECONOMY (follow)

presence of Acea with a booth of about 200 square metres where **topical meetings, workshops and seminars** were held, with a specific focus on the circular economy, and in particular on innovative technologies connected with the recovery of materials and energy obtained from the processing of waste.
Among the new developments of this edition, the **institutional presence** at the main session of the **General Assembly of the Green Economy**, with the **participation of the Chairman of the Acea Committee for Ethics and Sustainability** in the panel *"The role of green companies for growth and employment"*, as well as participation in other sessions of conferences organised during the trade show and the offer of an **educational course on the water cycle**, which involved schools through meetings and laboratory experiments with technicians specialised in the quality control of water.

The main sports events sponsored or organised during the year sponsored by Acea include the ***Acea Marathon of Rome***, an international event that took place on 8 April 2018 that was attended by more than **14,000 athletes** from around the world, and the **"Roma Ostia" Half Marathon** with more than 11,500 participants, the traditional ***Trophy Acea-Volley School***, which for this edition involved **3,500 young people from high schools** in Rome and the metropolitan area, during which **initiatives were organised to raise awareness among young people on the proper use of water** for World Water Day; the fourth edition of **Acea Camp**, now one of the most important sports initiatives **dedicated to the youngest residents** in the capital, which involved **2,500 children** (see the box for details).

Among the other initiatives of major importance and impact on the region, the entry of Acea as a new partner and **member of the Foundation of the Opera House of Rome should be mentioned**. Alongside the Foundation, Acea will provide support for the promotion of culture and, in particular, of opera and classical dance.
In collaboration with the Lazio Region, Acea also signed an important new **permanent artistic lighting project for the Castle of Santa Severa**, contributing to the important redevelopment of the entire area. In agreement with the Municipality of Benevento and in collaboration with Gesesa, the **Roman Theatre of Benevento** has also been brought back to life thanks to the lighting design work of Acea's professionals (for both initiatives see the boxes in the part dedicated to public lighting, in the section *Quality delivered*).
As mentioned above, Acea's participation in **raising public awareness of issues of social importance continues.** For the **national prevention campaigns dedicated to women – Pink Ribbon** and **Pink October** – Acea offered technical sponsorships, with the lighting of the Colosseum and the Palace of the Lazio Region; it contributed to the campaign ***"Accendi d'oro, accendi la speranza" (Light up gold, light up hope)*** promoted by the Peter Pan association in support of paediatric oncohaematology, lighting up the Triton Fountain, the Cestia Pyramid and the Colosseum in gold on 21-23 September 2018; for the **Day against the Death Penalty**, in collaboration with Sant'Egidio, it lit up the Colosseum; for the traditional ***Race for the cure*** organised by Susan G. Komen-Italy at the Circus Maximus, Acea offered the supply of water and energy; Acea **also joined the World Day against Violence against Women** established by the General Assembly of the United Nations, illuminating its headquarters in Piazzale Ostiense in red, and for the World Day against AIDS sponsored by the Ministry of Health it projected the AIDS logo on the Cestia Pyramid; finally, it participated in the initiative **M'illumino di meno 2018** to **raise awareness of the reduction of energy consumption** in concert with the Department of the Environment of Rome, turning off the Trevi and Capitol fountains for 30 minutes.

In 2018 Acea welcomed visitors to its facilities, making available the expertise of its employees. There were **51 visits during the year for a total of 13,289 people**, both from Italy and abroad. The high number of visitors included **students and teachers** (for a total of **7,675 people**) involved in the ***Acea School*** project promoted by Acea, who, during the days dedicated to the presentation of the production cycles for energy, water and the environment were also accompanied on a visit to some of the Group's plants (see the box for details). It also includes **about 2,500 people** who, on 12-13 May 2018 were able to visit three sites managed by Acea Ato 2 – the hydraulic castles of the Trevi Fountain and the Gianicolo Fountain and the Vergine Antico aqueduct – thanks to Acea's involvement as an official partner of **Open House Rome**, and finally other visits during **FAI Days** and other occasions.

ACEA SCHOOL 2018: MORE THAN 6,900 STUDENTS AT THINK SUSTAINABLE!

Acea School is the **environmental education programme** proposed by Acea for students of schools in Rome and the Metropolitan City. Sponsored by the Department of People, School and Community Solidarity and by the National Institute of Health, **the initiative conveys information and content concerning the water cycle, the energy supply chain and waste valorisation** in accordance with a sustainable development compatible with the environment. The edition developed for the **2017/2018 school year called *Think sustainable!*** involved 123 schools. **6,966 students and 709 teachers** participated, from 325 classes of elementary and middle schools in Rome and the Metropolitan City.
Lessons and workshops were held in the hall of the "La Fornace" Conference Centre in Acea. A **multimedia installation** allowed the use of reconstructed, modified and dynamically superimposed images and **visual mapping games**, involving the children and **facilitating their learning experience**. Three training programmes were offered that focused on the water cycle, the energy supply chain and the recycling of waste (Environment course), including visits to some plants guided by Acea experts and technicians.
The educational programme dedicated to the Environment also included a **reuse lab** on **creative recycling**, thanks to which we sought to convey the importance of recovery and recycling through works produced with post-consumer materials. Another initiative was the "School Defibrillator" Campaign, a competition with which the classes were called upon to produce a project that was the final result of research, the ten best projects being awarded with the donation of a defibrillator and a BLSD (Basic Life Support Defibrillation) Course to their schools.
The educational project did not involve any costs for the families of the pupils or the teachers.

ACEA CAMP 2018

With the support of CONI, Roma Capitale and CRAI, the **fourth edition** of Acea Camp was held in 2018. The initiative, one of the most important in the capital, offered **children aged 6-14** the opportunity to play **12 sports** – fencing, basketball, football, swimming, judo, baseball and softball, rugby, dance, tennis, volleyball, athletics – in the summer months of **June and July** under the skilled direction of Carlton Meyers, former captain of the Italian National Basketball Team, at a very low price (€50), with medical care, insurance and discounts for families with financial difficulties. New for Acea Camp 2018 was the **two locations**: the traditional site of the **Foro Italico** was joined by the **Tor Pagnotta sports centre, which allowed the participation of 700 more young people** than the 2017 edition, **for a total of 2,500**. The project **combines the social and educational value of sports** with the Group's commitment to **promoting issues related to respect for and protection of the environment**, especially with the younger generations. In addition to recreational and sporting activities, the children were involved in an **"Acea Watergame"**, designed to raise awareness among young people on the **importance of water**.

The following boxes describe some examples of **major events supported by the Acea Group in 2018**, through sponsorships or donations, subdivided according to their purpose and specifying the companies participating.

2018: ACEA FOR CULTURE

Sponsor of the **Energy Festival**, that was held in Rome in June 2018, the main national event that brings together representatives of the scientific, academic, institutional and economic worlds with the intent to debate energy issues and promote a new culture of energy in the Country (ALLEA S.r.l.).

Sponsor of the 6th edition of ***Maker Faire***, the most important European event dedicated to digital manufacturing, which was held in Rome on 12-14 October 2018. Acea had its own exhibition space and used virtual reality to guide visitors on a journey to discover the Water, Energy and Environment sectors. (Innova Camera)

Main sponsor of the conference **Italy all fibre** on the dissemination and potential of latest-generation networks (Askanews).

Contribution to the **Global Forum** conference held in Rome on 26 September 2018 that brought together representatives of civil society to share good practices and prospects for development with participants from more than thirty Countries.

Main sponsor of **Short Theatre**, the event focused on contemporary performing arts that took place in Rome on 6-15 September 2018 at Teatro India - Teatro di Roma and in the spaces of La Pelanda and MACRO Testaccio (Associazione Area06).

Main sponsor of **Open House 2018**, which on 12-13 May 2018 saw the free opening of hundreds of sites of artistic and architectural interest, including some water sites managed by Acea (Open House).

Main sponsor of **Roma Summer Fest**, the event that took place between May and August 2018 and included 50 concerts at the Auditorium Parco della Musica in Rome.

Sponsor of the 30th edition of the **Marisa Bellisario Award, "Women at High Altitude"**, promoted by the Bellisario Foundation, which for years has promoted the talent and merit of women. The awards ceremony took place in Rome on 15 June 2018 and the evening was broadcast by RAI (Fondazione Marisa Bellisario).

Main sponsor of the **Women in Research Award**, the event held in Rome on 7 October 2018 that recognised some women involved in scientific research (Istituto Spallanzani).

Sponsor of various **cultural events** that took place in 2018 at the Auditorium Conciliazione and at the Teatro di Ostia, including **The Final Judgement** produced by Marco Balich (Auditorium Conciliazione/ Teatro di Ostia).

2018: ACEA FOR CULTURE

Sponsor partner in the organisation of the 11th edition of the **International Jewish literature and culture festival**, held in Rome from 23-26 June 2018 (Artix).

Sponsor of the event ***Cento Città in Musica***, an initiative which took place in the area of Rome and province with planning of cultural events and shows with free entrance or at a low price (Associazione Culturale Europa Musica).

Partner sponsor of the 12th Edition of **Rome Film Festival**, which took place between 18 and 28 October 2018 (Fondazione Cinema per Roma).

Partner sponsor of ***Alice in the City 2018***, an independent and parallel section of the Festival del Cinema di Roma, which contributes to the promotion of cinema towards new generations (Associazione Culturale Play Town).

Sponsor of the 4th of the **Isola della Sostenibilità Acea**, Acea Sustainability Island realised on 5-7 December 2018 and promoted by the Università degli Studi di Roma Tre university to develop "sustainable ideas" (Jera srl).

2018: ACEA FOR SOLIDARITY

Contribution to **Rome Fashion Night**, the first fashion show involving models in wheelchairs together with standing models, which took place in Rome on 15 June 2018 (Vertical).

Contribution on Christmas to **Agape**, a paediatric foundation active in Congo.

Contribution for the 16th edition of ***Fiaba Day*** held on 7 October 2018 during the national day for breaking physical, cultural, psychological barriers and spread the culture of equal opportunities (Fiaba non-profit).

Contribution to the **Andrea Tudisco Non-profit Association** that supports children suffering from serious diseases and their families.

Contribution to the **2018 Gala Dinner** organised by the **Telethon Foundation**, which supports research into rare genetic diseases.

Contribution to **Dynamo Team Challenge**, a fundraising event for the centre dedicated to young people with serious and chronic illnesses (Dynamo Camp).

Contribution to the initiative of MUS-E Roma Non-profit for the school year 2017/2018, which offers primary and nursery schools **a free three-year training programme focused on artistic experience** as a tool for the integration of children (MUS-E Roma Onlus).

Technical sponsorship for the ***Accendi d'oro, accendi la speranza*** (*Light up gold, light up hope*) campaign, promoted by **Associazione Peter Pan Onlus** for the prevention of infantile tumours. Acea promoted the initiative on 21-23 September 2018 by lighting the Triton Fountain, the Cestia Pyramid and the Colosseum in gold.

Technical sponsorship for the ***Race for the cure***, initiative, which took place in Rome between 17 and 20 May 2018 at the Circus Maximus. This is an exhibition which includes a solidarity race of 5 km and other sport and wellbeing initiatives, organised by **Susan G. Komen Italia**, to support the fight against breast cancer and promote women's health (Susan G. Komen Italia).

Technical sponsorship, lighting the Palazzo della Regione Lazio palace in pink for the whole month of October 2018. This was the symbol of the ***Pink October*** initiative, aimed at incentivising women to join breast cancer prevention programmes (Regione Lazio).

Technical sponsorship, lighting the Colosseum pink, for every weekend of October, in relation to the ***Pink Ribbon 2018*** (LILT - Italian League to fight against cancer).

2018: ACEA FOR SPORT AND YOUTH

Title sponsor of the **2018 edition of the traditional sporting event**, the ***Rome Marathon***, certified with the "IAAF Road Race Gold Label", this is the most participated competitive event in Italy, which took place on 8 April 2018, starting from via dei Fori Imperiali (Atielle Rome Srl).

Sponsor partner of the **Rome-Ostia Marathon**, held on 11 March 2018 and considered the most important city marathon after the Rome Marathon (RCS).

Partner sponsor of the 2nd edition of the ***Rome Half Marathon Via Pacis***, which was held in Rome, starting from Piazza San Pietro on 23 September 2018. FIDAL, by means of this race, pursues the message of the Pontifical Council that all religions should come together in the event with a message of peace (FIDAL).

Official supplier of **A.S. Roma** and **S.S. Lazio** football teams for sporting season 2017/2018 (A.S. Roma SpA and Infront Italy Srl).

Sponsor partner of the **International Tennis Championships** held in Rome on 7-20 May 2018 (FIT).

Title sponsor of edition 2018 of the ***Torneo Volley Scuola-Trofeo Acea***, dedicated to the **secondary schools of Rome and province** and run by Fipav Lazio (Fipav Lazio).

Main sponsor of the 4th edition of Acea Camp, for students between 6 and 14 years old, to learn of and spread the practice of 12 sporting disciplines. The exhibition took place in Rome between June and July 2018 (Beside Management Srl).

Contribution to sporting activity for season 2018/2019 of **S.S.D Santa Lucia**, a **wheelchair basketball club**, active in the Roman sporting panorama since the 60s (S.S.D. Santa Lucia Srl).

Contribution to ***ASD La Boracifera*** to support young teams and cadets.

Contribution to **ASD Virtus Basket Aprilia**, for edition 2017/2018 of the ***Differenzio anch'lo!*** *[I make a difference too!]* aimed at youngsters in years 4 and 5 of the Primary Schools in the municipality of Aprilia (about 1,300 estimated pupils) but also families, teachers and the entire population.

SUPPLIERS

974 MILLION EUROS FOR THE TOTAL VALUE OF **2018** CONTRACTS: THE VALUE OF THE «WORKS» ITEM INCREASED BY **144%**

APPROXIMATELY **2,200 CONTRACTS** WERE SIGNED WITH OVER **1,150 SUPPLIERS**

IN LAZIO, **32%** OF THE VALUE OF **GOODS/SERVICES** ORDERED AND **32%** OF THE VALUE OF WORKS ORDERED

ACEA RECEIVED THE **SOCIAL PROCUREMENT AWARD «COMPRAVERDE 2018»** FOR THE BEST PRACTICE OF AWARDING A FRAMEWORK AGREEMENT FOR THE SUPPLY OF WORKWEAR WITH A LOWER ENVIRONMENTAL IMPACT

THE «SAFETY TEAM» CARRIED OUT **11,270** SITE SAFETY **CHECKS (+27%** COMPARED TO **2017)**

CONSOLIDATED EXTERNAL COSTS

In 2018, the Group's **consolidated external costs** totalled about **1.92 billion Euros** (+8.5% compared to 2017). The highest costs amongst these, equal to about **1.40 billion Euros** (1.31 billion in 2017), concern **purchase of energy and gas** and secondly the costs for **services** affect for about **264 million Euros** (approx. +4.4% compared to 2017). Also worthy of note were the higher operating expenses, which include contingent liabilities due to energy items from previous years and the administrative fine imposed by the antitrust authority.

Below we describe **the procurement of goods, services and works** managed by several companies in the Group, by the **Purchases and Logistics** Function of the Holding company. For the scope being analysed, including all the companies representing the Group's activity and consistent with past disclosures, such procurements had a value in 2018 of about **974 million Euros**.

PROCUREMENT POLICIES

The **Purchasing and Logistics Function** ensures *"the **definition of policies and guidelines** and **centralised management of the procurement of goods, services and works** for the Group"*. Its goal is to **rationalise the procurement process** and increase its efficiency, through the valorisation of the technical skills of the buyers, an approach focusing on the logic of managing categories of goods, a close synergy with the Companies/Functions in the Group which require procurement services ("internal customers") and transparent relations with the suppliers.

The **Logistics Unit** manages the operations of the **Group's central warehouse** and the **local warehouses** of the main operating companies. In 2018, the logistic network also handled the storage and delivery of **personal protective equipment** and **work clothes**, previously located at specific sites, thus allowing operating personnel to collect the equipment together with materials for scheduled and unscheduled works, thus reducing the number of returns to the headquarters to pick up equipment. During the year **the project for the development of the Santa Palomba Logistics Hub was started**, which envisages the expansion of the current site by a **further 9,000 square metres of land**, where during 2019 new testing laboratories and a new area for the storage of materials will be built.

DEALINGS WITH SUPPLIERS AND PROCUREMENT MANAGEMENT

At the end of July 2018, the Board of Directors approved the[80]. For proper **relations between Acea**, as a contracting authority, **and its suppliers**: Contractors and subcontractors observe in particular the **rules and procedures**, including processes of due diligence aimed at assessing any **risks of corruption**, the principles of **transparency** and **protection of competition**, the principles of **good faith, loyalty, professional propriety and the promotion of sustainability**, like respect for the protection and safety of workers, the quality of goods, services and performance, respect for the environment and the pursuit of energy savings. Suppliers shall issue a **declaration of acceptance of the prescriptions contained in the Code of Ethics** and of commitment to comply with them. This declaration, which constitutes an element of the contractual relationship, is attached to the documents produced for participation in tender procedures **for the awarding of works, goods and services**. A violation of the principles contained therein will result in **exclusion from the tender or cancellation of the award**, following necessary checks.

ACEA CODE OF ETHICS (2018 ED.): SUSTAINABILITY IN THE SUPPLY CHAIN

Acea Code of Ethics, Article 15, introduction and paragraph 2:
«Acea commits to seeking out professionalism in its suppliers and external collaborators and a commitment to sharing the principles and contents of the Code that defines the set of values that both the contracting authority and all the companies and external collaborators must necessarily aspire to, on the basis of the principle of mutual benefit and cooperation that is the foundation of these relations...
Acea undertakes to promote, as part of its supply activities, respect for the protection and safety conditions of its employees, a focus on the quality of goods, services and performances, respect for the environment and the pursuit of energy savings.
In supply contracts with at-risk countries, defined as such by recognised organisations, contractual clauses have been introduced that involve: compliance of the supplier with specific social obligations (e.g. measures that guarantee employees respect for their fundamental rights, the principles of equal treatment and non-discrimination, protection against child labour); the possibility of carrying out monitoring activities at production units or operating sites of the supplier company in order to verify the fulfilment of these requisites».

[80] The *Acea Code of Ethics* (2018 ed.) is available online at www.gruppo.acea.it, Governance section, Corporate Governance sub-section.

The **use of the tender** is the **method primarily used for the identification of the supplier**, and the tender procedures are based on **transparency criteria**, ensuring the **centralised management of tenders**. The Purchasing Function fulfils, for all the companies of the Group within the scope of "centred purchases", the obligation [81] of **disclosing on the corporate website** of Acea (www.gruppo.acea.it) all of the documentation containing **all information concerning the purchases made in the framework of the Code for Tenders** [82].
During 2018, **81% of all supplies was tendered**, confirming the upward trend of recent years (70% in 2017 and 52% in 2016).
Operators who are interested in participating in tenders **can access directly and free of charge the portal hosting the qualification systems** and the portal **hosting the online completion of calls for tenders** – in the **"Suppliers" area of the company website** www.gruppo.acea.it – where the required forms and information are available.
The **web portal** enabling **tenders to be managed online** is based on the same operational procedure as traditional tenders: it checks the adequacy of the supporting document, acknowledges possession of the eligibility requirements, discloses the bids and displays the ranking.

For all tenders for works contracts and a considerable number of tenders for the purchase of goods and services require **UNI EN ISO 9001 certification of the quality management system** as a prerequisite for participation. **UNI EN ISO 14001 certification of the environmental management system** is also needed **for certain product categories** (such as waste management). For some of the tenders awarded on the basis of the most economically advantageous bid, the score is also impacted by the possession of the **SA8000 certificate**.
In 2018, as in the two previous years, in some tenders for **water, electrical and civil engineering works** awarded on the basis of the most economically advantageous bid, **rewards were introduced** concerning: the number of employees **trained on safety matters** for work carried out in specific environments and conditions (for example at heights or in confined spaces), the **availability of ecological tools** and the **joint possession of UNI EN ISO 9001 and 14001 certifications**, and also the **OHSAS 18001** standards on **health and safety** in the workplace.
In compliance with the law [83], for tenders for works, goods and services that fall within **special water and energy business areas**, Acea issues open, restricted or negotiated procedures also between companies registered in the Qualification systems. For tenders in special areas involving **amounts below the EC threshold** – established every two years by EC Regulation – Acea applies **Internal Regulations** in accordance with the principles of the EC Treaty for the protection of competition. With regard to awards falling within **ordinary business areas, open, restricted or negotiated procedures** are issued in compliance with the law [84]. Furthermore, for tenders that do not fall within the scope of application of the *Code on Tenders* (so-called "extraneous or private law"), selection procedures are used which, although not regulated by it, comply with the **principles of free competition, equal treatment, non-discrimination, transparency and proportionality**.

During 2018, the companies of the Acea Group under analysis herein **signed approximately 2,200 contracts** with over **1,150 suppliers**, figures that are slightly higher than those recorded in 2017 (see Table no. 34).
For contracts pertaining to the scope of application of the Public Contracts Code and having as subject matter works and services with high manual labour content, Acea, in compliance with the provisions of law [85] **in the matter of social clause**, added the obligation, as a priority, to absorb staff already operating as employees of the outgoing contractor into the awarded company's staffing structure, compatibly with its organisation.

GREEN PROCUREMENT

Following on from previous years, Acea inserted in the tender documents, as binding parameters or reward schemes, the regulatory references to the **Minimum Environmental Criteria** (CAM) adopted by Decree of the Ministry for the Environment and Protection of Land and Sea [86]. Specifically, in 2018 Acea **extended the scope of application** and compliance with the current CAMs (currently 18) in the tenders involving the following product categories:

- Interior furnishings (office furniture);
- Public lighting (supply and design of LED lighting fixtures);
- Work clothes;
- Maintenance of green areas;
- Office IT equipment (rental of printers and photocopiers);
- Cleaning of buildings.

Moreover, since last year Acea has set the goal of **extending the CAM approach to other categories** of its product tree **not covered by specific Ministerial Decrees** and where compatible with the nature of the goods and services purchased and with the methods of sale.
For the International Compraverde-Buy Green Forum held in Rome, **Acea was given the Social Procurement Award** for organisations that have distinguished themselves by having actively contributed to the **spread of green procurement** (see the dedicated box).

81 In compliance with what is required by the National Anti-corruption Authority (ANAC) and envisaged by the so-called "Anti-corruption Law" (Law 190/2012).

82 Legislative Decree no. 50 of 18 April 2016 and subsequent amendments and additions. *Code of Public Contracts*.

83 Part II, Section VI, Chapter 1 - Legislative Decree no. 50/2016.

84 Part II, Sections III, IV and V - Legislative Decree no. 50/2016.

85 Art. 50 of Legislative Decree no. 50/2016.

86 From the website www.minambiente.it: "Minimum Environmental Criteria (CAM) are the environmental requirements defined for the various phases of the purchasing process, aimed at identifying the best design solution, product or service from an environmental point of view throughout the life cycle, taking into account market availability.... Their systematic and uniform application makes it possible to spread environmental technologies and environmentally preferable products".

ACEA RECEIVED THE "COMPRAVERDE 2018" SOCIAL PROCUREMENT AWARD

Acea was awarded the **Social Procurement Award** during the 12th edition of the **Compraverde-Buy Green Forum**, the General Assembly of Green Purchasing by public and private operators in the world of the Green Economy. Promoted by the Ecosistemi Foundation in partnership with the Ministry of the Environment, Unioncamere and Legambiente, the event is one of the most important international events dedicated to Green Procurement policies and projects.
Confirming its commitment to sustainability issues, Acea has earned this prestigious award thanks to the **priority it gives to environmental and social criteria in its tender procurement activities**.
The **best practice** that earned Acea its award concerns in particular the **European call for tenders** (call GUUE 2018/S 140-322259) for the award of a Framework Agreement for the **supply of workwear with reduced environmental impact for Acea SpA and the companies of the Group**, in accordance with the Ministerial Decree of the Environment and Protection of Land and Sea of 11.01.2017, Official Gazette no. 23 of 28/01.
These issues were also the subject of a **round table** entitled ***"Green procurement in public utilities"***, promoted by Acea among the activities of the Forum. The meeting was attended by the main Italian companies in the energy, water and environment sectors. Finally, meetings were held at the Acea booth with buyers, suppliers and companies present at the Forum. This year's edition saw the participation of over 2,000 operators, 270 public bodies, companies and non-profit organisations from 45 European cities.

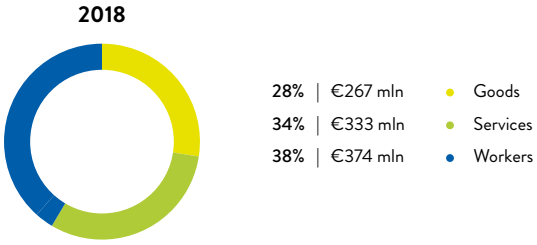
PROCUREMENT OF GOODS, SERVICES AND WORKS

REFERENCE BOUNDARY

The information given in the paragraph concerns all companies included in the scope – see *Disclosing sustainability: Methodological note* – with the exception of Gesesa. This guarantees full comparability with data from the previous year.

Tenders for the supply of **goods**, the performance of **services** and the completion of **works** were managed, at centralised level, for the companies included in the disclosure.
Contracts awarded in the year had a **comprehensive economic value** of more than **974 million Euros**[87], 64% more than the 594 million in the previous year. The increase in amounts, in absolute value, was mainly recorded for items works and goods (see Table no. 33 for data comparison).

CHART NO. 26 - VALUE OF PROCUREMENT OF GOODS, SERVICES AND WORKS AND PERCENTAGE ON TOTAL (2018)

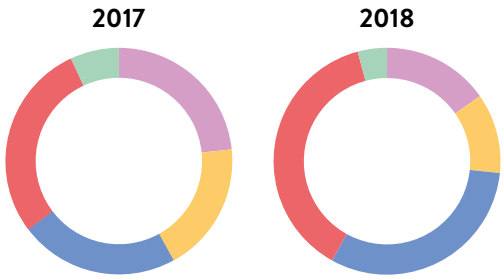


NB Figures are rounded off to the nearest unit.

Looking at the **purchasing values** for the **business macro areas** – Energy infrastructure (generation and networks), Commercial and Trading (sales and call centres), Water (including Acea Elabori, for services provided to the sector), Environment (waste-to-energy and environmental services) and Corporate (Acea SpA) – during the year, **the Energy Infrastructure segment accounted for the largest share of the total** (38%), **followed by the Water segment** (31.5%), and, with respect to the 2017 figures, the same two areas showed an increase in the amounts of all orders: works, in particular, but also goods and services (see Chart no. 27 and Table no. 33).

87 The amount refers to tenders awarded during the year, without any distinction between investments and operating cost, annual and multi-annual contracts. Purchases of commodities, regularisation orders and intercompany orders are excluded.

CHART NO. 27 - ORDERS (GOODS, SERVICES, WORKS) BY BUSINESS AREA (2017-2018)



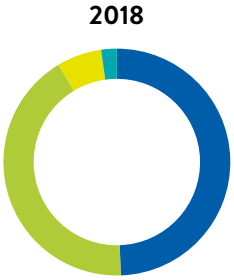
2017		2018		
23%	€138 mln	15%	€149 mln	Corporate
19%	€110 mln	11%	€112 mln	Environment
23%	€136 mln	32%	€307 mln	Water
28%	€169 mln	38%	€368 mln	Energy infrastructure
7%	€41 mln	4%	€38 mln	Commercial and trading

NB Figures are rounded off to the nearest unit. The **Energy Infrastructures** segment includes the companies: Areti, Acea Produzione and Ecogena. Included in **Commercial and Trading** are: Acea Energia and Acea8cento. The **Water** segment includes: Acea Ato 2, Acea Ato 5 and Acea Elabori (the latter organisationally in the Engineering and services area, was incorporated in the water segment, as in 2017 for services it carries out for the sector; the value of orders for Acea Elabori was equal, in 2017 to about 20 million Euros and 14 million Euros in 2018). The **Environment** segment includes: Acea Ambiente and Aquaser. Present in the **Corporate** segment is only Acea SpA

The Group companies included in the scope of consolidation made a total of **2,195 Purchase Orders**, slightly higher than last year (2,073 Orders), involving **1,151 suppliers** (1,069 in 2017). Approximately 86% of Purchase Orders for goods and services were valued below the EU threshold. The **top ten works suppliers** accounted for around **66%** of the total value of the contracted works, while the **top ten suppliers of goods and services** respectively accounted for around **36%** and **32%** of the total value of goods and services procured (see Table 34).

The slight increase in the total number of suppliers in 2018 (approx. 80 more than 2017) took place in a proportionate manner in terms of geographic components (both expressed in macro regions and focussing on Lazio). Geographical **distribution of the suppliers was in line with previous years**, with about **90% being concentrated in the central-northern area of Italy**, and the **number of suppliers in Lazio retains a consistent percentage** equal to 45% of the total (46% in 2017, see Table no. 34).
The **geographical distribution of the amounts among the macro-regions**, in terms of percentage weight of the total amounts, remained **fairly constant for goods and services**. On the other hand, **the value of works carried out by companies in central Italy increased more significantly** (from 65% in 2017 to 75% in 2018).

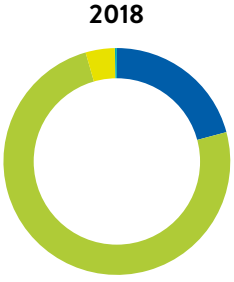
CHART NO. 28 - GEOGRAPHICAL DISTRIBUTION OF THE AMOUNTS USED FOR THE PURCHASE OF GOODS AND SERVICES IN ITALY AND ABROAD (2018)



2018		
49%	€297 mln	Value ordered Northern Italy
42%	€251 mln	Value ordered Central Italy
7%	€39 mln	Value of orders Southern Italy and islands
2%	€13 mln	Value ordered abroad

NB Figures are rounded off to the nearest unit.

CHART NO. 29 - GEOGRAPHICAL DISTRIBUTION OF THE AMOUNTS OF WORKS AWARDED IN ITALY AND ABROAD (2018)



2018		
21%	€78 mln	Value ordered Northern Italy
75%	€279 mln	Value ordered Central Italy
4%	€16 mln	Value of orders Southern Italy and islands
0.2%	€1 mln	Value ordered abroad

NB The values are rounded (except for the "Abroad" item, which otherwise would not have been visible in the chart).

TABLE NO. 33 - SOCIAL INDICATORS: PROCUREMENT DATA (2016-2018)

	u. m.	2016 (*)	2017	2018	Δ% 2018/2017
VALUE OF CONTRACTS					
goods	mln €	132	137	267	95%
services	mln €	245	304	333	9%
works	mln €	133	153	374	144%
total	**mln €**	**510**	**594**	**974**	**64%**
GOODS, SERVICES AND WORKS AS A PERCENTAGE OF TOTAL ORDERS					
goods	%	26	23	28	22%
services	%	48	51	34	-33%
works	%	26	26	38	46%
VALUE OF ORDERS BY BUSINESS AREA (**)					
Energy infrastructure	mln €	128	169	368	118%
Commercial and trading	mln €	34	41	38	-7%
Water	mln €	151	136	307	126%
Environment	mln €	56	110	112	2%
Corporate	mln €	141	138	149	8%
NUMBER OF PURCHASE ORDERS MANAGED					
POs for goods, services and works	no.	1,981	2,073	2,195	6%

(*) The 2018 and 2017 perimeters are equivalent, while 2016, compared to corporate scope for 2017, included data related to Acea Illuminazione Pubblica (which were transferred to Areti in 2017), Acea Gori Servizi (in 2017 no longer consolidated using the step by step method), Crea Gestioni, Elgasud (later renamed Acea Liquidation and Litigation) and Acea Energy Management (the total amount ordered by the latter 4 companies in 2016 was € 1.3 million).

(**) The 2018 and 2017 perimeters are equivalent, and to ensure comparability over the three-year period the 2016 figures had already been reclassified in line with the 2017 reorganisation of the business areas.

NB All the figures in the table are rounded off to the nearest unit. Acea Elabori, organisationally part of the Engineering and services area, was incorporated in the Water area in the table, for the services it carries out for the sector.

TABLE NO. 34 - SOCIAL INDICATORS: PROCUREMENT NATIONWIDE (2016-2018)

	u. m.	2016 (*)	as % of total/year	2017	as % of total/year	2018	as % of total/year
NUMBER OF SUPPLIERS OF GOODS, SERVICES AND WORKS NATIONWIDE							
suppliers Northern Italy	no.	340	34%	356	33%	385	34%
suppliers Central Italy	no.	579	57%	620	58%	657	57%
suppliers Lazio	*no.*	*445*	*44%*	*489*	*46%*	*518*	*45%*
suppliers Southern Italy and islands	no.	70	7%	74	7%	84	7%
foreign suppliers	no.	16	2%	19	2%	25	2%
Total suppliers	**no.**	**1,005**	**100%**	**1,069**	**100%**	**1,151**	**100%**
TOP 10 SUPPLIERS OF GOODS, SERVICES AND WORKS (amounts awarded)							
TOP 10 suppliers of goods	mln €	74	56% (on total amount of goods 2016)	52	38% (on total amount of goods 2017)	97	36% (on total amount of goods 2018)
TOP 10 suppliers of services	mln €	127	52% (on total amount of services 2016)	129	42% (on total amount of services 2017)	105	32% (on total amount of services 2018)
TOP 10 suppliers of works	mln €	75	56% (on total amount of works 2016)	65	42% (on total amount of works 2017)	248	66% (on total amount of works 2018)
GEOGRAPHICAL BREAKDOWN OF AMOUNTS FOR GOODS AND SERVICES							
Value ordered Northern Italy	mln €	210	56%	213	48%	297	49%
Value ordered Central Italy	mln €	152	40%	198	45%	251	42%
Value ordered Lazio	*mln €*	*125*	*33%*	*160*	*36%*	*191*	*32%*
Value of orders Southern Italy and islands	mln €	10	3%	22	5%	39	7%
Value ordered abroad	mln €	4	1%	8	2%	13	2%
Total value of orders for goods and services	**mln €**	**376**	**100%**	**441**	**100%**	**600**	**100%**

GEOGRAPHICAL BREAKDOWN OF AMOUNTS FOR WORKS							
Value ordered Northern Italy	mln €	9	7%	37	24%	78	21%
Value ordered Central Italy	mln €	110	82%	99	65%	279	75%
Value ordered Lazio	*mln €*	*107*	*80%*	*90*	*59%*	*120*	*32%*
Value of orders Southern Italy and islands	mln €	14	11%	12	8%	16	4%
Value ordered abroad	mln €	0	0%	5	3%	1	0%
Total ordered for works	**mln €**	**133**	**100%**	**153**	**100%**	**374**	**100%**

(*) The 2018 and 2017 perimeters are equivalent, while 2016, compared to corporate perimeter for 2017, included data related to Acea Illuminazione Pubblica (which were transferred to Areti in 2017), Acea Gori Servizi (in 2017 no longer consolidated using the step by step method), Crea Gestioni, Elgasud (later renamed Acea Liquidation and Litigation) and Acea Energy Management (the total amount ordered by the latter 4 companies in 2016 was € 1.3 million).

NB All the figures in the table are rounded off to the nearest unit. The "northern Italy" geographical area includes Valle d'Aosta, Piedmont, Lombardy, Veneto, Trentino-Alto Adige, Friuli Venezia Giulia, Emilia-Romagna and Liguria; "central Italy" includes Tuscany, Umbria, Marche, Lazio, Abruzzo and Molise; "southern Italy and islands" includes Campania, Basilicata, Apulia, Calabria, Sicily and Sardinia.

SELECTION AND EVALUATION OF SUPPLIERS

Several **systems for qualifying suppliers of works, goods and services** are active and updated in Acea.
The unit responsible for **Supplier Qualification**, in respect of the principles of **competitiveness and equal treatment**, sets up **Qualification systems** of European significance[88] and **Suppliers' Lists** for so-called "below threshold" or private tenders, coordinating workgroups to **identify the qualification requirements** and drawing up the **Qualification Regulations**. The Unit is also responsible for processing individual **qualification applications**, checking the possession of the requirements and managing communications with the supplier concerning: admission measures and rejection or suspension from the Lists.
The product tree shared among the Group companies includes, as at 2018, **467 product groups** and as at 31 December 2018 the responsible Unit had managed **117 qualification Lists/Systems**.
A **supplier qualification portal** is active in Acea, fully integrated with the supplier database. Companies intending to be qualified **insert their qualification application online** for the product groups of interest, accessing the **Vendor Management portal** directly from the **Acea institutional website** (www.gruppo.acea.it, Suppliers section).
For **registration in the qualification Lists/Systems**, possession of **standard requirements** – these include **requirements of a moral nature** envisaged by the laws in force in the sector – **and specific requirements** is necessary, with reference to the product group or groups included in each Suppliers' List.
In some cases, the **specific requirements** include holding certain Authorisations and/or certifications, for example:

- possession of UNI EN ISO 9001 certification (binding requirement for all the "works" product groups and for almost all the "goods and services" qualification systems);
- possession of UNI EN ISO 14001 certification (for example for registration in the Qualification System for special non-hazardous waste);
- possession of Registration to the National Environmental Operators' Register or authorisation to manage a plant for the recovery/disposal of waste (for example for registration in Waste Management Systems);
- possession of OHSAS 18001 certification (for example for registration in the Qualification system for the electro-mechanical maintenance of industrial plants).

For admission to the qualification systems of **Community-wide significance**, lastly, companies wishing to qualify must declare their availability to undergo an **audit at the administrative head office**, aimed at assessing the truthfulness and adequacy of the documentation provided, and at the **operating plants** or product warehouses, in order to assess the implementation and application of the active management systems.
In 2018 a total of **646 applications for registration in the qualification lists/systems were processed**, amounting to **513 successful applications**.
Specifically:

- **328** qualification applications processed for "works" Qualification systems;
- **318** qualification applications processed for Qualification Systems/Suppliers' Lists for "goods and services".

The assessment of suppliers is carried out by means of **different types of controls** that are implemented depending on the List and the different statuses that the supplier acquires with respect to Acea (pending qualification, qualified or qualified with a tender in progress).
In order to be able to register for the **Qualification systems relating to the Single Regulations for Goods and Services and Works** – which for 2018 were **92 out of 117 total qualification systems** – suppliers are required to complete a **self-assessment questionnaire** (differentiated according to whether they are offering goods and services or works) directly on the Vendor Management platform, which can be accessed from the institutional website (www.group.acea.it). The questionnaire asks about **Quality, Environment, Safety, Energy management systems and other sustainability issues**. In particular, during the year **261 suppliers completed the self-assessment questionnaire** (144 for goods and services and 117 for works), representing **84% of the total number of qualified suppliers in the year** (equal to 309). At the end of 2018 the Vendor Management platform was able to implement all the **system requirements** necessary to process the data collected through the questionnaires. Therefore, they will be available from next year.
Finally, with the aim of monitoring some data and raising awareness in the supply chain on sustainability, in synergy with the Sustainability Unit and in continuity with recent years, **Purchasing and Logistics sent a questionnaire to a sample of suppliers** – 114 in 2018 – **focused on social and environmental issues** (see the dedicated box).

88 Pursuant to art. 134 of Legislative Decree no. 50/2016 as amended.

THE ACEA QUESTIONNAIRE TO MONITOR SOCIAL AND ENVIRONMENTAL ISSUES IN THE SUPPLY CHAIN

For the fourth year in a row, in 2018 Acea asked a panel of **114 Group suppliers** (104 in 2017) **to complete a questionnaire** on their commitment to **environmental and social issues. 36 companies completed the questionnaire**, 19 for goods and services and 17 for works (55 companies responded in 2017).
With regard to **social issues, an analysis of the questionnaires shows** that, with regard to **ethics and integrity, 58% of respondent companies adopt tools to promote virtuous conduct** including a Code of Ethics and the Organisation, Management and Control Model pursuant to Legislative Decree no. 231/2001; with regard to **job security**, it was found that **84% of the personnel** of supplier companies **are employed on permanent contracts** and that in 39% of cases the company has trade union representatives; with regard to **health and safety at work, 64%** of the suppliers who completed the questionnaire **are equipped with safety management systems** (e.g. OHSAS 18001), **83% have provided safety training** to more than 50% of staff and **83% have not recorded any accidents**.
The results of the findings on environmental data, such as consistency of energy consumption, are described in the section ***Relations with the environment*** to which reference is made.

Once qualified, the supplier's headquarters can be subjected to a **second-party Audit on Quality Management Systems, Environment, Safety, Energy and Social Responsibility (QASER)** regardless of the certifications in place, to verify both the effective application of certified Management Systems, where present, and the management methods of other areas relevant to sustainability. In 2018 the checklists of compliance with the requirements assessed and the QASER brackets for categorising the scores achieved by the suppliers were confirmed (Excellent - Very Good - Good - Fair - Sufficient - Poor - Critical - Inadequate). **The audits** were carried out exclusively by **qualified internal auditors** of Acea SpA belonging to the **Integrated Certification Systems Unit** of the Risk & Compliance Function. **40 audits** were performed which produced the following overall appraisals: 2 Excellent, 4 Good, 21 Satisfactory, 8 Sufficient; 2 Poor; 3 Critical. **Each supplier was sent feedback** detailing the assessment bracket resulting from the audit together with **a summary report** highlighting the strengths and areas requiring improvement. Where necessary, a report of the **most significant findings** was also sent, with a request to specify the causes of non-compliance and proposals for appropriate corrective actions.
The results of the audits carried out were satisfactory in the areas of **Quality, Environment and Safety**, with 70% of suppliers ranked between good and excellent, while only 10% of suppliers earned an equal assessment for the areas of **Energy and Social Responsibility**. These findings confirm the **need and opportunity for Acea to use the assessment as an opportunity for discussion to engage suppliers on specific issues of sustainability**.
In the second half of 2018, the Acea Top Management also decided to **join the TenP working group** within the **Global Compact Network Italy** in order to intensify its action to raise the awareness of the supply chain, also making use of the new services offered by the platform, desktop Audit and supplier training on sustainability issues.

Acea Elabori has a **Safety Team** that is responsible for **managing the safety of the works and services contracted out by Group companies** (mainly Acea Ato 2, Acea Ato 5 and Areti). Working with the companies, the Safety Team provides:

- **support and assistance to the Works Manager** and general Safety Coordination;
- **coordination of safety in the design phase and during execution** at specific sites;
- **safety inspections** for works and services that do not require coordination during execution;
- **services ancillary** to safety inspection activities.

Site safety inspections are primarily related to the **main works that are the subject of maintenance contracts for networks and services in the water and electricity sectors**, but also concern minor contracts (like civil, electrical or electromechanical maintenance work carried out on plants, meter changes, road repairs, video-inspections and gully emptiers, etc.), awarded from 2015 to 2018.
The Safety Team manages the activities listed above, with the aim of **ensuring compliance with the highest standards of safety** and current regulations[89], also verifying compliance with the documents produced during the tender[90] and by the companies[91]. Activities are differentiated between works requiring Safety Coordination during the Executive phase (Coordinators nominated as needed by the Works Director) and works in which the safety standard adopted is assessed and verified through sample inspections.
The dedicated structure intervened through the use of:

- **19 Safety coordinators** in the Execution and Design phase, assigned to specific worksites from time to time;
- **22 Safety inspectors**, who assessed and verified the safety standard through random inspections;
- **7 Planners**, who followed the planning and dispatching of the safety inspections to the sites of the contractors;
- **10 Technical Support resources**, who managed the technical and professional audits of the companies engaged in the contracts.

The number of on-site inspections carried out **has increased significantly** in the last two years – from about 5,500 inspections carried out in 2016 to more than 11,200 in 2018 – and for some contracts the inspections have been managed **with the help of computer systems** that have facilitated the operations of the **department, making it more agile and able to act as needed**. The management model adopted has made it possible to provide timely support for the technical and professional assessment of contractors, subcontractors and self-employed workers; to make on-site controls immediate and efficient, assigning safety inspectors to work orders to be inspected due to a rating higher than a certain threshold; to engage a safety coordinator during execution or design, where required.
During the year, the Safety Team provided support to the **technical and professional audits of 226 companies** (92 contractors and 134 subcontractors). It also carried out **Safety Coordination in the Execution and Design phase for 315 work orders** (296 in the execution phase and 19 in the design phase), **in all performing**

89 Legislative Decree no. 81/08 "Consolidated Act on Safety", as amended.
90 Safety plan and coordination on site, DUVRI.
91 Operational Safety Plan, Substitute Safety Plan.

11,270 on-site safety inspections [92] (27% more than the 8,900 inspections of 2017), **reporting compliance with current regulations** on workplace health and safety **or deviation therefrom** (non-conformity). **In all inspections carried out** in 2018 **1,601 non-conformities** were found.
For the main contracts, as envisaged in the contract documentation, **the results of audits are recorded according to four categories**: compliant or non-applicable, minor (generally corrected on the spot), medium and major infractions. The non-conformities are associated with **corrective actions** and **penalties** applied by the contracting company on the basis of the provisions of the tender documentation, and, **serious infractions may lead to the suspension of works**.
Following the **10,111 inspections** in 2018 of the **main contracts, 893 non-conformities** were found, of which 545 were "minor", 252 were "medium" and only 96 were "major".
The Safety Team **organises meetings with the contractors in order to raise their awareness of site safety** both before the start of works – informing the contractors' employers of the activities carried out by the Safety Team and the standards adopted, requesting the documents necessary for technical and professional inspection, etc. – and during the execution of the contract itself, for example by **correcting conduct** that infringes the regulations in force and by **thoroughly investigating specific problems** that emerge during the execution of the contract. Lastly, during the audits completed on the staff of contractor and subcontractor companies, the Safety Team **ascertains that the employer has provided both basic training** and, where applicable, **specific training**, as provided by the law in force on the matter of safety.

Despite the attention paid to this issue, **33 accidents** occurred during the year while performing activities entrusted by Group companies to contractors. While the number of accident reports has increased (the figure was 22 in 2017), **the "seriousness" of the accidents themselves has decreased** (as seen by the 734 days of absence in 2017 compared to 439 in 2018). Furthermore, of the 33 accidents reported during the year, only one lasted longer than 40 days.

Pursuant to the **Memorandum on Water Tender Contracts** signed on 6 June 2012 by Acea SpA and Acea Ato 2, the Trade Unions and Industry Federations and still in force, **a series of meetings were held as part of the Joint Committee set-up for the purpose**. In recent years there has been a general reduction in the number of critical issues relating to safety and the organisation of work done by personnel of the companies involved in Acea contracts, and there has been an improvement in the traceability and transparency of information. During 2018 the Parties met on two occasions (1 February and 27 September 2018) and Acea arranged for, during calls to tender for the award of services, **the insertion of a specific clause to promote occupational stability for staff used in the contracts**.

In 2018, Acea Energia continued to carefully **monitor the quality of the sales service provided by its door-to-door and/or telemarketing agencies** in the "domestic" and "micro-business" segments of the free market. The **Agency Mandate provides for the compulsory training of persons** who work in the name and on behalf of Acea, **so that they can transmit adequate information to customers**, and also provides for **financial penalties** (with a minimum value of € 1,000) in the event of **unfair business practices** (see in this respect the chapter on *Customers*). During 2018, Acea Energia provided a **training programme** to **639 salespersons**, for a total of **64 days** corresponding to **392 hours of training**.

During 2018 Areti provided **training to contractors' personnel** on the topic: "Variations in the LV scheme - through the use of the corporate application GEOWEB aimed at surveying the LV network from the Substation to the POD". **34 people** participated in the meetings for a total of **136 hours of training** carried out with the contribution of an internal instructor. The company also organised 8 coordination meetings with contractors to manage and reduce risks due to interference between workers, as required by the regulations [93].
Areti also **continued to use a vendor rating model** – tested since 2008 – for works in the energy area based on **142 parameters of quality, safety and environment**. The system envisages **worksite inspections** and the preparation of **merit rankings** based on the reputation of the contractors and also the possibility of applying fines and suspending the activities of the contractors: **during 2018, 29 worksites were temporarily closed due to safety "non-conformities"** against a **total of 2,214 inspections**. The **average reputational index** found in the year, **equal to 98,29**, is constantly increasing (it was 97.02 in 2017), and it confirms the good level of reliability of the operators.

DISPUTES WITH SUPPLIERS IN 2018

The dispute between the company and suppliers primarily concerns litigations due to **failure to pay invoices** for goods, services and works and legal action concerning **tender contracts**.
With regard to **non-payment of invoices**, there has been an increase in the number of disputes that have arisen: **29 in 2018** (compared to 19 in 2017). In general, there are injunctions concerning invoices that were not paid for reasons of a formal nature and were quickly resolved by settlement proceedings; in fact **21 cases were settled during 2018**.
With regard to the remaining litigation relating to **procurement contracts**, which mainly concerns the registering of reserves by contractors, contract terminations and compensation for damages, in 2018 **13 legal actions** were initiated, with an increase in the number of disputes compared to the previous year (6 in 2017), of which 2 were settled that same year.
We point out, moreover, that **6 disputes were lodged of an administrative nature** on the matter of calls to tender, 3 of which are already settled. The disputes decreased compared to the 11 of the previous year.
As at 31 December 2018, the **total number of disputes pending with suppliers** (including disputes initiated in previous years) **amounted to 86**, practically the same as in 2017, where – on a like-for-like basis – there were 76 disputes. In detail, this concerns 10 appeals to the local court on the matter of awards and 63 proceedings brought at the ordinary magistrate's court which mainly concerning registrations of reserves by the contracts, contract termination and compensation of damages – and 13 regarding unpaid invoices.

[92] The number includes visits for all types of contracts, both main ones and "minor ones". Note that for smaller contracts, the Technical Specifications do not provide for the recording of non-conformities according to the types specified in the text, unlike the contractual documentation for tenders that have as their object the major works of network maintenance and services.

[93] Art. 26, paragraph 3 of Legislative Decree no. 81/08 as amended.

PERSONNEL

96.6% OF EMPLOYEES HAVE A PERMANENT EMPLOYMENT CONTRACT

34% FEMALE PRESENCE IN CORPORATE GOVERNANCE BODIES

208 NEW HIRES, **49.5%** OF WHICH WERE YOUNG PEOPLE UNDER 30 YEARS OF AGE

+1.6% INCREASE IN AVERAGE GROSS SALARY

ACEA'S EMPLOYEES

The workforce included in the report [94], which includes the companies consolidated according to the net assets method **suitable for representing the operations of the Group**, totals **4,742 persons**. A breakdown by business segment shows an increase of 10.5% in the number of employees in the Corporate segment and a slight increase in the number of employees in the Sales and Trading segment (+1.4%) and in the Energy infrastructure segment (+1.2%). There were only small decreases in the Water segment (-1.6%) and the Environment segment (-0.7%). Relative to the geographic location of the employees, considering both the registered office of the companies and the operating locations, almost all of them are concentrated in Lazio, with a residual number in Campania, Umbria and Tuscany.

TABLE NO. 35 - CHANGES IN EMPLOYEES BY MACRO SEGMENT (2016-2018)

BUSINESS AREA	2016 (*) (no. of employees)	2017 (no. of employees)	2018 (no. of employees)
water	2,029	2,011	1,978
energy infrastructures	1,370	1,362	1,379
commercial and trading	449	437	443
environment	247	288	286
corporate (Acea SpA)	573	594	656
Total	**4,668**	**4,692**	**4,742**

(*) Remember that the 2016 data included, in the Water Area, also 88 employees of Acea Gori Servizi and Crea Gestioni no longer included in the 2017 and 2018 scopes. Acea Elabori, organisationally included in the Engineering and Services Area, is also included in the Water Area, for the services provided to the sector, with a total of 233 employees in 2016, 270 in 2017 and 237 in 2018.

COMPOSITION AND TURNOVER

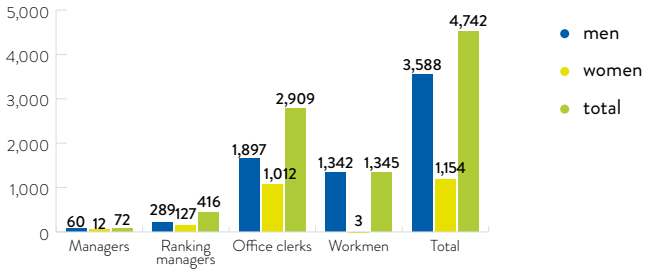
The **Human Resources Management Department** of Acea SpA handles **the administrative management of employed personnel** for and on behalf of the subsidiaries; therefore, the information and data reported below cover the entire scope of the consolidated non-financial declaration (see *Disclosing sustainability: methodological note*) and ensure adequate comparability with the previous year [95].

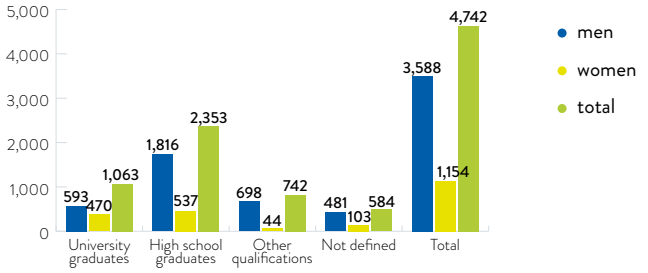
Of the **4,742 people who work in the Group** (there were 4,692 in 2017), **61.3%** were classified as **clerical workers, 28.4%** as **workmen, 8.8%** as **managers** while **executives** represent **1.5%**.
The **level of schooling** confirms the steady increase of **university graduates, who rise to 22.4%** (21.2% in 2017) and the **stability of high school graduates**, whose percentage weight remains unchanged at **49.6%**, and employees with other qualifications equal to 15.6% (15.3% in 2017).
The **age of the employees** is consistent with the preceding year: approx. **62% of the staff are over 45 years of age, 33% are between 30 and 45 years** and **5% are under 30**. Even the **average age** remains stable at **47.8 years** (for all the aforementioned data please see Chart no. 30 and Table no. 36).

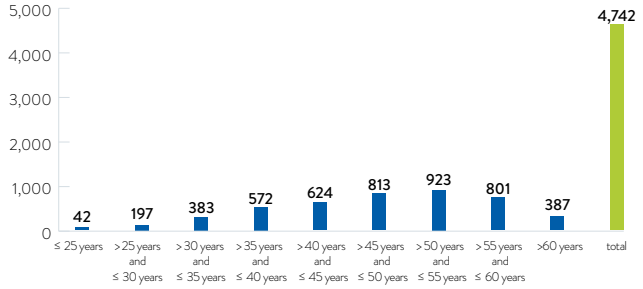
[94] See also *Methodological Note*. The total workforce, for all the companies within the consolidation, was 6,534 during the year (5,625 in 2017). The perimeter ensures the comparison of the data with the preceding year.

[95] The 2018 scope of the Financial Statements/DNF, which coincides with that of 2017, includes the following companies: Acea SpA, Acea Ambiente, Aquaser, Acea Energia, Acea8cento, Areti, Acea Produzione, Ecogena, Acea Ato 2, Acea Ato 5, Gesesa, Acea Elabori. See *Disclosing Sustainability: methodological note*. In 2016, Acea Gori Servizi (62 employees) were also included, which in 2017 was no longer consolidated using the full consolidation method, and Crea Gestioni (26 employees). The difference in the scope therefore, involves the data relative to 88 people.

CHART NO. 30 - STAFF COMPOSITION: CATEGORY, GENDER, LEVEL OF EDUCATION AND AGE (2018)

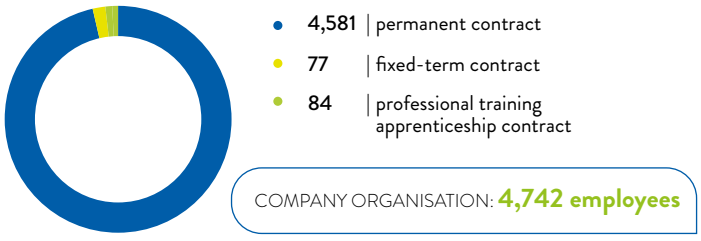


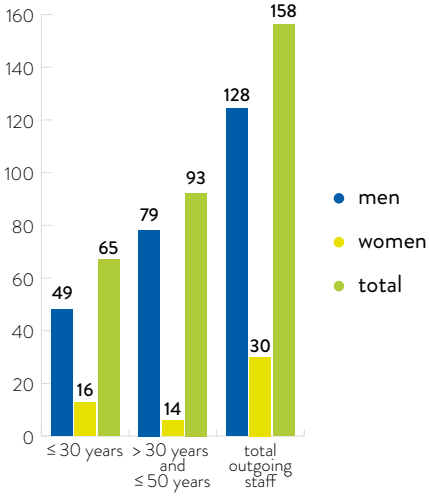




The percentage of personnel employed in the Group with a **permanent contract** remains **very high: 96.6%**, or **4,581 employees**. The **length of the employment relationship**, relative to the employees who every year leave the company, still indicates the **stability of employment: 41%** of the employees leaving worked for the Group **up to 30 years** and **58.9% for a period of between more than 30 and 50 years** (see Chart no. 31 and Tables no. 36 and 38).

CHART NO. 31 - CONTRACT TYPES AND THE LENGTH OF THE EMPLOYMENT RELATIONSHIP (2018)

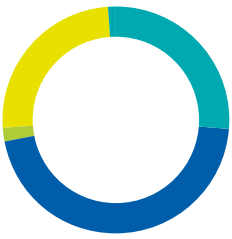




In 2018, the **rate of turnover** was **7.7%** (8% for men and 6.9% for women), the **incoming rate** stable at **4.4%** (4.4% for men and 4.3% for women) and the **outgoing** rose to **3.3%** (3.6% for men and 2.6% for women) (see Table no. 37).
The number of **people hired** remained stable compared to 2017, **at 208** (158 men and 50 women). The entries are mainly the result of 112 hires from the external labour market, 52 apprentices and 41 stabilisations (see Chart no. 32 and Table no. 37).

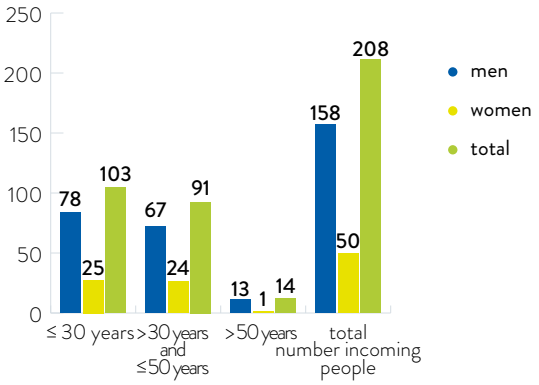
The companies most affected by the inflows of personnel were Acea Ato 2 with 60 hires, Areti with 42 hires, Acea Elabori with 31 hires and Acea SpA with 24 hires (including hires, transformation to permanent status and apprenticeships). Overall, in 2018 **60.6% of the hires had permanent contracts** (a net increase compared to 41% in 2017) and **25% with professional apprenticeship contracts**.
49.5% of the incoming staff are 30 years old or younger.

CHART NO. 32 - THE REASONS FOR THE ENTRIES AND AGE OF THE STAFF (2018)



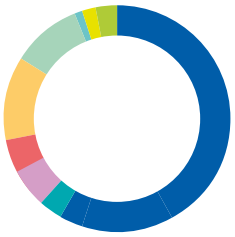
- 52 | apprenticeship
- 112 | hire
- 3 | internalisation
- 41 | stabilisation

208 INCOMING **employees**



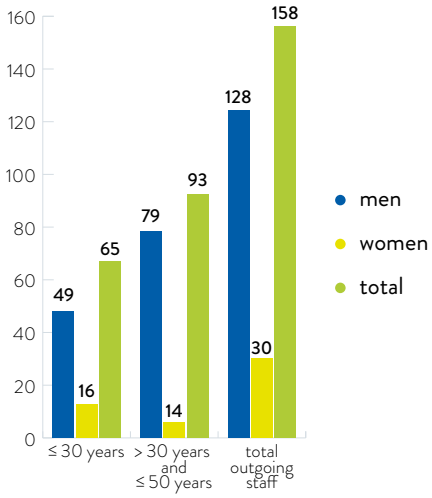
There were 158 people who left the company during the year, of which 128 men and 30 women, **an increase of 63%** compared to the 97 employees who left in 2017. In particular, **94 employees** were **laid off**, a form of subsidised voluntary early retirement and **18 people resigned, 13 were dismissed** and **7 employees** were involved in the **facilitated voluntary retirement plans**, with the agreed and subsidised early termination of the employment agreement with the company (Chart no. 33 and Tables no. 37 and 38). **80% of the outgoing staff** was **over 50 years of age**.

CHART NO. 33 - THE TYPES OF EXIT AND AGE OF THE STAFF (2018)



- 94 | layoffs
- 7 | early retirement
- 13 | dismissal
- 8 | contract expiry
- 18 | resignation
- 10 | death
- 1 | health reasons
- 3 | pension
- 4 | service limits

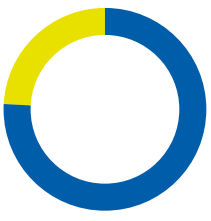
158 OUTGOING **employees**



WOMEN IN ACEA

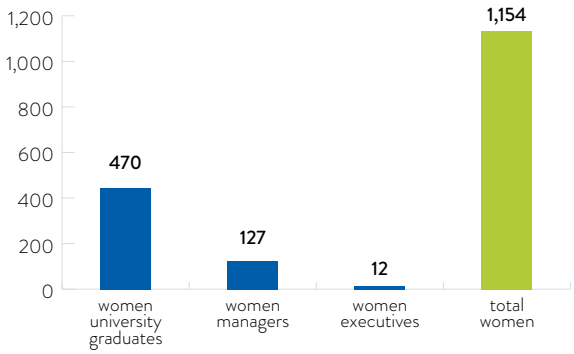
There were 1,154 **female workers** in Acea in 2018: **24.3% of the workforce**. The figure is similar to the preceding year (24.2% in 2017). The smaller presence of female workers in the Group compared to the male workers can be related to the operational nature of the processes managed: to date, in fact, in Italy, professional positions of a technical-specialised nature are still predominantly held by men (Chart no. 34).

CHART NO. 34 - THE DISTRIBUTION OF THE STAFF FROM A PERSPECTIVE OF GENDER (2018)



- 3,588 | men
- 1,154 | women

COMPANY ORGANISATION: **4,742 employees**



During the year, the **presence of women among executives** fell by about one percentage point (12 out of 72, equal to 16.7%) and the presence of women among **managers** remained substantially stable (127 out of 416, equal to 30.5%); the **percentage of women graduates** of the total number of university graduates in the workforce also remained stable (470 out of 1,063, equal to 44.2%). **48 women were in the corporate governance** of the companies included in the reporting scope (Boards of Directors, Boards of Statutory Auditors and Supervisory Bodies), equal to **34% of the total** number of members (in 2017 in comparison, women in the governance bodies totalled 49, equal to 33%). The percentage of women on the Board of Directors of the Parent Company is 33.3% (3 women out of 9 members), in full compliance with Law no. 120/2011.
In particular, we report that every one of the internal board committees includes one or more women and the Chair of the Control and Risks, Appointments and Remuneration, Ethics and Sustainability Committees is assigned to a female Director (see also *Corporate Identity, section Corporate governance in Acea*).

CHART NO. 35 - PRESENCE OF WOMEN IN THE CORPORATE GOVERNANCE BODIES (2016-2018)

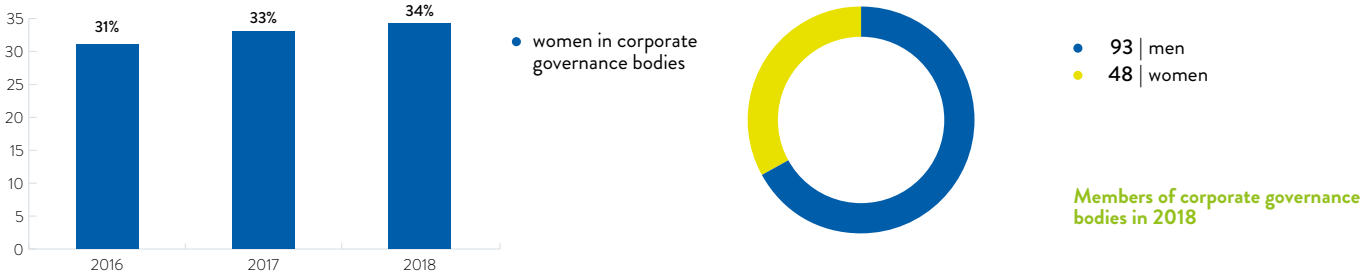


TABLE NO. 36 - SOCIAL INDICATORS: GENERAL DATA ON THE STAFF (2016-2018)

	2016 (*)			2017			2018		
	men	women	**total**	men	women	**total**	men	women	**total**
COMPOSITION OF THE STAFF									
number									
executives	67	14	**81**	66	14	**80**	60	12	**72**
managers	271	117	**388**	278	123	**401**	289	127	**416**
clerical workers	1,892	953	**2,845**	1,891	993	**2,884**	1,897	1,012	**2,909**
workmen	1,351	3	**1,354**	1,324	3	**1,327**	1,342	3	**1,345**
total	**3,581**	**1,087**	**4,668**	**3,559**	**1,133**	**4,692**	**3,588**	**1,154**	**4,742**
WOMEN IN ACEA									
%									
eomen out of the total workforce			**23.3**			**24.2**			**24.3**
female executives out of total executives			**17.3**			**17.5**			**16.7**
female managers out of total managers			**30.2**			**30.7**			**30.5**
female graduates out of total graduates			**43.4**			**44.6**			**44.2**
LEVEL OF EDUCATION OF THE STAFF									
number									
university graduates	511	392	**903**	551	444	**995**	593	470	**1,063**
high school graduates	1,768	522	**2,290**	1,790	536	**2,326**	1,816	537	**2,353**
other securities	723	47	**770**	713	46	**759**	698	44	**742**
not defined	579	126	**705**	505	107	**612**	481	103	**584**
total	**3,581**	**1,087**	**4,668**	**3,559**	**1,133**	**4,692**	**3,588**	**1,154**	**4,742**
AVERAGE STAFF AGE									
years									
average company age	48.2	44.7	**47.4**	48.6	44.9	**47.7**	48.6	45.2	**47.8**
average age of executives	53.5	49.8	**52.9**	54.1	50.8	**53.6**	53.9	52.1	**53.6**
average age of managers	50.4	47.8	**49.6**	51.0	48.6	**50.3**	50.9	49.1	**50.4**
average age of clerical workers	48.1	44.2	**46.8**	48.4	44.3	**47.0**	48.5	44.6	**47.1**
average age of workmen	47.5	48.7	**47.5**	48.0	49.7	**48.0**	**48.0**	**50.7**	**48.0**
AVERAGE SENIORITY OF THE STAFF									
years									
average corporate seniority	18.9	15.5	**18.1**	19.3	15.4	**18.3**	19.1	15.5	**18.2**

average seniority of executives	19.5	17.7	**19.2**	19.0	18.7	**19.0**	17.5	18.6	**17.7**
average seniority of managers	20.8	18.0	**19.9**	21.4	18.3	**20.5**	20.6	18.8	**20.0**
average seniority of clerical workers	20.0	15.1	**18.4**	20.4	14.9	**18.5**	20.3	15.0	**18.4**
average seniority of workmen	16.8	27.0	**16.8**	17.3	28.0	**17.3**	17.1	29.0	**17.1**
TYPE OF EMPLOYMENT CONTRACT									
number									
staff with permanent contract	3,531	1,068	**4,599**	3,456	1,071	**4,527**	3,476	1,105	**4,581**
(of which) part-time staff	*25*	*83*	***108***	*27*	*99*	***126***	*25*	*95*	***120***
permanent staff	23	14	**37**	69	58	**127**	44	33	**77**
staff under apprenticeship contracts	27	5	**32**	34	4	**38**	68	16	**84**
total	**3,581**	**1,087**	**4,668**	**3,559**	**1,133**	**4,692**	**3,588**	**1,154**	**4,742**

(*) The 2016 figure included 88 employees of two companies (Acea Gori Servizi and Crea Gestioni) no longer included in the scope of the two-year period.

TABLE NO. 37 - SOCIAL INDICATORS: CHANGES IN STAFF (2016-2018)

	2016			2017			2018		
	men	women	**total**	men	women	**total**	men	women	**total**
INCOMING STAFF: CONTRACT TYPE									
number									
permanent	60	20	**80**	59	26	**85**	97	29	**126**
fixed-term	26	15	**41**	58	52	**110**	20	10	**30**
professional apprenticeship contracts	24	5	**29**	11	1	**12**	41	11	**52**
business branch acquisition	4	1	**5**	0	0	**0**	0	0	**0**
total	**114**	**41**	**155**	**128**	**79**	**207**	**158**	**50**	**208**
OUTGOING STAFF: GROUNDS									
layoffs	81	16	**97**	39	2	**41**	80	14	**94**
early retirement	8	2	**10**	10	2	**12**	7	0	**7**
retirement	4	0	**4**	2	0	**2**	2	1	**3**
terminations	18	6	**24**	9	0	**9**	11	2	**13**
other reasons (*)	24	4	**28**	24	9	**33**	28	13	**41**
total	**135**	**28**	**163**	**84**	**13**	**97**	**128**	**30**	**158**
TURNOVER RATES, ENTRY AND EXIT RATES BY AGE GROUP(**)									
%									
turnover rate	6.9	6.3	**6.8**	5.9	8.1	**6.5**	8.0	6.9	**7.7**
incoming rate	3.2	3.8	**3.3**	3.6	6.9	**4.4**	4.4	4.3	**4.4**
≤ 30 years	-	-	**1.5**	-	-	**1.5**	-	-	**2.2**
> 30 years and ≤ 50 years	-	-	**1.5**	-	-	**2.6**	-	-	**1.9**
> 50 years	-	-	**0.3**	-	-	**0.3**	-	-	**0.3**
outgoing rate	3.8	2.6	**3.5**	2.4	1.1	**2.1**	3.6	2.6	**3.3**
≤ 30 years	-	-	**0.1**	-	-	**0.1**	-	-	**0.3**
> 30 years and ≤ 50 years	-	-	**0.6**	-	-	**0.5**	-	-	**0.4**
> 50 years	-	-	**2.8**	-	-	**1.5**	-	-	**2.6**

(*) In 2018 the item includes: 10 deaths, 18 resignations, 1 disability, 8 contract expiry and 4 service limits.

(**) The turnover rate is provided by the sum of hires and terminations of the year relative to the workforce at year end. The companies to which the data refers are predominantly located in Lazio.

TABLE NO. 38 - SOCIAL INDICATORS: AGE GROUPS, EMPLOYMENT CONTRACT LENGTH (2016-2018)

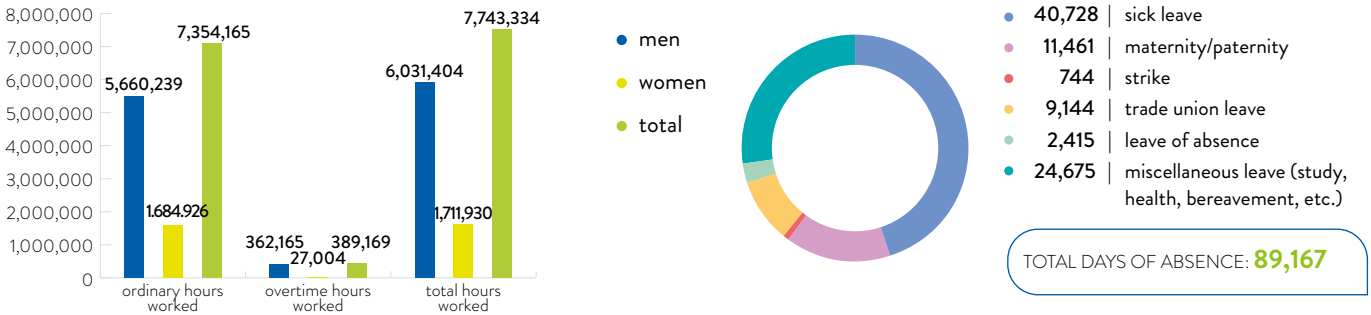
			2016			2017			2018
number	men	women	**total**	men	women	**total**	men	women	**total**
STAFF AGE GROUPS									
≤ 25 years	33	2	**35**	31	2	**33**	40	2	**42**
> 25 years and ≤ 30 years	87	61	**148**	98	63	**161**	129	68	**197**
> 30 years and ≤ 35 years	266	136	**402**	257	144	**401**	248	135	**383**
> 35 years and ≤ 40 years	374	187	**561**	361	195	**556**	363	209	**572**
> 40 years and ≤ 45 years	506	173	**679**	461	169	**630**	459	165	**624**
> 45 years and ≤ 50 years	715	218	**933**	665	216	**881**	618	195	**813**
> 50 years and ≤ 55 years	716	161	**877**	726	165	**891**	739	184	**923**
> 55 years and ≤ 60 years	683	120	**803**	644	143	**787**	648	153	**801**
> 61 years	201	29	**230**	316	36	**352**	344	43	**387**
total	**3,581**	**1,087**	**4,668**	**3,559**	**1,133**	**4,692**	**3,588**	**1,154**	**4,742**
INCOMING STAFF: AGE GROUPS									
≤ 30 years	50	22	**72**	43	26	**69**	78	25	**103**
> 30 years and ≤ 50 years	49	19	**68**	74	51	**125**	67	24	**91**
> 50 years	15	0	**15**	11	2	**13**	13	1	**14**
total	**114**	**41**	**155**	**128**	**79**	**207**	**158**	**50**	**208**
OUTGOING STAFF: AGE GROUPS									
≤ 30 years	4	0	**4**	5	2	**7**	7	6	**13**
> 30 years and ≤ 50 years	24	5	**29**	18	4	**22**	14	5	**19**
> 50 years	107	23	**130**	61	7	**68**	107	19	**126**
total	**135**	**28**	**163**	**84**	**13**	**97**	**128**	**30**	**158**
DURATION OF THE EMPLOYMENT CONTRACT OF THE OUTGOING STAFF									
≤ 20 years	44	6	**50**	38	7	**45**	31	11	**42**
> 20 years and ≤ 30 years	23	4	**27**	19	0	**19**	18	5	**23**
> 30 years and ≤ 40 years	66	17	**83**	26	5	**31**	75	14	**89**
> 40 years and ≤ 50 years	2	1	**3**	1	1	**2**	4	0	**4**
total	**135**	**28**	**163**	**84**	**13**	**97**	**128**	**30**	**158**

HOURS WORKED, SALARY AND PENSION FUNDS

HOURS WORKED IN ACEA

The total number of ordinary and overtime hours worked during the year, excluding executives, was **7,743,334**, of which 77.9% was attributable to male personnel; overall, this figure can be explained by the **number of men in the workforce (75.7%)** and the greater allocation of **roles with responsibility** (69.5% of executives are men). Analysing the **overtime hours in detail, the influence of gender** is even more evident: **93% of overtime is in fact attributable to men** and **only 7% to women** (see also the sub-paragraph *Remuneration*).
Days of absence totalled 89,167, a 1.4% increase compared to the preceding year (87,970 days), determined, for the most part, by absences due to **illness, leave** (for reasons of study, health etc.), **maternity/paternity leave and trade union reasons** (see Chart no. 36 and Table no. 39).

CHART NO. 36 - HOURS WORKED BY THE STAFF AND ABSENCES (2018)



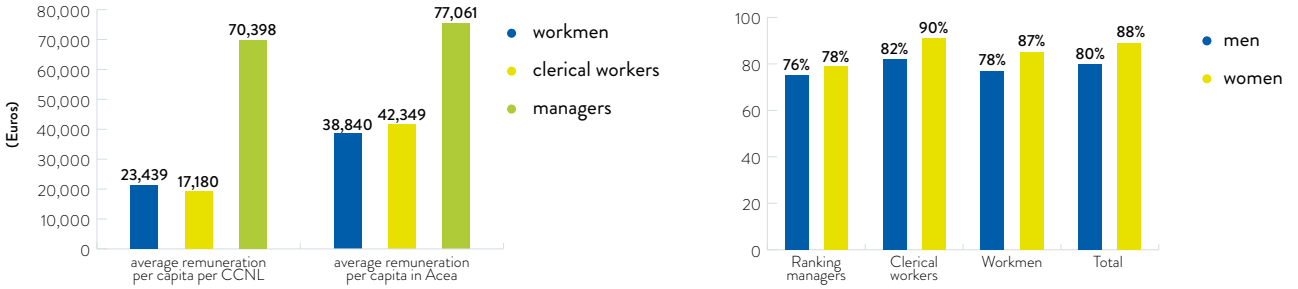
The employees can take **various types of leave** and **forms of flexibility** such as, for example, **part-time**, which in 2018 involved **2.5% of the staff**, and the independent schedule for **managers** and the **stage three workers**, which permits a "customised" management of the work schedules, in compliance with the work duties anticipated by the contract. For employees who do not use the independent schedule, **arrival and departure flexibility** is anticipated, and, lastly, they are the workmen have a **total number of monthly hours of leave** available to collect during the times established.

REMUNERATION

The **wages** of employees are determined by applying the **National Collective Bargaining Agreements** of reference, excluding the executives and top management. The **remuneration policy** adopted by Acea applies **merit-based principles** to the operations on the fixed and variable components.

In 2018 the **total gross average salary per capital increased 1.6%** and comes to 44.3 thousand Euros (it was 43.6 thousand Euros in 2017); by including the executives as well, it comes to **46.6 thousand Euros** (it was 45.8 thousand Euros in 2017) (see Table no. 39).

CHART NO. 37 - AVERAGE SALARIES AND THE RATIO OF BASIC SALARY TO REMUNERATION (2018)



Looking at the data from the **point of view of gender**, it can be noted that the **relationship between the "base salary" and the gross actual remuneration** – including the "additional" elements which contribute to determining the total amount of the salary – in 2018 **comes to 88% for female staff and 80% for male staff**, in line with 2017 data. **The activities remunerated with a greater additional compensation**, such as on-call, shifts, allowances, overtime, **are in fact mainly held by male staff** (for example the work performed by the emergency services technicians who rotate in 24 hour shifts).

PENSION FUNDS AND DEFINED CONTRIBUTION PLANS

The principal supplemental pension funds for the employees of the Group are: **Previndai**, reserved for management, and **Pegaso** for non-management staff, to whom the CCNLs apply signed by Utilitalia for the companies of public utility of the electrical and gas-water segment.

The Pegaso fund is managed equally by Utilitalia – the Federation that unites the Companies operating in public services of water, the environment and electricity – and the trade organisations of the workers Filctem-Cgil, Femca-Cisl, Uiltec-Uil which established it.

In 2018, there were **2,540 employees** of the Group **belonging to the Pegaso Fund** (2,447 in 2017). Acea paid approx. Euro 4.91 million of TFR and Euro 1.49 million of supplemental corporate contribution to the fund. The economic value committed by Acea for TFR and other defined benefit plans i Euro 103.9 million.

By analysing the distribution by gender of the Acea members in the Fund, **77.7% are men** and **22.3% are women** (see Table no. 39).

The net assets of the fund destined for benefits reached **Euro 1,009 million** in 2018 (Euro 987 million in 2017), an increase of approx. 2%.

In 2018 all three segments – Balanced, Dynamic and Guaranteed – closed respectively with losses of 2%, 4.52% and 1.57%.

The performance of the TFR, used as benchmark of the Guarantee segment, was 1.86%.

The Balanced segment, which includes 82% of the capital, has had a cumulative "compound" return in the last 17 years of 88.05% (average annual compound return of 3.78%). During the same period, the accumulated revaluation of the TFR was 43.52% (average annual compound return of 2.15%).

PERFORMANCE OF THE PEGASO FUND RELATIVE TO THE EMPLOYEES OF THE ACEA GROUP

Since 1999, the employees of the Acea Group have paid € 99 million into the Pegaso Fund, of which **€ 9 million in 2018**.

During the year, the positions of the members almost reached the value of € 87 million from collections over time exceeding € 34 million. These positions are invested in the Balanced segment for 86% of the total amount, in the Dynamic segment for 6% and in the Guaranteed segment for 8%.

In the first 19 years of the Pegaso Fund, 3,123 disbursements (redemptions, pension benefits, advances and transfers) were paid to Acea employees, of which 1,841 requests for advances, 82 transfers and 1,202 payments of pension benefits.

In 2018, € 3.4 million were paid out for 154 requests for redemption or pension benefits, € 2 million were paid out for 192 requests for advances for personal needs to support healthcare costs, purchases or renovations of a primary residences, etc. and about € 86 thousand were paid out for 3 requests for transfer.

In 2018, the pension fund introduced the **automatic risk reduction strategy** known as the "life cycle" in order to support workers in managing their investment over time. This new option entrusts the Fund with the task of changing the risk/return profile as the time horizon for retirement changes. This way, thanks to a defined and automatic mechanism, at the end of the working period the member will be able to benefit from an investment profile appropriate to his/her investment horizon.

The Pegaso Fund adopts the **Principles of Responsible Investment (PRI)** promoted by the international community of institutional investors with the aim of incorporating the consideration of ESG issues (environmental, social and governance) in the investment.

PERFORMANCE OF THE PEGASO FUND RELATIVE TO THE EMPLOYEES OF THE ACEA GROUP (follow)

In this respect, the implementation of **EU directives** will result in important impacts for supplementary pensions: **IORP II** (Institutions for occupational retirement provision), which provides for the consideration of exposure to ESG risks, and **Shareholder Rights II**, which should further commit the Fund due to new forecasts with respect to the exercise of voting rights by institutional investors.

NB The data and information relative to the Pegaso Fund are prepared with the cooperation of Andrea Mariani, Director General of the Fund.

TABLE NO. 39 - SOCIAL INDICATORS: HOURS WORKED, ABSENCES, COMPENSATION AND MEMBERS OF THE SUPPLEMENTAL PENSION FUND (2016-2018)

	2016			2017			2018		
	men	women	**total**	men	women	**total**	men	women	**total**
HOURS WORKED BY THE STAFF									
hours									
regular	5,628,514	1,572,229	**7,200,743**	5,508,719	1,582,147	**7,090,866**	5,669,239	1,684,926	**6,031,404**
overtime	435,101	36,531	**471,632**	405,150	25,706	**430,856**	362,165	27,004	**389,169**
total hours worked	**6,063,615**	**1,608,760**	**7,672,375**	**5,913,869**	**1,607,853**	**7,521,722**	**6,031,404**	**1,711,930**	**7,743,334**
TYPE OF ABSENCES									
days									
sick leave	29,087	12,392	**41,483**	29,181	10,302	**39,483**	28,584	12,144	**40,728**
maternity/paternity	1,663	12,735	**14,398**	1,148	11,939	**13,087**	1,159	10,302	**11,461**
strike	62	8	**70**	777	132	**909**	606	138	**744**
trade union leave	6,924	924	**7,848**	7,069	1,051	**8,120**	8,076	1,068	**9,144**
leave of absence	1,919	794	**2,713**	1,706	1,145	**2,851**	1,288	1,127	**2,415**
miscellaneous leave (study, health, bereavement and general reasons)	17,535	8,854	**26,389**	15,035	8,485	**23,520**	15,786	8,889	**24,675**
total days absent (excluding holidays and accidents)	**57,190**	**35,711**	**92,901**	**54,916**	**33,054**	**87,970**	**55,499**	**33,669**	**89,167**
GROSS AVERAGE COMPENSATION BY GRADE									
Euro									
managers			71,968			75,481			**77,061**
clerical workers			39,985			41,633			**42,349**
workmen			36,804			38,466			**38,840**
AGE GROUPS AND GENDER OF THE EMPLOYEES ENROLLED IN THE PEGASO FUND									
number			2016 (*)			2017			2018
≤ 25 years	1	0	**1**	10	1	**11**	16	0	**16**
> 25 years and ≤ 30 years	24	8	**32**	27	10	**37**	38	18	**56**
> 30 years and ≤ 35 years	99	33	**132**	96	29	**125**	101	40	**141**
> 35 years and ≤ 40 years	173	55	**228**	156	62	**218**	169	69	**238**
> 40 years and ≤ 45 years	245	71	**316**	217	60	**277**	228	64	**292**
> 45 years and ≤ 50 years	414	132	**546**	374	130	**504**	349	112	**461**
> 50 years and ≤ 55 years	430	107	**537**	452	101	**553**	459	112	**571**
> 55 years and ≤ 60 years	414	95	**509**	377	110	**487**	386	112	**498**
> 61 years	112	21	**133**	206	29	**235**	227	40	**267**
total	**1,912**	**522**	**2,434**	**1,915**	**532**	**2,447**	**1,973**	**567**	**2,540**

(*) The 2016 data includes the Pegaso members of Acea Gori Servizi (33 employees), Crea Gestioni (11 employees), Sogea (9 employees), companies not included in the 2017-2018 perimeter.

INDUSTRIAL RELATIONS

70.8% OF EMPLOYEES ARE MEMBERS OF THE UNION

AN **innovative and participatory** INDUSTRIAL RELATIONS MANAGEMENT **Model** RELATIONS WAS INTRODUCED IN 2018

Framework Agreement ON WORK-LIFE BALANCE, PERFORMANCE AWARD AND WELFARE MEASURES SIGNED

Within the Human Resources Management Department of the parent company there is the **Labour-Management Relations Unit** which is assigned the task of monitoring the corporate policies regarding trade union relations.
Industrial relations are conducted within the framework of industry-level defined rules and provisions, by national bargaining (CCNL). A second negotiation level is anticipated between the company and the internal worker representatives, in which agreements are defined adapted to the specific corporate requirements.

Acea applies the **Single Contract for the electricity sector** and the **Single Contract for the gas-water sector. All the workers** are therefore **covered by national collective bargaining agreements**.
In 2018, **unionisation was 70.8%**. There are **351** employees who hold **management or trade union representation positions**; of these, **21 hold positions of Workers' Safety Representatives** (RLS), designated following trade union agreement.

The **agreements reached during the year** by the company with the **Trade Unions** (OO.SS.) concerned significant matters under negotiation, including: **welfare, flexibility, smart working** and **performance bonuses**.
In particular, the **Group Framework Agreement** of 14 February 2018 defined a **new model** of high-profile, innovative and **participatory industrial relations**, delegating to the company headquarters the **definition of implementation agreements** on issues that the National Collective Agreement refers to the second level (e.g. performance bonuses, work organisation, flexibility systems and working hours, the welfare system, etc.) (see dedicated box). With this in mind, during the year the Unit provided employees with an **email address** where they can receive **detailed information on agreements, provide feedback** on the quality of company initiatives, etc.

THE GROUP FRAMEWORK AGREEMENT OF 14 FEBRUARY 2018

In 2018, Acea entered into a **Framework Agreement** that defines a planned negotiation path with fixed implementation times, focused on topics central to the achievement of the objectives set out in the strategic plan.
The Agreement promotes structured **work-life balance initiatives** like **smart working, flexible hours** and **measures to support parenting**, etc. and **enhances the skills of workers**, with solutions that envisage the possibility of employing staff in different operating companies as needed regardless of where they are normally employed, recognising **employee merit with an advanced system of individual assessment** (the same used for managers and executives) in line with the New Leadership Model implemented by the Acea Group. Also worthy of note:

- the **new way of entering the company** to promote stable, quality employment provides for underclassification by 2 levels for the first two years of employment and 1 level for the third year, as well as apprenticeship as the predominant form for hiring young people;
- furthermore, all personnel employed in Acea with permanent contracts will **continue to enjoy the protections envisaged in article 18 of Italian Law 300/70** (as amended by Italian Law 92/2012) as stipulated prior to the entry into force of Italian Legislative Decree no. 23/2015.

This agreement also envisages the establishment of **Bilateral Commissions** (composed of representatives of the company, workers and the CRA) to examine and deal with aspects related to **safety, training** and **welfare**, stressing the centrality of these issues for Acea.

Also as part of the Framework Agreement, Acea reached the following agreements in 2018:

- **operational flexibility** with respect to the possibility of involving Areti and Acea Ato 2 personnel in emergency plans in the event of exceptional events that may compromise the security of networks and water and electricity systems;
- **performance bonuses and welfare**, which for the first time allows for the **possibility of converting the performance bonus into "Welfare Credit"**;
- agreement on **smart working**, which **introduces agile work to the Group in a structured manner**;
- **flexible hours and measures to support parenting**, which **extends** the application of **measures already provided for by legal or contractual regulations**: days of parental leave and permits for integration into school (see also the *Diversity and inclusion sub-section*);
- **Industry 4.0** to consolidate the technological knowledge provided for in the dedicated National Plan in the company;
- agreement on the **classification of personnel** that provides for the identification by a Bilateral Committee of additional professional positions with respect to those defined by the National Collective Labour Agreements of reference.

Other agreements have been made through second-level bargaining on the **performance bonus - 2018 productivity**

indicators and on **working hours, work organisation, professional development, video surveillance**, etc..

In the water sector, by virtue of the **Memorandum on Water Tender Contracts** signed in 2012 by Acea Ato 2 together with Acea SpA, the Confederal Trade Unions and the Trade Federations, a number of meetings were also held in 2018 (see the *Suppliers* chapter).

As regards the **information notice to the employees regarding possible organisational changes or corporate reorganisations that effect employment relations**, the company takes different positions, depending on the different cases explained below:

- **organisational changes**: In the event of establishment of new Units or changes in assignments or responsibilities, the Human Resources Management Department issues an Organisational Provision, sends a communication to the competent facilities which arrange to post it on the bulletin board and publish it on the company intranet. Usually, if there are organisational changes that affect the staff, special information is given to the trade union representatives. Should it affect a single employee (for example change in workplace, schedules, etc.) a special communication will be delivered to the employee by the Human Resources Management Unit of the home company;
- **corporate reorganisations**: in the event of reorganisation, as a result of significant organisational and production changes, with effects on working conditions and employment, the methods of informing the employees, as well as the Trade Union Representatives, are regulated by the CCNL applied in the Group and by the Labour-Management Relations Protocols;
- **corporate transformations** (such as alienations, mergers, acquisitions, transfers of company branches): in cases of corporate transformation, the notices to the employees are regulated by the legislation in force[96] which anticipates obligation that allows them to verify the business reasons for the operations, the correct methods of the process as well as the consequences on the employment relations.

DISPUTES WITH EMPLOYEES AND TRADE UNIONS

The labour disputes that concern Acea mainly concern disputes over **dismissals, classification changes, differences in remuneration, indemnities not received, demotions and harassment**.

In 2018, there were **15 new labour cases**, about **half of which were initiated by employees of contractors**. The **figure is lower than in the previous year** (in which there were 45 disputes initiated), while the total number of disputes still pending – including those initiated in previous years – amounts to 85 cases.
During the year, other 55 rulings were issued, 3 of them initiated during the same year.

OCCUPATIONAL HEALTH AND SAFETY

THE NUMBER OF ACCIDENTS DECREASED **(-25.3%)** AND THE ACCIDENT INDICES DECREASED: FREQUENCY INDEX **8.02**, SEVERITY INDEX **0.30**

ACEA PROTECTED HEART: **10** SEMIAUTOMATIC **defibrillators** INSTALLED ON COMPANY PREMISES AND **30 employees** TRAINED ON CARDIOVASCULAR SUPPORT

ACEA FOR PREVENTION: FREE ANNUAL **check-up** FOR **employees** AND THEIR **families**

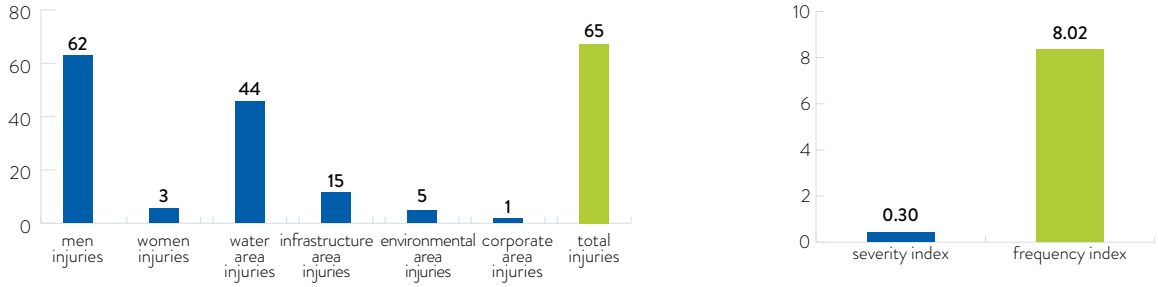
ARETI TRAINING CAMP: **130** TRAINING **sessions** FOR **7,000 hours of training** AND EDUCATION ON HEALTH AND SAFETY AT WORK

Regarding health and safety, **the coordination and direction activities** are the responsibility of the **Occupational Safety Unit** of the parent company, which monitors the companies on the application of the guidelines and policies issued and the alignment to the legislation of reference. **Every company of the Group is also directly responsible for the management of safety**, in compliance with the legislation in force (Italian Legislative Decree no. 81/08 as amended).
Most of the companies of the Group have implemented **Certified Management Systems regarding occupational health and safety** (see also *Corporate Identity, Corporate Governance and Management Systems* chapter).
Every company takes care independently, in compliance with the legislation, of the assessment of the **risks to the workers**, the relevant **training** and the **monitoring of accidents**, preparing the **Risk Assessment Document** (DVR). Following these activities, the **Occupational Safety Unit prepares a centralised annual accident report** for Group companies.
The analysis method of the accidents follows the **Guidelines for the classification of accidents**, prepared by Utilitalia and in compliance with the **standard UNI 7249/95**, with reference to the INAIL measurement criteria and the instructions of ESAW (European Statistics of Accidents at Work).

The number of accidents decreased over the three-year period. More specifically, **in 2018** there were **65 accidents during work** – compared to 87 in 2017 and 110 in 2016 – **and 37 accidents in transit**, i.e. during home-work commutes. The days of absence, related to the accidents which occurred during work dropped to 2,453 (they were 3,463 in 2017 and 4,524 in 2016) and both the **frequency index**, which goes from 10.87 in 2017 to **8.02 in 2018**, and the **severity index**, from 0.43 in 2017 to **0.30 in 2018 decreased** (see Chart no. 38 and Table no. 40).

[96] Art. 2112 Italian Civil Code and Art. 47 Law 428/90 as amended.

CHART NO. 38 - ACCIDENTS AND INDICES (2018)



NB Male frequency index **10.11** and female frequency index **1.52**, male severity index **0.40** and female severity index **0.01**

By observing **the distribution of the accidents** (excluding those commuting to and from work) **from the perspective of gender** it emerges that: **62 accidents** (78 in 2017), equal to **95%** of the total, involved **male staff** who are workmen (45) and clerical workers (17), while **3 accidents** (9 in 2017), equal to 5% of the total, involved the **female staff** who are clerical workers (2) and manager (1).

The breakdown of accidents by company, aggregated into industrial areas, shows a **decrease in accidents in all areas** compared to the previous year's figures (see Chart no. 38).
Most of the accidents are confirmed in the two operating companies in the Water and Energy Distribution area - Acea Ato 2 (34 accidents) and Areti (14 accidents) -, which physiologically have greater exposure to the risk of accidents because of the type of activity performed.
During the year, consultation meetings were held regularly with the **Workers' Safety Representatives** (RLS), guaranteeing the involvement of the workers, as provided by Art. 35 of Italian Legislative Decree no. 81/08.

In addition to **training operating personnel** in risk prevention and reduction, **Acea pays particular attention to raising awareness of occupational health and safety issues among employees**.
In 2018 Acea SpA **implemented preventative initiatives** to safeguard health and safety at work, including: a **review of all Acea SpA safety procedures and emergency plans**, the installation of **semi-automatic defibrillators** (see dedicated box), the **campaign to raise awareness against smoking** in collaboration with LILT called "LET'S NOT SMOKE AWAY OUR HEALTH", during which the **Group Regulations on the prohibition against smoking** were presented and a dedicated page was activated on the company intranet (see also sub-section *Internal communications*) and the **"Acea for prevention"** project dedicated to screening and check-ups for employees (see dedicated box).

THE "ACEA HEART-HEALTHY COMPANY" PROJECT

"Acea Heart-Healthy Company" is an initiative of the Acea SpA. Occupational Safety Unit in partnership with Cardiosafe that aims to **combat sudden cardiac arrest**, protecting the health of company workers and guests.

The project involved the **installation of 10 semi-automatic defibrillators** (AEDs) in the headquarters and other company locations and the **training of 30 employees on basic cardiorespiratory support and defibrillation**, with emergency actions to prevent, recognise and promptly treat cardiac arrest (Basic Life Support and Defibrillation - BLSD).
After passing the test at the end of the course, 30 employees were issued a **card authorising the use of the defibrillator outside the hospital**.

THE "ACEA FOR PREVENTION" PROJECT

The **"Acea for Prevention"** project, carried out by the CRA with the support of Acea SpA's Occupational Safety Unit, introduced some **preventive medicine services**, in addition to the services already included in the company's health policy.
In particular, **employees and their dependants have the opportunity to carry out free annual general health check-ups**, with related diagnostic and therapeutic counselling.

The initiative is managed by the company Health Point and carried out at the main corporate offices.

All the companies arrange to provide the **general and specific training of the workers**, and the supervisory staff, **regarding occupational health and safety** in compliance with the legislation in force (see also below the paragraph *Staff training and development*). Below are some of the numerous activities undertaken by Group companies during the year:

- in collaboration with the Head of the Prevention and Protection Service, **Acea Elabori** conducted **an internal survey** aimed at analysing the expertise of the staff and to verify their knowledge of specific issues (safety, certification systems, etc.) necessary for work, and offered training on chemical cancer risks for the technicians of the laboratory and on road signs for members of the Safety Team who perform safety inspections at construction sites;
- in **Acea Produzione** safety training mainly concerned fire prevention, first aid, working above ground, confined spaces and correct driving of company vehicles. In addition, **Acea Produzione**, which for some years now has **achieved its objective of "zero accidents"**, adopted **notice boards at all its production sites** that illustrate the **main safety regulations**;
- in **Acea Energia and in Acea8cento**, the courses organised in compliance with regulations concerned the training of fire prevention personnel, the periodic updating on the

safety of administrative personnel, the training of supervisors and the updating of the Head and Person in charge of the Prevention and Protection Service. **An email address dedicated to the collection of reports on safety in the workplace was also made available to employees** for the purpose of **preventing risks** and to **correctly manage near misses**;

- in **Areti** the **Training Camp** continues to be operational, a **space dedicated** to **information and training** on health and safety at work (safe ascent/descent on medium and low voltage power line poles; safe access to confined underground areas; the use of work/safety tools, training for emergencies in a dangerous environments, etc.). The Training Camp is also the place where **new hires** acquire the basics of safety and where tests are carried out prior to hiring. The space is made available to the operating staff of Areti and the other companies of the Group, and, upon request, to external companies/entities. In 2018 **130 training sessions** were held, equal to **7,000 hours of training**. Areti also carried out the **Pleasant Safety project**, dedicated to updating the new employers introduced to the company following the reorganisation, providing **basic training on the safety** of operating personnel, involving **618 people**;
- **Acea Ato 5** offered courses for **first aid** and **emergency management**, on operating and management procedures and for the correct **driving of company vehicles**, with the monitoring of **risks due to exposure to vibration and noise**. The company obtained certification in accordance with the new ISO 45001:2018;
- **Gesesa** developed the basic training course on health and safety, training for the first aid employees and the fire prevention employees;
- **Acea Ambiente** participated in the **European Week of Safety at Work** for the promotion of culture on the subject, with a focus on the presence of hazardous substances in the workplace, and organised **training initiatives** on the topic of **near misses**;
- **Aquaser** launched a **calendar of training sessions for drivers** with the aim of raising their compliance with company procedures and safety standards, as well as the correct management of emergency and danger situations. Also in the field of **road safety**, the company earned **UNI ISO 39001:2012 - Road Traffic Safety Management System** certification to help **reduce the number of deaths and serious injuries resulting from road collisions** by controlling and managing the variables that are under its influence.

TABLE NO. 40 - SOCIAL INDICATORS: HEALTH AND SAFETY (2016-2018)

INJURY DISTRIBUTION BY INDUSTRIAL AREA AND GEOGRAPHICAL AREA			
number	**2016 (*)**	**2017**	**2018**
Water segment (Lazio and Campania)	54	54	44
Energy infrastructure segment (Lazio)	44	23	15
Commercial and trading segment (Lazio)	3	2	0
Environment segment (Lazio, Umbria and Tuscany)	6	5	5
Corporate segment (Lazio)	3	3	1
total	**110**	**87**	**65**
Total days of absence	4,524	3,463	2,453
Frequency index (FI) (number of accidents per 1,000,000/working hours)	**13.88**	**10.87**	**8.02**
Severity index (SI) (days of absence per 1,000/working hours)	**0.57**	**0.43**	**0.30**

(*) The 2018 and 2017 perimeters are equivalent, and to ensure comparability over the three-year period the 2016 figures had already been reclassified in line with the 2017 reorganisation of the business areas. It should be noted that the 2016 scope included the companies Acea Gori Servizi, Umbria Energy and Crea Gestioni, which were not included in subsequent years (see *Methodological Note*), and the number of accidents attributable to those three companies during the year was zero.

NB The Water segment includes 4 companies, the Energy infrastructure segment 3, the Commercial and Trading segment 2, the Environment segment 2 and the Corporate segment 1. The data in the table does not include accidents currently being assessed.

HEALTH MONITORING

Health monitoring is assigned to an **internal structure** that operates in compliance with current legislation (Art. 41 of Italian Legislative Decree No. 81/08) and **in cooperation with external professional experts**.

In 2018, a **specific procedure** was defined that defines the methods used for **adequate planning and management of health monitoring**.

Staff health is monitored with the support of formally appointed competent doctors, who submit employees to the following types of check-ups:

- pre-hire;
- preventive or in case of a change of duty;
- periodic, based on the risk assessment plan;
- at the request of the worker;
- in the event of termination of employment, where stipulated by current legislation;
- before resuming work, following an absence due to ill health lasting more than sixty consecutive days.

Workers exposed to specific risks are included in a **targeted medical check-up programme.**

Company physicians work with employers and **officers from the Risk Protection and Prevention Service, assessing the risks** to which employees are exposed, which is **necessary for the preparation of the health monitoring plan**.

During the year, a total of **2,457 check-ups** were completed, the related costs of which amounted to **€ 258,000**.
The presence at the head office of a **First Aid Medical Area** also ensures that staff and visitors have a first line of intervention, in case of an illness for which a hospital visit is not necessary.

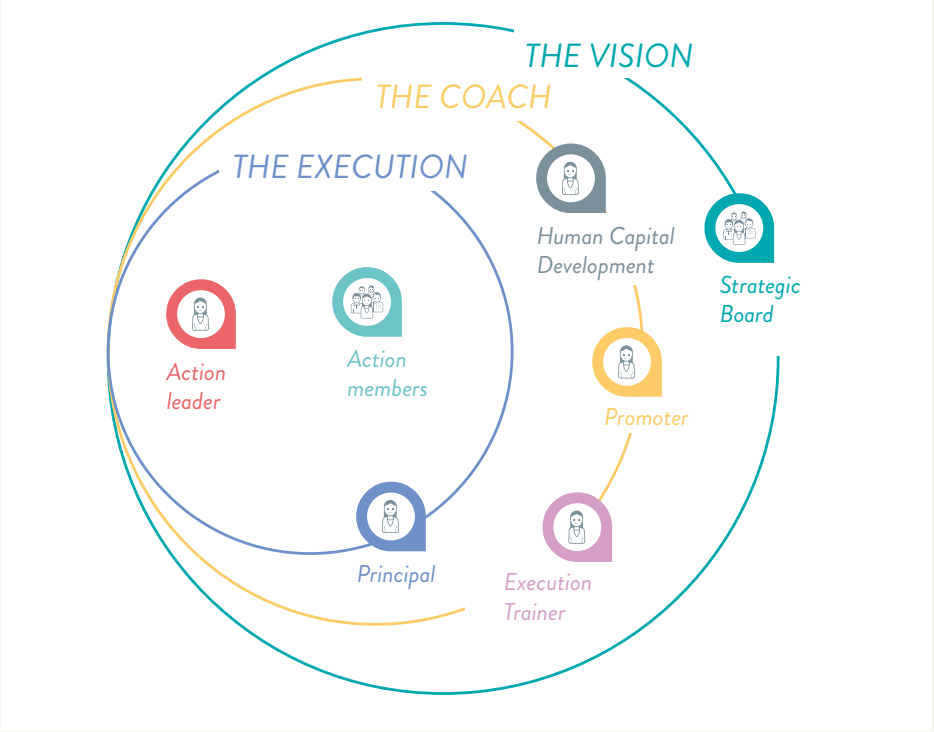
Health monitoring includes the **prevention of occupational diseases** that workers may contract during the performance of their duties, due to **prolonged exposure to the risk factors** existing in the work environment.
In the context of the work performed by the companies of the Group, for which Acea provides the health monitoring service, there are **no risk profiles likely to cause occupational diseases**. The competent doctor has the task of cooperating with the employer in order to define preventive measures and health protocols for the risk profiles associated with specific duties, monitoring any damage to workers' health, issuing suitability assessments, and applying limitations and prescriptions, where necessary, in order to prevent possible occupational diseases.
In 2018, in Acea, **there were no reports of suspected occupational diseases**.

HUMAN CAPITAL DEVELOPMENT AND COMMUNICATIONS

Acea places people at the centre of the Group's **growth and development processes**, carrying out numerous actions to recruit and develop its employees.
In particular, the **Human Capital Development Function** manages the **people engagement** process, organising employee engagement initiatives with the aim of making the **Leadership Model** operational, guaranteeing the **growth of people** and **generating value** for the company and its employees.
The **Leadership Model** represents an expression of the Group's culture and values – **initiative, teamwork and action** – and identifies the measurable and observable conduct of people relevant for the achievement of strategic objectives and assessed by the bonus and remuneration systems.
For this reason the **Execution Model** has been implemented: an **organisational model for the continuous improvement of operational and management processes** focused on the sharing of knowledge and on the **active and responsible participation** of individuals in the achievement of company objectives (see the dedicated box).

THE EXECUTION MODEL

The **Execution Model** is an **organisational model** that provides for the creation of **action teams** formed by Group employees committed to **optimising business processes and solving common problems**. The action teams develop **concrete solutions** thanks to the application of a shared methodology of project management, with the involvement of key figures: the **strategic board** (which guarantees consistency between actions and the strategic plan), **the principal** (responsible for the results of the action team and its implementation), **the team leader** (to oversee the implementation of projects) and **the promoter** (with the task of creating the right mix of skills for the creation of the team and to monitor progress and the climate).
In 2018, **11 intra-group execution teams** were launched, which developed important improvement actions with an impact on business, business processes and customer satisfaction.
The projects were constantly **monitored** according to the initial business plan.
To make the model known, launch the actions and tell the story of the teams' work, **presentation meetings** were organised and a **dedicated page** was created on Jamp, the company's social network.



The **main engagement initiatives** carried out during the year included:

- ***"Sustainability innovators, the challenge"***, an initiative aimed at **collecting innovative and sustainable ideas from Group employees** with reference to company businesses (see the dedicated box in the chapter *Environmental sustainability and the main challenges in Relations with the environment*);
- ***"Know the Acea Energia business"***, a project aimed at promoting the involvement of Acea Energia employees in the promotion of commercial offers for the free market (electricity and gas) and in the activation of new contracts using gamification;
- ***"Discover that Innovator in you"***, an ***open call*** aimed at involving employees in **innovation** issues, which was attended by over 300 people from the Group, 40 of whom took part in the workshop dedicated to innovation and future challenges;
- ***"Feedback Week"***, during which more than 2,700 items of feedback from employees to managers were collected, prompted by the sending of some feedback cards to all employees, i.e. **feedback intended as a tool for developing interpersonal skills**;
- ***Acea4Young***, a **social project** involving the Barbiana school in the Tiburtino district of Rome, where **some employees have voluntarily given support to young people** in difficult conditions who attend the school.

STAFF TRAINING AND DEVELOPMENT

113,985 TOTAL **hours** OF TRAINING PROVIDED (IN TRADITIONAL EXPERIMENTAL AND E-LEARNING FORM)

THE **Managerial Academy**, AN INNOVATIVE TRAINING PROGRAMME: **371 people** INVOLVED

THE **Scuola dei mestieri** (INSTRUCTORS SCHOOL), ENHANCE TECHNICAL AND OPERATIONAL KNOW-HOW: **148 people** INVOLVED

IdeAzione: (IDEACTION): A WORK-STUDY PROGRAMME INVOLVING **289 students**

The Group considers training an important investment because it combines the needs of corporate growth with the professional development of people.
The Human Capital Development Function of the Holding Company defines the guidelines and tools for the identification of training needs and for the consequent training itself offered within the Group's companies. In 2018, a new **training procedure** was defined that introduced a number of important innovations: an indication – already at the stage of identifying training needs – of the **expectations and expected results related to training needs**; the identification of **objective assessment parameters** and **criteria for measuring the effectiveness of the training**; follow-up to the courses provided and the obligation to provide training on **compliance**.
Acea draws up an **annual corporate training plan** that includes the training courses of the Parent Company and the operating companies. The Plan is defined after the analysis of **training needs** – carried out mainly in computerised form on the Pianetacea platform – and also through discussion with the Functions that oversee issues having a cross-cutting impact on the Group (like procurement, sustainability, compliance, etc.).
The following are also **managed at a central level: managerial** training relating to the development of management skills and techniques, on organisational behaviour and leadership; training on **regulations and governance**, relating to in-depth legislative studies and company instructions relating to the various business areas of the Group and training of a **technical and operational** nature aimed at the acquisition of skills related to organisational duties.
Each operating company, on the other hand, independently manages **technical and operational training** aimed at acquiring specific skills for the business of reference and takes charge of the training **on safety** in a manner that is consistent with the technical and operational activities and specific regulatory requirements.
The training provided to staff is also **financed through membership to inter-professional organisations** that provide ongoing education. The main companies of the Group have joined the **For.Te Fund** (National Inter-professional Joint Fund for Ongoing Education in the Tertiary Sector), which has financed **five projects** presented by the parent company. Acea Ambiente, Aquaser and Gesesa also belong to FONDIMPRESA, which provides funding for the development of employee skills and the growth of competitive abilities.

In 2018, the main **training projects** were **defined on the basis of the Group's strategic objectives** – industrial growth, community, innovation and quality, operational efficiency – and focused on the development of know-how.
Significant in this regard is the project **The Instructor School** aimed at **leveraging the assets of technical and operational knowledge** starting from the "critical" knowledge that is known only by a few people and therefore at risk of being lost. As part of the training project, **7 training courses** were offered for a total of **41 sessions**, involving **148 employees having critical skills to be transferred and 47 employees to be trained**.
In order to promote a virtuous relationship with local communities, the **IdeAzione (IdeAction) work-study programme** was implemented, involving **289 students** from **13 technical and professional schools** located in the regions the Group operates in. With the guidance and support of **"master craftsmen"** employees, the students were able to carry out innovative projects that were then presented at a meeting

organised at the La Fornace Conference Centre in Acea. The two winning schools – Istituto E. Majorana of Cassino and Istituto B. Pascal of Rome – received a prize of € 3,000 and a plaque for the work done.
The **Managerial Academy** was another particularly important project launched during the year: a managerial training programme that combines innovation and community, carried out **in collaboration with AMA and ATAC Rome**, respectively the environmental services and public transport management companies of Rome, and in **scientific partnership with the Luiss Business School**, which aims to create a centre of **managerial excellence in the field of multi-utilities**, bringing together the intelligence, know-how and experience of the various companies in the area of Rome (see the dedicated box).

THE MANAGERIAL ACADEMY

The Managerial Academy is an **innovative managerial training programme** developed in collaboration with AMA and ATAC Rome and the Luiss Business School, which aims to train leaders capable of responding to the needs of a service company focused on a complex future full of opportunities.
It consists of two courses of study: **Elios**, dedicated to **senior managers** (executives and managers), and **Aurora**, aimed at **young university graduates up to 35 years of age**.
Both programmes are divided into **three areas** that underlie a managerial model that implements Acea's **Leadership model**:

- **Self**, in terms of **enterprise** and **realisation**;
- **Others**, understood as **teamwork, mobilisation of talent** and **development of relationships**;
- **The market,** i.e. a **knowledge of the business of reference** and the **creation of value** for customers and the community through an innovative approach.

The **Elios programme** consisted of **16 sessions** for a total of **72 hours of training** involving **233 people** (executives and managers) **of the Group**. Moreover, 48 people from AMA and 39 people from ATAC Rome participated.
The **Aurora programme**, on the other hand, consisted in **6 sessions**, for a total of **48 hours of training**, involving **138 university graduates** of the Group. 20 new AMA employees also took part.
Both training courses were supplemented by a follow-up to strengthen skills: a self-development plan for participants in the Elios programme and project ideas for participants in the Aurora programme, which were subsequently implemented as part of the Execution Model.

With the aim of making the management of company projects more efficient, an **In-Contact** training programme was organised, aimed at supporting the development of a model of effective skills and behaviour based on the needs of the operating companies (Service Centre, Dispatchers, Team Leaders in commercial areas) and **8 training sessions** on **Project Management** were organised with the involvement of **187 employees** (see the dedicated box).

THE IN-CONTACT PROGRAMME

The **In-Contact programme** is structured in three courses of study (Service Centre project, Dispatchers and commercial area Team Leaders), aimed at increasing and consolidating the behaviour typical of company roles, leveraging people's experience.
The programme included:

- the **co-design** by Unit managers, HR managers and operating personnel of **courses of study** tailored to the real operating needs of the roles, aimed at encouraging the development of effective behaviours;
- **continuous redesign**, with modules updated **according to the evidence that emerged** in the classroom to make the content highly customised and tailored to the needs of participants;
- **individual coaching**, aimed at strengthening operational coordination roles.

The In-Contact Programme took place over **104 days** for a total of 832 training hours and involved **160 people** from Acea Ato 2, Acea Ato 5, Areti, Acea Energia and Acea8cento.

The Group also continued to provide **safe driving** training for personnel because of the widespread use of company vehicles. The course has enabled participants to strengthen their driving skills, thanks to practical exercises carried out with the support of expert trainers.
Finally, in 2018, in collaboration with the Selection and Development Unit, a training course was organised for the HR personnel of Group companies aimed at creating a **team of internal recruiters** and a **pool of internal assessors**.

The Group's **e-learning platform**, called **Pianetacea**, is mainly used to provide all employees with compulsory training courses on: **anti-corruption, privacy, antitrust, Quality, Environment, Safety and Energy management system, etc**.
In particular, in 2018, in consideration of the regulations defined by the regulatory bodies that operate in the businesses of reference, Acea organised a number of training projects on **corporate compliance** (see the box) and on **tender regulations**.
Procurement training involved **177 people** who were trained on the regulations related to the pre-tender and post-tender phases, focusing on issues related to "special sectors", critical issues and major operational impacts, with a focus on the most relevant topics.

ANTITRUST COMPLIANCE PROGRAMME

The Antitrust Compliance Programme envisages **targeted training in antitrust, corporate compliance and Legislative Decree no. 231/01**. In particular, in order to share the main regulatory elements of **competition and consumer protection legislation, 31 training sessions** were organised, attended by **568 employees** affected by **antitrust issues** due to their responsibility or role in the workplace (abuse of a dominant position, anti-competitive agreements, unfair business practices and control of mergers).

At the same time, the **antitrust e-learning module was launched** for use by all company employees, and will continue in 2019. A further module on "Improper Business Practices" is also available on the Group's e-learning platform.

The **course on corporate compliance** involved **Group executives and managers** for a total of **315 participants**, with the aim of highlighting the main types of crimes pursuant to **Legislative Decree no. 231/01** and administrative responsibility and to raise their awareness of the personal and corporate consequences resulting from non-compliance with laws, regulations and standards, as well as the appropriateness of a structured approach to risk management. Training via e-learning also continued for all newly hired staff.

Among the training initiatives undertaken by the companies, it should be noted that **Gesesa** carried out a project to engage personnel called **Pit Stop Operations**, aimed at bringing together the HR, Operations and Planning Managers and the dispatched operating personnel.

Acea Ambiente and Aquaser organised a day of theoretical and practical training on **waste sampling** at the Orvieto plant engineering centre as part of their **technical and specialised training** and participated in the mini master course on **Integrated Health, Safety and Environment Management: the new profession of HSE Manager** organised by Eda Pro and aimed at providing operators with the professional tools to interpret and apply the regulatory system on waste management.

Acea8cento focused its training on the evolution of digital and commercial processes in support of the activities it manages, with the involvement of 70% of the workforce (100 employees).

Acea Energia organised specialised training on the new Archiflow Web software.

Acea Produzione organised training on the use of the new wonderware information system dedicated to the remote control of plants, and Microsoft Project.

In addition to operational training to increase the technical skills of its personnel, **Areti** organised a training project for **Operational Flexibility** with respect to the involvement of operational personnel in emergency plans to ensure the safety of plants and water and electricity networks, which involved **120 people**.

Acea Ato 2 organised meetings between the Operations Director, the QASE system managers and human resources managers and 500 dispatched workers, with the aim of illustrating the responsibilities connected with company processes, listening to the requests of employees and raising their awareness of safety issues. Another important project was called **Being Leaders with ARERA Quality Standards,** addressed to company Area Managers, Team Leaders and Territory Managers, for a total of **90 people**. The project aimed to share the main developments introduced by the Authority and to define the role of the Operating Officers in light of the new technical quality standards.

Acea Ato 5 has taken care, specifically, with training activities on the System for the Integrated Management of Quality, the Environment, Safety and Energy.

Traditional and **experiential training** involved a total of **600 courses** (536 in 2017) for **1,144 editions** (1,203 in 2017) and **involving 3,060 people**, 25% of whom were women.

The **e-learning platform** offered **10 courses** that **3,937 people** completed, 31% of whom were women.

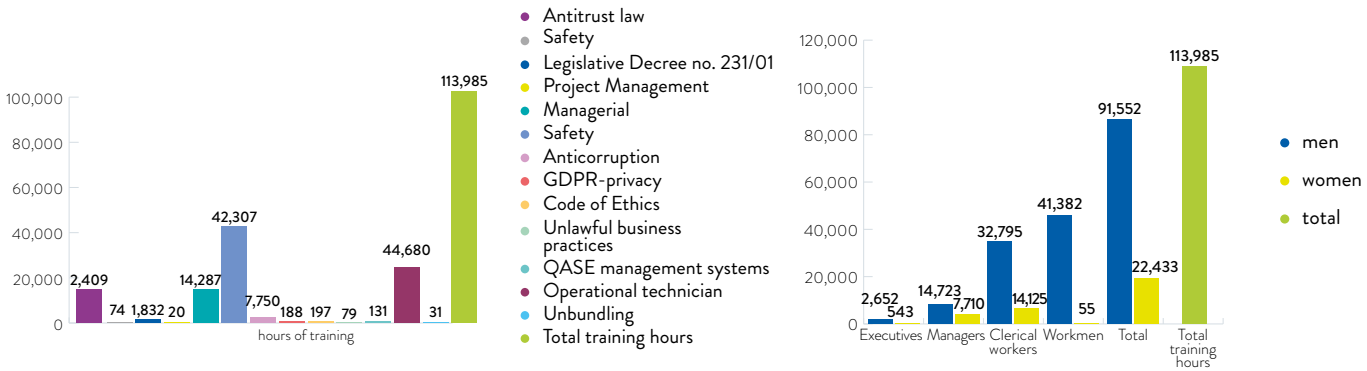
The total training hours provided are **113,985** (in traditional, experience-based and e-learning training formats).

Their contraction, compared to approximately **91,996** hours in 2017 (see Chart no. 39 and Table no. 41).

The total training hours per capita [97] are 24 (19.6 in 2017). When analysing data from a gender perspective, the hours of training per capita provided to male staff amounted to 25.7 and those provided to female staff amounted to 19.4. The breakdown by qualification is as follows: 44.4 hours for managers, 53.9 for executives, 16.1 for employees and 30.8 for other worker.

The **costs incurred** for the provision of the courses, net of scheduling for training and the preparation of the spaces allocated to it, were equal, in 2018, to **€ 1,446,808** (Table no. 41).

CHART NO. 39 – TRAINING HOURS: DISTRIBUTION BY TYPE OF TRAINING AND BY QUALIFICATION (2018)



[97] The indicator was calculated by comparing the number of hours attended (113,985 in 2018) with the total number of employees (4,742 in 2018).

TABLE NO. 41 - SOCIAL INDICATORS: TRAINING (2017-2018)

TRADITIONAL AND EXPERIENCE-BASED TRAINING COURSES AND THEIR COSTS

course type (*)	courses (no.)		editions (no.)		training (hours)		costs (€)	
	2017	2018	2017	2018	2017	2018	2017	2018
managerial	9	6	37	27	14,627	14,287	669,620	515,767
safety	293	203	536	422	40,965	42,307	375,508	264,110
model of governance	3	23	8	61	226	7,750	13,913	23,668
operational technician	231	368	622	634	24,970	44,680	317,154	643,264
total	**536**	**600**	**1,203**	**1,144**	**80,788**	**109,024**	**1,376,195**	**1,446,809**

COURSES AND COSTS OF TRAINING PROVIDED WITH THE PIANETACEA E-LEARNING PLATFORM

course type	courses (no.)		training (hours)		costs (€)	
	2017	2018	2017	2018	2017	2018
GDPR - new European privacy regulation	1	1	857	188	1,037	0
Code of Ethics	1	1	699	197	1,037	360
antitrust law	0	1	0	2,409	0	4,350
unlawful business practices	1	1	2,618	79	16,410	360
project management	1	1	760	20	450	360
administrative liability of entities (Legislative Decree no. 231/01)	1	1	2,296	1,832	1,039	720
safety	2	2	1,884	74	450	720
QASE management systems	1	1	972	131	450	360
unbundling	1	1	1,122	31	1,037	360
total	**9**	**10**	**11,208**	**4,961**	**21,910**	**7,590**

BREAKDOWN OF TRAINING HOURS BY QUALIFICATION AND GENDER

title	2017			2018		
	men	women	**total**	men	women	**total**
executives	767	151	**918**	2,652	543	**3,195**
managers	6,181	2,103	**8,284**	14,723	7,710	**22,433**
clerical workers	39,293	16,826	**56,119**	32,795	14,125	**46,920**
workmen	26,632	43	**26,674**	41,382	55	**41,437**
total	**72,873**	**19,123**	**91,996**	**91,552**	**22,433**	**113,985**

(*) The types of traditional courses have been simplified for presentation purposes and re-aggregated, for the two-year period; it should be borne in mind that the item "technical operational" refers to training courses for the acquisition of technical skills; the item "governance model" includes the courses provided in the regulatory framework and relating to governance.

With regard to the personnel **selection and development** process, in 2018 the Parent Company's dedicated unit carried out initiatives to benefit the company's employer branding, and internally implemented actions to develop human capital skills.

In particular, with regard to the employer branding, the company:

- defined a new **selection procedure** applied throughout the Group, which regulates selection activities carried out in the external labour market;
- implemented the **Success&Factor platform** through **recruiting marketing (RMK)** to centralise and track workflows and streamline selection processes;
- published the first searches for external personnel for the Group's companies in the **Careers/Join Us** section of the institutional website, leaving the brands visible;
- used innovative tools and methods to make preselection and recruiting processes more efficient (e.g. Challenge);
- held the **Recruiting Day** event focused on active participation and teamwork, attended by the HR managers of the group companies (see dedicated box).

Initiatives to develop the skills of internal staff included:

- the creation of **development paths and activities** aimed at developing human capital, with particular reference to talent;
- **internal assessments** aimed at understanding the potential of employees, promoting their growth and supporting them in the process of continuous improvement.

RECRUITING DAY

Recruiting Day (**R-DAY**), the first hiring event of the Acea Group, was organised with the aim of identifying and developing new talent to be recruited through innovative methods, like **online contests, gamification, new tools to test skills and digital mindsets** of candidates, etc. The initiative was **designed and implemented** with internal staff thanks to the **involvement of the Group's HR departments**.

The event was the culmination of a wider **recruiting process – innovative, structured and guided by the values of the Acea Group** – which included the publication of the job posting on the institutional website, the assessment of 1,000 CVs, 180 online pre-selection tests, 180 telephone interviews and the selection of 60 candidates to be involved in the final recruiting event.

During Recruiting Day, the 60 participants were assessed with respect to **group dynamics**, **relational and management skills** (soft skills) and **technical-constructive** skills, and challenged each other in team competitions with the support of an **ACEA Virtual Reality Experience**.
At the end of the tests, 18 candidates were selected for inclusion in the Group.

COLLABORATION WITH UNIVERSITIES AND HIGH SCHOOLS

Acea develops **partnerships and cooperation with universities**, participates in study and research activities, is available for meetings between companies and students and stipulates agreements for the promotion of internships and apprenticeship training.
During 2018 the **main initiatives bringing together the working world and the university** that Acea participated in were:

- **Luiss Career Day, "Young people and work" 21st edition**, an event that allowed recent graduates and students close to graduation to meet companies and learn about job opportunities;
- **Job Meeting 2018**, an initiative organised by the Faculty of Engineering of La Sapienza University in Rome, aimed at graduates and undergraduates of all fields of study to bring them closer to the worlds of work, education and guidance;
- **Almalaurea Career Day "Al Lavoro - Rome"**, an event promoted by the Almalaurea consortium of 75 universities, bringing together the human resources managers of companies and students;
- **Career Day "Campus&Leaders&Talents"**, organised by the Faculty of Engineering of the Tor Vergata University of Rome with the aim of fostering direct contacts between students and companies and creating concrete job opportunities;
- **"CV at Lunch"** is an initiative of the Faculty of Engineering of the University of Rome Tre to guide young people towards the working world and allow companies to meet potential candidates;
- **Job Day Inclusive Mindset**, an event organised in collaboration with the Metropolitan City of Rome for human resources managers of companies to present them candidates with disabilities and belonging to protected categories;
- **UniClamOrienta Placement**, an initiative of the University of Cassino to guide young people towards making appropriate work-related choices and to giving companies an opportunity to identify suitable candidates for internships.

As part of their collaboration with universities and schools, in 2018, Group companies took part in a number of initiatives with different aims (work-study programmes, agreements, etc.).
In particular, **Areti hosted work-study programmes** organised with the Istituto Tecnico Industriale Statale Galilei involving a total of **42 students** of the Electrotechnical course of study: the students spent **35 days** in the company for a total of **3,360 hours**, during which they came into contact with the company's operations **under the guidance of 50 company tutors**, also participating in the daily activities within the company and in the field.
Acea Produzione initiated a work-study programme with Istituto Aldo Moro of Fara Sabina (RI), hosting **one student** from the school supported by two tutors at the hydroelectric power plant of Salisano (RI).

Acea Ato 5 has signed agreements with the **Sole 24 Ore higher education school** and the **Sant'Anna secondary school**, taking part, with its own specialist experts working as teachers, in the **Master's Degree in Energy and the Environment** and in the University Level II **Master's Degree in Environmental Management and Control: Efficient management of resources**, after which there was an internship.
Gesesa signed **three work-study agreements** with the Istituto Tecnico Industriale Bosco Lucarelli of Benevento, the Istituto Tecnico Professionale of Telese Terme and the Liceo Artistico of Benevento and has collaborated with the Faculties of Engineering and Economics and Management of the **University of Sannio**, launching the **specialisation in Management of Integrated Water Services** and welcoming students in the company with internships.
Finally, the companies **in the Environment Segment**, and in particular the waste-to-energy plant in San Vittore del Lazio, partnered with the Elis Consortium to set up a work-study programme with the Istituto Tecnico Industriale of Cassino.
As in past years, once again in 2018 Acea partnered with **SAFE**, centre of excellence for studies and training on issues related to energy and the environment, for the **Master in Energy Resource Management**, now in its 19th edition, with lectures on issues like digital transformation, wastewater treatment and distribution in the water sector. In addition, in light of the high cultural and social value resulting from the collaboration with the centre, **ACEA DAY was organised, a day entirely dedicated to students completing the SAFE course**, showing them the Group's production facilities and organising a visit to the cogeneration plant of Tor di Valle in Rome.
Acea helped fund the **Master in Sustainable Development (MARIS)** organised by the **Tor Vergata University of Rome** by offering 3 scholarships for children of three employees, and offered two scholarships to students of the course of Elis's Digital Engineering which presented the project **Big Data & Machine Learning**, ranked first in the intercompany contest **Elis Innovation Day 2018**. Finally, in collaboration with the **ELIS Consortium**, it launched the **School-Business System project** that involves more than 30 large companies and 100 schools throughout Italy, to inspire, guide and excite young people with respect to the future and contribute to the innovation of the national education system, helping students to discover their talents and orientation to work.

As mentioned above, the company utilises **the professional skills** of its staff in university master's degrees and courses, and under the scope of **technical projects**. In 2018, qualified **company staff** worked as teachers or with company testimonies under the scope of **university master's degrees**, dealing, in particular, with issues related to **energy** the **environment**, **sustainability** and **innovation**.

In 2018, the Group companies hosted a total of **31 internships** and **18 curricular internships**. During the year, **22 young people were hired who had previously participated in internships**.

INCENTIVE SYSTEMS AND STAFF EVALUATION

The Performance Management system represents the operational application of the new Leadership Model implemented in 2018 and was designed with the following objectives in mind:

- **promote individual contributions** and strengthen the behavioural dimension of performance;
- ensure the **continuous improvement of performance** at individual and team levels;
- connect the assessment not only to the result (the measure of the "what"), but also to the **behaviour** (the measure of the "how");
- promote a process of assessment of people's individual performances connected to the achievement of **measurable objectives** and observation of the relative **behaviours**.

In this perspective, **performance** is understood in a global sense, as a set of directly measurable **results**, and **observable behaviours** of the person **with respect to a specific objective**.

The adopted remuneration policy envisages short-term and long-term fixed and variable remuneration measures (MBO, LTIP).

The **long-term (three-year) incentive Plan (LTIP)** is reserved for **CEO and senior managers**, made up of **Managers from the Group with strategic roles and responsibilities**.

The earning of any bonus with a **three-year cycle**, is aimed at ensuring the continuity of company performance, guiding the actions of management towards **medium- and long-term results** and triggering virtuous mechanisms for the creation of value for stakeholders.

For 2018, **the LTIP calculation system** remains calculated as a percentage of the Gross Annual Remuneration (GAR) and is subject to the achievement of objectives of an economic and financial nature (Gross Operating Profit - GOP and Return on Invested Capital - ROIC), identified by the Nomination and Remuneration Committee. Both objectives are linked to the appreciation of shares on the stock market (Total Shareholder Return - a measurement of the performance and appreciation of the value of Acea's shares compared to a basket of comparable companies). At the end of each three-year period of reference, the bonus is paid, if necessary, based on the degree of achievement of the economic and financial and profitability objectives. The long-term incentive reached maturity with the end of the 2016-2018 cycle and the amount of the bonus will be paid with the amounts due in 2019.

The short-term (annual) incentive system, **Management by Objectives (MBO)**, is applied to **senior and middle management** (managers and executives). In order to create a synergistic link between strategy and operational management of the company, the **MBO** system requires the payment of variable remuneration based on the **achievement of individual qualitative and quantitative objectives, related to the specific areas of activity performed, and of the Group**, assigned at the start of the year, as well as the **assessment** of the congruity **of organisational behaviour** with respect to the **leadership model**.

For the actual payment of the bonus, the mechanism connected to the MBO system provides a system of "access gates", consisting of **four Group objectives**, three of an economic and patrimonial nature and one linked to the qualitative aspects of the services provided (Gross Operating Profit, Net Profit, Net Financial Position and QUALITY AWARD).

The system provides for the definition of a **catalogue of Group objectives** with a set of indicators to be assigned to managers to transform strategic lines into actual results.

In 2018, a **training seminar** was held for HR managers and operating personnel to underline the **links between sustainability objectives and objectives in the MBO system catalogue**.

Following this meeting, Acea started a process of **greater integration between the objectives set out in the Acea 2018-2022 Sustainability Plan and the Group's performance management system**.

The **performance bonus** is **awarded annually** to **service staff** working as **managers**, **employees and workers**, including with part-time employment contracts, fixed-term contracts and apprenticeship contracts. A financial amount is allocated to employees as recognition and to **share the good results achieved by the company**.

In 2018 the **criteria for awarding the performance bonus**, as defined by an agreement with the trade union, **promote individual employee contributions** by providing for an **additional percentage** beyond the basic value of the performance bonus, linked both to the achievement of **collective objectives** (increases in productivity, quality, efficiency and innovation) and to the **assessment of conduct** in accordance with the Leadership Model.

There are also some **benefits** for employees, including those with part-time, fixed-term contracts and apprenticeship contracts, such as **additional monthly payments, meal vouchers**, discount on electricity tariffs (for staff hired before 9 July 1996), the subsidies recognised through the Company Recreational Club (CRC) and a **supplementary health insurance policy**. In addition, in 2018 an insurance policy was activated for all employees which, in the event of death, guarantees the beneficiaries the payment of monetary compensation. Finally, the Previndai Fund is available to executives and the sector supplementary pension fund – Pegaso Fund – is offered to employees. Additional benefits are offered to managers, such as the use of a company car and the reimbursement of fuel costs.

INTERNAL COMMUNICATIONS

At Acea, a Unit dedicated to internal communications contributes to the **promotion of the intragroup corporate culture, ensuring the dissemination of information to all personnel** through the various communication channels and supporting **engagement activities with the aim of developing the staff's endorsement of the Group's values and corporate objectives**.

The **Intranet portal**, the **JAMP** intragroup social collaboration platform and **live streaming connections** are the main tools used to convey and disseminate corporate initiatives and projects.

In 2018, the **intranet portal** was **expanded** to include two new **sections**: one called **Smart People**, referring to **smart working**, which provides information on the submission of job applications, timing and guidelines for the use of agile work, and the other dedicated to **Sustainability**, which illustrates the company's commitment to this topic with a focus on an analysis of the material actions and objectives of the 2018-2022 Sustainability Plan. In addition, the **Internal Control and Risk Management System** page was created in the **Rules and values** section to provide information on Group procedures, rules and guidelines, and in the **Management Systems** section the new **Occupational Safety - Acea SpA** page was created, dedicated to the issue of safety in the workplace in Acea, with information on the mission of the Occupational Safety Unit, documents and notices, procedures to be followed in the event of an emergency, training course materials and a video gallery with videos to raise awareness on the subject.

The internal communication initiatives carried out during the year mainly concerned the **dissemination of the pillars** and **strategic objectives defined in the Group's industrial plan** and related

issues: **sustainability, territory, innovation, safety, engagement, welfare and solidarity**.

Some of the major events related to **sustainability** include:

- the launch of an awareness campaign called **SOSteniamoci - Noi per la Sostenibilità** to promote a culture of sustainability among employees;
- the organisation of an internal **conference** on the topic of **Sustainability and Energy Efficiency** organised for the European event **M'ILLUMINO DI MENO**;
- the installation of a **Water Kiosk** and an **Eco-Compactor** at the headquarters for World Environment Day with the aim of reducing the consumption of disposable plastic. Subsequently, other Group companies also installed Water Kiosks at their offices;
- the organisation of the initiative **THE WEEK THAT MAKES A DIFFERENCE**, conceived with the intent to stimulate a proactive involvement of employees in **separate collection of waste** and to encourage a new cultural approach that considers waste as a resource.

The promotion of **solidarity** characterised some internal communications campaigns in support of initiatives, including: the collaboration with the **Telethon Foundation** to raise awareness of rare genetic diseases among employees, which gave rise to ***Telethon Week***, during which the company headquarters hosted the volunteers of the Foundation for fundraising for scientific research, and **Acea Solidarity Mondays**, a series of days dedicated to fundraising by non-profits at the headquarters.

In order to promote the topic of **welfare** in its many forms, specific internal communications campaigns were carried out to support the projects launched by the company:

- the agile **"smart people"** work project aimed at strengthening the relationship of trust between the company and its employees;
- the **MY WELFARE** initiative, aimed at promoting **welfare initiatives carried out by the company for its employees and their families**. The project included a first phase of recognition of the welfare services already offered by the company and by the CRA, the launch of a **survey aimed at all staff** to verify their level of knowledge and use of and satisfaction with the services available, and then the collection of ideas and suggestions for improving them and/or adding new services;
- the anti-smoking campaign **LET'S NOT SMOKE AWAY OUR HEALTH**, designed to raise employees' awareness of compliance with current legislation on the prohibition of smoking in the workplace, which, in addition to the dissemination of new Group Regulations, has provided for the **creation of two external areas reserved for employees who smoke** at headquarters (see also the section on *Protection of health and safety at work*);
- **KOMEN DAY**, dedicated to primary and secondary prevention activities carried out with the contribution of the non-profit association **Susan G. Komen Italia**, thanks to which **employees received more than 150 free health visits**;
- the provision of **free annual check-ups for employees and their families**, to provide guidance on their general state of health and information on healthy lifestyles (see also the section on *Protection of health and safety at work*).

Among the initiatives aimed at stimulating the **engagement of the staff** and the **consolidation of the link with the local community,** internal communications:

- **directly involved employees** as **teachers and ambassadors** (promoters) in **collaborations with schools** in the area where the Group operates (the already mentioned IdeAzione, Barbiana and Scuola dei Mestieri projects; see also *Staff training and development*);
- **organised the annual intragroup sports tournament** (football, swimming, etc.);
- **organised the Christmas event** with traditional delivery of Christmas packages;
- distributed to all employees the publication ***ACEA Novecento*** which tells about Acea's 100+ year history **through the photos** of men and women who have worked and are working in the company.

With regard to **safety**, during the year work sessions were launched to create the communications campaign **"Il Gruppo Acea SiCura di Te"** (The Acea Group Takes Care of You) with the contribution of top management and employees who are engaged on a daily basis in activities to ensure safety in the company.

During the year, particular emphasis was placed on communications about the topic of **innovation**, with the organisation of events aimed at developing the Group's digital culture, including a project to **define the Group's innovation model** and the **Future Challenge** open innovation workshop aimed at identifying new ways of creating value and anticipating tomorrow's challenges.

Remaining on the topic of innovation, in 2018 the design of a **new corporate intranet portal** was started, which will be the main tool for disseminating the Group's strategic choices, mission and policies. To this end, **two design thinking sessions** were organised involving over 50 Group employees.

DIVERSITY AND INCLUSION

SMART PEOPLE PROJECT:
295 people smart working

A **procedure**
FOR THE PROTECTION, INCLUSION, ENHANCEMENT OF THE DIVERSITY AND WELL-BEING OF WORKERS

New measures to support parenthood:
EXTENSION OF PARENTAL LEAVE, PATERNITY LEAVE AND HOUR FLEXIBILITY

In compliance with the provisions of the law[98], Acea hires **personnel belonging to protected categories** (disabled, orphans, etc.), providing them with support services, assistance and technical support tools to facilitate the performance of the tasks entrusted to them. In 2018, **231 employees** (143 men and 88 women) belonged to protected categories.

The Parent Company's **Human Capital Development Department** deals with **inclusion** and the **protection of diversity**, implementing initiatives aimed at enhancing the unique contribution of each employee.
The main initiatives of the year were:

- participation in the ***Marisa Bellisario Foundation***, which focuses on **promoting female talent** in the workplace. Acea sponsored the 30th Edition of the "Women at High Altitude" Award and presented the Golden Apple to a recent graduate;
- participation in the **MAAM (Maternity As A Master)** project: the community focused on promoting parenting skills and increasing "generative leadership";
- the launch of the **smart people** project that introduced smart working at Acea, offering employees the opportunity to work off site for one day a week. Acea also participated in the **first day of Agile Work in Rome** to highlight the cultural change promoted with the introduction of smart working.

During the year, a **Group procedure** was also defined on ***"Protection, inclusion, promotion of diversity and well-being of workers"*** and measures were adopted regarding flexible hours and support for parenting.
These include: the **extension of parental leave** (for a further three months) for mothers or fathers who at the end of the period of leave envisaged by law cannot return to work for family reasons; the **extension of paternity leave**, with the recognition of two days of paid leave in addition to those envisaged by law, to be taken within two months of birth, adoption or foster care; the possibility of using **hourly leave to accompany** children **to nursery school, pre-school or the first day of elementary school** (see also the *Industrial relations* section).

ACEA'S SMART PEOPLE PROJECT

The **smart people** agile work project was launched based on the positive results of the E.L.E.N.A. experimental project implemented in 2017, and provided for the **structural implementation of smart working**.
The project's procedures and guidelines were agreed to through a specific trade union agreement that defined:

- the **scope of activities that can be carried out when smart working**, excluding activities that require one's presence in the company, like those carried out by shift workers, half-shift workers, workers in charge of contact channels, managers with supervisory functions, etc.;
- the **procedures** for smart working one day a week according to a schedule to be agreed to with the person in charge;
- the **maximum number of resources who are smart working, limited to 50% of the workers employed in the Business Unit**;
- the **duration**, on a semi-annual rotating basis, so as to allow the greatest possible participation by all the staff concerned;
- **monitoring of performance**, with predefined KPIs including the increase in productivity and the reduction of absenteeism.

The **smart working programme** was launched in October and received 466 **applications for participation**, of which **295 were accepted**.
The progress of the project, which is still ongoing, is **monitored by means of qualitative and quantitative KPIs** and specific surveys addressed to smart workers and managers. The analysis of the data collected so far shows a **positive perception of agile work**, considered a useful tool for work-life balance that is able to increase the productivity of employees.
The innovative scope of the project has to do with the **deconstruction of constraints connected to the work place and working hours**, defining working methods and **focusing** on the objective.
Smart working also allows the **values of the Leadership Model** to be acted upon, allowing their **expression** independent of a physical setting, **teamwork** even with remote members and **initiative** in identifying new ways of working.

[98] Italian law no. 68/99.

The issues of inclusion and protection of diversity are also monitored at the governance level. In fact, Acea has a *Charter for the management of diversity* and, during the year, the **Committee for Ethics and Sustainability** was given the responsibility of assisting the Board of Directors in matters of **diversity**, with the task of promoting the culture of valuing diversity and combating all forms of discrimination.
Finally, in 2018 on the International Day for the Elimination of Violence Against Women, organised by the UN, **Acea illuminated the façade of the main building of Piazzale Ostiense with red lights**, to publicly testify its solidarity with all women and its stance against any form of violence or abuse.
Acea Energia has also undertaken a number of initiatives aimed at better integrating **customers with disabilities** (see the section on *Customers and the community* in the section on *Customer care*).

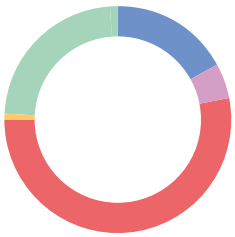
COMMUNITY LIFE IN ACEA

Some structures within the company perform work of a social nature, directly involving employees: the Company Recreational Club (CRC), the Gold Medal Association and the Association of Christian Italian Workers (ACIW).
The number of members enrolled in 2018 in the Company Recreational Club (CRC), including managers, remained unchanged and amounted to **4,620 people**. **The CRC** was responsible for **managing the company's crèche**, open to children of employees and children of residents of Municipality I, and accommodating 35 children in the first semester and 25 in the second semester of 2018.

The Club **offers cultural, sport, tourism, economic, commercial initiatives and personal services**, and its aim is to enhance the free time of its members, without losing sight of aspects of social interest. An important solidarity tool among employees is the **Emergency Fund**: an initiative **in support of the relatives of deceased**, in-service or retired employees. All employees can join by signing a form, which they must send to the Human Resources Management Department or to the CRC, in which they authorise the deduction from the payroll of a small contribution that is allocated to the Fund.
The Company Recreational Club enters into **agreements** for employees and their families with institutions that offer health services, dental services, legal advice, etc. and active commercial agreements, including ticket sales service relating to sports, theatre and music events, which can be viewed on a dedicated portal with constantly updated contents and accessible on the Intranet (www.cra-acea.it). It is also responsible for informing employees, by sending newsletters.

The Association of Christian Italian Workers (ACIW) is very active in Acea and **promotes social initiatives, solidarity and support**. Examples of that support are the presence of the Chaplain from whom employees can seek guidance, and the organisation of meetings for families, also with the intention of creating a **support network** for employees. The association is also involved in **providing services** such as **mortgage and loan advice, school assistance** for children of employees attending lower- and upper-secondary schools, and various other initiatives benefiting employees, such as the organisation of language courses, and cultural and sports activities.

CHART NO. 40 - MEMBERS THAT HAVE USED CRC SERVICES (2018)



- 529 | shareholders who used tourism services
- 101 | children of shareholders who used summer programmes
- 1,452 | shareholders interested in insurance instalments
- 23 | shareholders interested in purchase instalments
- 731 | shareholders who have utilised the so-called "dono della Befana" bonus benefits

SHAREHOLDERS AND FINANCIERS

Acea is a listed company that ensures the financial community, through its **Investor Relations Department** and in partnership with the competent corporate structures, **a continuous, timely and useful flow of information for the correct assessment of the current and future situation of the company and the Group**, also highlighting **Environmental, Social and Governance (ESG) items**. The information is conveyed through current and potential direct relationships with analysts and investors, and through presentations and press releases uploaded on the company's website, always respecting the fundamental principles of **propriety, clarity and equal access**.
Additionally, the **Corporate Affairs and Services** Department is responsible for the management of information flows with the Supervisory Authorities (Consob and Borsa Italiana) and the corporate obligations required by law for listed companies.

ECONOMIC FLOW TO SHAREHOLDERS AND FINANCIERS

Shareholders received **€ 150 million in dividends** as management profit for the year (they received €133.9 million in 2017), which correspond to € 0.71 per share (+13% compared to 2017), with a **payout of 56%** on net income, after allocations to third parties.
In the last trading session of 2018, **Acea stocks** recorded a closing price of **€ 12.01** (capitalisation: € 2,558 million), **down 22%** from the previous year, substantially in line with the performance of the FTSE Italia Mid Cap (-20%). During the year a maximum value of €16.43 was achieved on 23 January, while a minimum value of €11.18 was achieved on 26 October. Average daily volumes were marginally higher than 116,000 (compared with approximately 140,000 in 2017).

TABLE NO. 42 - PERFORMANCE OF STOCK EXCHANGE INDEXES AND ACEA SHARES (2018)

	change % 31.12.18 (compared to 31.12.2017)
Acea	**-22.0%**
FTSE Italia All Share	-16.7%
FTSE Mib	-16.2%
FTSE Italia Mid Cap	-19.6%

€ 100.7 million are destined to **financing stakeholders** (compared to € 89.3 million in 2017). The change is due to contrasting changes: on the one hand, the increase in interest on bonds and default interest and interest on deferred payments, on the other hand the reduction in interest on medium/long-term debt due to the repayment of two EIB loans. The average overall all-in cost of the Acea Group's debt on 31.12.2018 was 2.21%.
Regarding **the composition of debt, on 31.12.2018** approximately 72.5% of the total amount was derived from **transactions on the capital market** (corporate bonds). Regarding the banking sector, Acea mainly targets those entities whose mission is to finance strategic infrastructures, such as the **European Investment Bank** (EIB, 12.4% of the debt) and the **Cassa Depositi e Prestiti** (CDP, 7.3% of the debt). These institutions ensure loans, to entities with creditworthiness such as Acea, with a maturity of more than 10 years, in line with the duration of the concessions (water and electricity) owned by companies of the Group, called to make the relevant investments.

AGENCY RATINGS

TABLE NO. 43 - RATINGS 2018

agency	long-term rating	short-term rating	outlook
Moody's	Baa2		stable
Fitch	BBB+	F2	stable

Moody's has **confirmed its Baa2 rating**. The confirmation of the outlook is mainly due to the following reasons: the business mix primarily focused on regulated activities with limited exposure to price and volume risk; the Strategic Plan focused on regulated activities likely to ensure financial flexibility.
Fitch confirmed Acea's rating. The confirmation reflects Acea's strategic focus on regulated businesses, the positive operating performance and solid prospects thanks to the stability of the regulatory framework in Italy. This assessment also takes into account the growth of investments in the Industrial Plan.

FINANCIAL DISCLOSURE

During 2018 Acea participated in **numerous meetings, extended presentations, utilities conferences, roadshows and reverse roadshows, with over 140 equity investors, buy-side analysts, investors and credit analysts**.
The **roadshows and utilities conferences** organised by Borsa Italiana and the main investment banks were held in the most important European cities: Rome, Milan, London, Paris, Frankfurt

and Geneva. It should be noted, in particular, that the company participated in the Italian Infrastructure Conference organised in Sydney by Mediobanca, visiting the Australian market for the first time. In 2018, **conference calls** were held with the financial community to approve the company's annual and interim results, followed by **more than 100 analysts/investors**.
In addition to direct relationships with analysts and investors, managed on a daily basis, economic and financial communications (price sensitive press releases, company presentations, credit ratings, stock performance, highlights, etc.) are constantly updated in the **Investor Relations area of the company website**.
Approximately 115 studies/reports on Acea shares were published during the year under review.
Eight **business banks** analyse Acea shares with a high level of continuity, four of which, as of 31 December 2018, express "positive" ratings and four of which express "neutral" ratings.

ESG ANALYSTS EVALUATE ACEA

Acea constantly cultivates **relations with from Environmental, Social and Governance (ESG) finance professionals** and, in 2018, found its position in the evaluations of analysts, ratings and benchmarks, as illustrated below.

oekom research

In 2018, **Oekom Research** onfirmed the previous rating by assigning a C+ rating (scale D-/A+).

CDP
DRIVING SUSTAINABLE ECONOMIES

The **Carbon Disclosure Project** (CDP), an international organisation supported by 525 international investors, whose mission it is to ensure attention is being given to the management of the risks and the impact from climate change by major companies around the world, publishes a list each year illustrating the ranking of Italian companies committed to this cause. Acea, which has participated in this assessment for many years, scored **B** in 2018 (A- in 2017) (for details see *Relations with the environment, Climate risks: in-depth analysis and disclosure*).

member of the INVESTMENT REGISTER
ETHIBEL EXCELLENCE

Acea has been included in the *Ethibel Excellence investment register* since January 2015. The analyst states that: "This selection by the Ethibel Forum indicates that the company operates better than the average for its sector in terms of corporate social responsibility".
Acea's presence in the **ECPI** investment universe is also confirmed.

Throughout the year, opportunities for discussion and interaction between Acea and operators of sustainable and responsible finance are increasingly frequent, arising from requests for in-depth analysis for assessments and data modelling. In particular, in 2018, the Group's ESG performance was analysed by **Sustainalytics, VigeoEiris, MSCI, Evalueserve (FTSE Green revenues model)** and **Standard Ethics.**

INSTITUTIONS AND THE COMPANY

ACEA WITH THE INSTITUTIONS: **Water Safety Plan** AND **Emergency Management Plans**

RESEARCH AND INNOVATION: PROJECTS WORTH AROUND **€9.3 million** PER YEAR

THE ECHO PROJECT FOR THE ESTABLISHMENT OF A **European network** OF **cyber security** CENTRES OF EXPERTISE

Work-study PROJECTS AND COLLABORATIONS WITH UNIVERSITIES

EMERGENCY PREPAREDNESS AND RESPONSE: **a procedure** FOR THE PARENT COMPANY'S **health, safety and environmental activities**

Acea manages interactions with institutional actors and stakeholders of reference for the regions it operates in and for the activities it manages according to a participatory logic, with the aim of generating shared value in the interest of all the parties involved, primarily the community and the regions of reference.

RELATIONS WITH INSTITUTIONS

Relationships with the Institutions are focussed on the economic dimension (taxes and fees) and the social dimension (relationships with local institutions, sector authorities, dialogue with consumer associations and other civil representatives, professional

and institutional partnerships, etc.), in line with current legislation and the Group's *Code of Ethics*, updated in 2018.

The economic value distributed to **public authorities** in the form of taxes in 2018 is **€ 124.3 million** (about € 96 million in 2017). The tax rate for the year is equal to 30.4% (it was 33.3% last year).
Acea regularly pays contributions and registration fees owed to public and private bodies, such as chambers of commerce, independent administrative authorities, industry associations and representative bodies. In 2018, the total amount of this item was approximately € 2.87 million (€ 2.57 million in 2017). More specifically, approximately €1.70 million was paid to regulatory authorities (ARERA, AGCM, Consob and other public services authorities), € 80 thousand was incurred as a mandatory charge to the chambers of commerce and about € 1 million was incurred for contributions to confederation bodies and for various membership fees.

Partnering with **public institutions**, also by virtue of the essential nature of the services provided by the Group, is done to carry out **initiatives aimed at generating positive effects in the local region and on the public's quality of life** (see the chapters *Customers and the community*, *Personnel and Relations with the environment*). **Article 17** of the new 2018 edition of the Group's ***Code of Ethics***, which discusses relations with institutions, the public administration and political and trade union bodies, states that: *"Acea cooperates actively and fully with the independent Authorities, establishes relations with the Public Administration by strictly observing the provisions of the law, applicable regulations, provisions contained in the Organisation and Management Model pursuant to Legislative Decree 231/01 and in internal procedures so as not to compromise its reputation and integrity. (...) Acea does not contribute in any way to the financing of political parties or trade unions, movements, committees or organisations, even if they have the legal status of an association or foundation with the same instrumental bodies, or their representatives and candidates. (...) Acea does not make contributions to organisations with which a conflict of interest may arise, like trade unions or environmental or consumer protection associations. Cooperation with such organisations shall be permitted for purposes related to Acea's mission. (...) In any case, Acea's personnel shall refrain from any behaviour aimed at exerting pressure (direct or indirect) on political and trade union representatives or representatives of associations in potential conflict of interest in order to obtain personal or corporate advantages"*.

The management of relationships with institutions is defined by **an organisational model** that assigns **specific skills and tasks** to the various corporate structures:

- the **Institutional Relations Unit**: guarantees the sole representation of the Group's positions in dialogue with sector associations, research centres, standardisation bodies as well as with public and private, local, national and international institutions and bodies in order to protect the Group's interests and remain current with the evolution of the institutional setting, the market and any potential impacts on the Group;
- the **Corporate Affairs and Services Department** ensures assistance for all **legal aspects** relating to Acea SpA's operations and the functioning of the Group, dealing with communications with the securities market **Supervisory Authorities** (Borsa and Consob), managing relations with the **regulatory bodies** in the relevant sectors, representing Acea positions in participatory regulatory training procedures, and ensuring coordination and guidance in the implementation of the Authority's resolutions, in order to minimise exposure to regulatory risk.

The **Group's operating companies**, jointly with the Parent Company, manage the **"technical and specialist" aspects** of the managed services – water and electricity supply, public lighting and the environmental sector – **also through consultation** with the various administrative, regulatory and control bodies.

INTERVENTIONS BY SECTOR AUTHORITIES AGAINST ACEA: INVESTIGATIONS, BONUSES AND PENALTIES

The Regulatory Authority for Energy Networks and the Environment has established a mechanism of **awards and penalties** for companies that manage the services regulated by said authority. In 2018, with reference to the management of the previous year, **Areti** was made to pay a penalty of approximately € 1.48 million relating to the regulation of the continuity of the electricity service for low-voltage users. Again with reference to the continuity of service in 2017, Areti has paid, as compensation to users and as penalties paid to the Energy and Environmental Services Fund (EESF), approximately € 1.47 million with reference to prolonged and extended interruptions and approximately € 122 thousand for exceeding the pre-set standards for medium-voltage users. In 2018 the water companies **Acea Ato 5 and Gesesa** accrued automatic indemnities with respect to customers of € 330 thousand (estimated) and € 60 thousand, respectively. With regard to **Acea Ato 2**, the automatic indemnities of a contractual quality accrued during the year with respect to customers amounted to approximately € 740 thousand, most of which related to billing indicators. In January 2018, the Contract Quality data for 2018 were communicated to the Operational Technical Secretariat (STO) of the Management Body of the Area of reference for verification, and any bonuses will be ascertained upon receipt of the outcome. In 2018, as a bonus **for achieving improved standards of service rendered** in 2016, the Operational Technical Secretariat also awarded Acea Ato 2 about € 23 million.
It should be noted that in June 2018 the **antitrust authority** initiated proceedings against **Acea Ato 5** in order to ascertain the possible violation of articles 20, 24 and 25 of Legislative Decree no. 206/2005 (Consumer Code) in relation to alleged improper and aggressive behaviour towards consumers and small businesses. As at 31.12.2018 the proceedings were still ongoing. The preliminary question referred by the Regional Administrative Court of Lazio and raised by Acea Energia against a 2015 provision of the Italian antitrust authority concerning unsolicited contracts is still pending before the EU Court of Justice. The appeals filed before the Lazio Regional Administrative Court by Acea Ato 2 and Acea Energia against the antitrust authority's measures issued in 2016 for alleged unfair commercial practices and violations of the Consumer Code are also pending.
As for the litigation procedures of an **environmental** nature with public enforcement authorities (Arpa, Forestry, etc.), see *Relations with the environment and the Environmental Accounts*.

OPERATIONAL RISK MANAGEMENT FOR THE PROTECTION OF COMMON ASSETS

Acea, in synergy with specialist public institutions and with research bodies, deals with **initiatives and projects of an environmental, social and safety nature and with protection of common heritage**.
In 2018, with regard to the works for the **implementation of the Water Safety Plans** aimed at preventing and mitigating water risks, Acea set up a **multidisciplinary working group** composed of internal staff and representatives of bodies and institutions (Roma Capitale, Lazio Region, Arpa Lazio, Asl RM2, Metropolitan City, Conference of Mayors Technical Secretariat, Higher Institute of Health, Ministry of Health, District Basin Authority of the Central Apennines, etc.), which produced an accurate **risk analysis** of the main nodes and interconnections of the water scheme concerned (intake for the Tiber River, Grottarossa water treatment plant, Monte Mario water tank, interconnections) (see also *Relations with the environment* and the chapter *Corporate governance and management systems*; sub-paragraph *Integrated risk analysis*).
During the year, the company partnered with institutional bodies to carry out various **projects of public utility**, including: in the area of **circular economy**, the **reuse of poor quality water** through the creation of prototypes and technologies borrowed from the aerospace sector, which, in the event of a "water crisis", can ensure water for urban or rural use at reduced cost and time; the **efficiency of water systems** with the aim of developing a model for the active control of the water network following a smart grid logic; the improvement of water infrastructure resilience and protection in the event of **climate changes**.
In 2018 the foundations were laid for the construction of the **new upper section of the Peschiera Aqueduct**, an infrastructure of extraordinary importance for the security of the water supply in Rome and vicinity (see the dedicated box in the chapter *Customers, Quality delivered*).

With regard to safety, Acea participates in high-profile institutional **working groups**, particularly in the field of **prevention** and **management of critical events**, and in the event of an **emergency** it provides support to the **authorities responsible for public health, civil protection and public safety**.
The most important issues for national security include **cyber threats to the information networks of services of general interest**, potentially capable of causing a malfunction or interrupting the provision of essential services such as energy and water. In this regard, the company participates on a permanent basis in the work of the **Computer Emergency Response Team (CERT)**, coordinated at a national level by the Ministry of Economic Development (MISE).
In 2018, Acea also took part in the European programme **Horizon 2020** on cyber security with **the ECHO project** (European network of Cybersecurity centres and competence Hub for innovation and Operations), for the **establishment of a European network of expert centres on cyber security**.

Group companies are committed to ensuring the **highest levels of safety and continuity in the provision of managed services**, in collaboration with public institutions.
To this end, they have set up organisations, procedures and tools that, in the event of critical events (unavailability of central systems, breakdowns, adverse weather conditions, peak demand and network stress, etc.), **allow the normal operating conditions of networks, plants and systems to be restored in a timely manner** (see also the chapter on *Customers, Quality delivered* and, later on, *Protection of assets and management of internal risks* in the section on *The company as a stakeholder*).
Each operating company has **plans for managing emergencies and intervention procedures** and, through the **control centres, constantly monitors the status of networks and equipment** – water and sewage, electricity and public lighting – in partnership with the **Municipal and National Civil Protection and Roma Capitale**.
Whenever an event affects the managed services (damage to plants and/or networks, water/energy crisis, etc.), the companies of the Group notify the competent bodies in order to facilitate the coordination of interventions.

In 2018 Acea SpA defined the **procedure** called **Emergency Preparedness and Response** that applies to all activities carried out by the Parent Company **with respect to health, safety and the environment**. The procedure illustrates the emergencies (health and environmental) with an impact on the population, **defines the risk level** (low, medium and high), depending on which it provides for the organisation of teams for emergencies (see the chapter *Corporate governance and management systems*, paragraph *Management systems*).
The **Areti emergency management plan**, the company that handles the **distribution of electricity**, is designed to deal with widespread breakdowns and unavailability of the grid. It defines the different **states of activation** (ordinary, alert, alarm and emergency), according to the operational and environmental conditions, the **procedures** for activation (and subsequent return) to the same states, the **units involved** and the respective roles, and the **resource materials** necessary for maintaining or restoring equipment. It also provides for the appointment of a **Head of Emergency Management** and an employee dedicated to the **management of safety**, in the cases established. The **detailed Operational Plans** indicate, in a timely manner, the methods for managing certain types of disruption (such as flooding, fires, disruptions to the remote-control network, inefficiencies in the power systems of important entities, etc.) and report, in relation to the case in question, the **management procedures, materials, equipment and resources to be involved**. The operational documents include the procedures, for example, for the **re-ignition of the electricity system in the event of a blackout** of the National Transmission Grid (NTG) or to **re-establishing power for strategic users** (such as Parliament, the Government, the State of Vatican City, etc.). The master plan and detailed operational plans are **updated on a yearly basis** and periodically improved on the basis of analyses of real cases. The effectiveness of procedures and the functionality of equipment are tested by means of exercise drills.
During the year, a **nowcasting system** was developed to forecast the risk of natural events, which in the event of a warning automatically sends the company an impact report in terms of blacked out stations and customers and the expected time before restoration of power.
Plans for the management of emergencies, active similarly in **water companies** and shared with local institutions (as Governmental Territorial Offices, Local Health Authorities, Area Management Agencies) define abnormal conditions that compromise the **continuity and quality of the integrated water service, classify the emergency levels**, describe the **preventive and remedial measures** for the different types of unforeseen events, such as **damage to the networks, pollution, water crisis and emergencies related to the sewerage and treatment service** and provide for the division of tasks among the different figures involved (technical area and communications).
The **companies of the Group that manage waste treatment plants** ensure the execution of a detailed **routine maintenance plan to reduce plant downtime caused by faults or unexpected events** and minimise unplanned non-routine maintenance work. All the structures of each site are equipped with **Emergency Plans** that take into account the **scenarios identified for endogenous and exogenous emergencies**. These Plans examine aspects related to the **safety of workers**, ensuring their safety through specific behavioural and evacuation procedures, checked on a yearly basis, and aspects related to the **protection of the environment**, identifying the emergency

interventions to be performed in order to limit contamination of environmental media (air, water and soil). Permits by virtue of which the plants are managed also include communication requirements and methods **for non-routine or emergency events to the competent bodies**, in order to guarantee the maximum dissemination of information and, where appropriate, the coordination of the intervention.

SOME PROJECTS FOR THE DEVELOPMENT OF THE LOCAL AREA

The **partnership between Acea and local institutions** also aims to implement **initiatives for the development of the local region**, and is aimed at promoting a culture of sustainability and lifestyles consistent with the responsible use of natural resources (see *Relations with the environment*).
In 2018, in continuity with past years, the programme of installing **Water Kiosks** in the municipalities of Rome and vicinity continued, which made it possible to equip the area with **77 total kiosks** (23 in Rome and 54 in the province), managed by Acea Ato 2 in concert with local administrators (see chapter *Customers*, paragraph *Quality delivered in the water area*).
In collaboration with the Municipality of Rome, Areti continues to be active in the field of **smart grids, advanced grid management systems** and **grid resilience**. In 2018, it participated in the **European Smart Cities and Community programme** with the **SmartMed project**, aimed at disseminating best practices in urban energy efficiency in the city of Rome.
During the year, with regard to **public lighting**, the company created a **prototype** of an **intelligent pole** that, thanks to the installation of sensors, provides advanced services compatible with a smart city logic (see also the chapter *Customers and the community*).

The virtuous relationship with local communities is also expressed through the partnerships between **Group companies and schools in the geographical areas served**. In fact, during the year Acea SpA, Acea Ato 5, Gesesa, Areti, Acea Ambiente and Acea worked with local schools to initiate numerous **work-study programmes** (see the chapter on *Personnel, Valuation of human resources and communication* section).

Moreover, Gesesa again in 2018 carried out the project *"H2SchOOl, the Importance of Water for Life"* in collaboration with UNICEF and under the patronage of the Department of Education of the City of Benevento, aimed at **raising awareness among children and citizens on environmental issues** and orienting them towards a sustainable lifestyle.

In order to proactively monitor the evolution of the sectors of reference and strategic technological areas, Acea develops synergies in the form of collaborations and partnerships with **complementary companies** or **firms operating in sectors similar to the businesses it manages** and with **innovative players**.
The company is active in the field of **smart and safe cities** with **Open Fiber** for the evolution of networks and the development of innovative services for the city of Rome, and with **Huawei** for the definition of **projects of high technological value**. In particular, through a technological agreement with Huawei, in 2018 a **pilot project** was carried out in the Colosseum area, which was equipped with smart cameras to provide **intelligent monitoring of the area, security and protection of the historical and artistic heritage**.

THE COMPARISON WITH THE REFERENCE CONTEXT

Acea participates in **Research Centres, Standard-setting Bodies and Industry Associations**, acting as promoter or contributing to specific study activities in the businesses in which it operates.

THE 2018 MEMBERSHIPS OF RESEARCH CENTRES, STANDARD-SETTING BODIES AND INDUSTRY ASSOCIATIONS

During the course of the year Acea has renewed and activated numerous memberships in organisations of interest, including:

- AGICI - Finanza d'Impresa;
- AICAS Associazione Italiana Consiglieri, Amministratori e Sindaci;
- AIDI Associazione Italiana Illuminazione;
- Andaf;
- ASCAI;
- Aspen Institute Italia;
- Assochange;
- Associazione Amici della Luiss Guido Carli;
- Associazione Civita;
- Associazione Geotecnica Italiana;
- Associazione Italiana Internal Auditors;
- Associazione Italiana esperti Infrastrutture Critiche (Italian Critical Infrastructure Experts Association - AIIC);
- Associazione Elettrotecnica ed Elettronica Italiana (Italian Electro-technical and Electronic Association - AEI);
- Associazione Idrotecnica Italiana (Italian Hydro-technical Association - AII);
- Associazione nazionale fornitori di elettronica (National Electronics Suppliers Association - Assodel);
- Assonime;
- CEDEC Bruxelles (European Federation of Local Energy Companies);
- Centro Studi Americani (Centre for American Studies);
- CDP Worldwide;
- CLUB Ambrosetti;
- Comitato Elettrotecnico Italiano (Italian Electro-Technical Committee - CEI);
- Conseil de cooperation econnomique (Economic Cooperation Board);
- CSR Manager Network Italia (Altis);
- Distretto Tecnologico Nazionale sull'Energia S.c.ar.l. (Di.T.NE.);
- E.DSO Bruxelles (European Distribution System Operators' Association for Smart Grids);
- Elettricità Futura ("Future Electricity" formerly Assoelettrica-AssoRinnovabili);
- Energy and Strategy Group - Politecnico di Milano (Polytechnic of Milan) (ES-MIP);
- EURELECTRIC Bruxelles (Union of the Electricity Industry);
- FAI Fondo per l'Ambiente Italiano (Fund for the Italian Environment);
- FERPI;
- FIRE (Federazione Italiana per l'uso Razionale dell'Energia) (Italian Federation for the Rational Use of Energy);
- Fondazione Global Compact Network Italia (Global Compact Network Italy Foundation);
- Fondazione Roma Europa;
- Fondazione Utilitatis (Study and Research Centre for Water, Energy and the Environment);
- Gruppo Galgano;
- IATT (Italian Association for Trenchless Technology);
- I-Com (Istituto per la Competitività - Institute for Competitiveness);
- ISES Italia (International Solar Energy Society - Italian Section);
- Laboratorio dei Servizi Pubblici Locali di REF-Ricerche (Local Public Services Laboratory of REF-Ricerche);
- Servizi Professionali Integrati;
- UNI (Ente Italiano di Normazione);
- Unindustria Lazio;
- UPA Utenti Pubblicità Associati;
- Utilitalia (Federazione delle imprese ambientali, energetiche ed idriche) (Federation of Environmental, Energy and Water Companies);
- World Energy Council (WEC).

Acea **participates in occasions for dialogue** between the business world and the scientific community on the **issues which are topical and of national and international importance** and **offers its own specialist contribution on the occasion of thematic conferences, forums and workshops** on topics linked to managed companies, also presenting publications and works of technical-scientific relevance.
For example, Acea also participated in 2018 at ***Ecomondo***, the most important trade show of the green and circular economy in the Euro-Mediterranean area (see the boxes in the chapter *Customers and the community, Communication, events and solidarity* and in *Relations with the environment, Environment Segment - waste management*).
In 2018 **Ecogena** participated in the drafting of the **report on Energy Efficiency of the Energy Strategy** of Milan Polytechnic and, for the presentation of the study, took part in the round table as a partner.
Acea Elabori participated in **ACCADUEO**, an **international exhibition of technologies dedicated to water**, presenting **two scientific works**: one on the **advanced management of wastewater treatment plants** and the other on **satellite technologies for the identification of areas with hidden water leaks**.

The collaborations between Acea and the academic world, both for the purposes of training and **continuous updating** of their technicians, and for the development of **research and innovation projects** connected to industrial activities, are conducted in the context of **agreements signed between the companies of the Group and the universities in the managed area**.
For example, some of the main partnerships during the year between **Acea Elabori and Acea Ato 2** and **La Sapienza University of Rome**, in particular with the Centre for Research on the Prediction, Prevention and Control of Geological Risks (CERI), concerned the integration and management of the **microaccelerometric network of Peschiera springs** and the **Acea Displacement** project for the study and monitoring of areas with a probability of instability (sinkholes/depressions).
Areti also started scientific collaborations with the academic world, in particular with **La Sapienza University in Rome**, on **diagnostic systems and modelling and control techniques in the field of smart grids**, for the development of a fault classification system on medium voltage (MT) electricity distribution lines and an analytical model for the estimation of the probability of failure.
The companies **Acea Ato 5** and **Acea Ambiente** collaborate on a permanent basis with the **Universities of Cassino and Southern Lazio**, and **Gesesa**, also in 2018, maintained its partnership with the **University of Sannio** (see the chapter on *Personnel*, the section on *Valuation of human resources and communication*).
Finally, with particular regard to the ongoing training of resources with managerial roles, in 2018 a training programme called **Managerial Academy** was launched, in **scientific partnership with the Luiss Business School**, aimed at creating a centre of **managerial excellence in the field of multi-utilities** in the Roman area (see the chapter *Personnel*, paragraph *Training and development of personnel*).

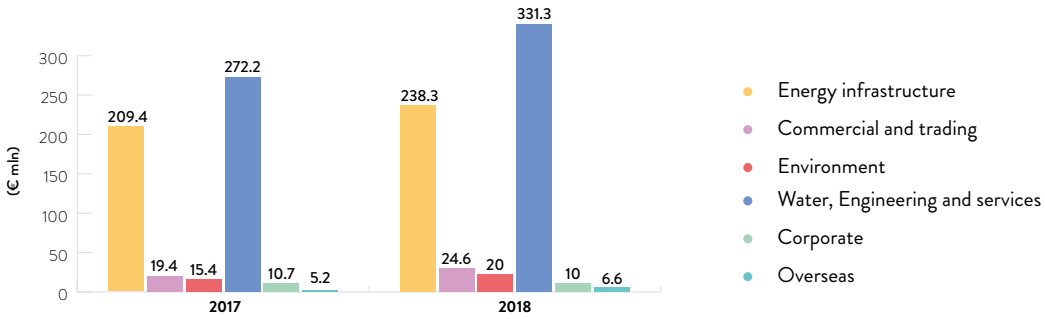
With regard to **sustainability** issues, Acea participates in **networks of experts, working groups, studies and sector research** organised by the academic world, civil society, institutions or business entities.
In particular, the company is active as an associate both within the **CSR Manager Network**, the national association that brings together the main Italian companies active in corporate social responsibility, and within the **Global Compact Network Italy Foundation**, the representative body of the United Nations Global Compact in Italy.
Acea's participation in **Utilitalia**, the federation that brings together the multi-utilities of water, environment, energy and gas, is also expressed through its participation in **technical panels** and **topical working groups, including the one dedicated to Sustainability**.
In particular, in 2018 Areti participated in **working groups** aimed at defining the **technical standards needed to achieve the European objectives of environmental sustainability, decarbonisation, energy efficiency and renewable energy**, also in light of the new European energy directive (Clean Energy Package); Acea Elabori took part in several **technical working groups** on: **water, drinking water and wastewater, biomethane and sludge**.
The company also participates in benchmark analyses on sustainability in Italian utilities, like those carried out by the **Utilitatis** research centre and **Top Utility**.
Finally, the Group companies are also engaged in various ways in master's degrees or public conferences on the subject.

THE COMPANY AS A STAKEHOLDER

THE MANAGEMENT OF COMPANY ASSETS

Acea protects and valorises its tangible and intangible assets, seeking a sustainable financial position and **governing the internal needs**, linked to the operational management and the **growth prospects**, consistently with the aims expressed in the business mission and the strategic plan.
In 2018 **investments** totalled **€ 630.8 million**, up 18.5% (€ 532.3 million in 2017). Analysing their breakdown by business area, note: the **Environment** segment with € 20 million for the expansion of the Monterotondo Marittimo plant, for works on the WtE plants in Terni and San Vittore and for works on the waste treatment and biogas production site in Orvieto; the **Commercial and Trading** segment for € 5.3 million; the **Water** segment for € 329.7 million relating to reclamation and expansion works on water and sewerage pipes in the areas served, extraordinary maintenance of water centres and works on treatment and recovery of water leaks; the **Energy Infrastructure** segment with € 238.3 million for revamping of the Mandela Castel Madama hydroelectric power plant, expansion of the district heating network in the south of Rome and works on the HV/MV/LV networks for expansion and maintenance. Finally, the **Parent Company** with investments for about €10 million.

CHART NO. 41 – DISTRIBUTION OF INVESTMENTS BY MACRO AREAS (2017-2018)



Depreciation, amortisation, provisions and write-downs amounted to **€ 454.7 million** (-5.3% compared to 2017). Specifically, depreciation and amortisation amounted to € 366.8 million (€ 328.9 million in 2017), linked to technological investments made in all business areas. Write-downs of receivables amounted to approximately € 75.1 million, down by 17% compared to 2017, the year in which the exposure to GALA was charged. Provisions, amounting to € 12.7 million, were down 79% on the previous year and were affected by opposite trends: on the one hand, for example, the increase in provisions for regulatory and tax risks, on the other hand, the full release of the provision relating to the water company GORI, which resulted in a reduction in the overall final value.

PROTECTION OF ASSETS AND MANAGEMENT OF INTERNAL RISKS

The protection of the **company's assets**, the **prevention of fraud** and **compliance with current security regulations**, with particular reference to the **protection** of **privacy and sensitive data** (GDPR Regulation 2016/679) are handled by the Risk & Compliance Function, which includes the **Company Protection Unit**.
To this Unit is entrusted the task of **defining and disseminating the guidelines** and polities in terms of **safeguarding and protection of property** and of coordinating the **implementation of plans for the continuity of operation and management of emergencies** prepared by the competent structures and Companies of the Group.
The Unit carries out the measures aimed at ensuring an **adequate level of security on the company's premises**, managing the security and reception facilities and personnel, and controlling the **Security Room (SS)**, the video surveillance, anti-intrusion and alarm systems active within the company.
In 2018, a **procedure** was defined for **accessing premises with a reception service**.
In collaboration with the relevant structures and companies of the Group, the Unit also coordinates the proper performance of the activities required by judicial authorities, the security institutions and the police.

The **central ICT systems are essential for the operational continuity of the services provided**. Acea therefore has a **management plan in place for emergencies that result in the systems being unavailable**. It includes **specific guidelines** that specifies the operations necessary to **minimise the duration of the systems' unavailability**.
The Business furthermore adopts **guidelines** and **procedures** at Group level for **IT security** and for the **protection of the business' information assets** (information and data processed), that define the principles of behaviour, which employees and collaborators must adhere to, the arrangements for use of computer, electronic and digital resources (such as access to the internet, e-mail, PC, etc.) and the controls aimed at combating possible computer crimes.

During the year, a **procedure** was defined for the **management of access to the Acea Group's IT systems** with the aim of unambiguously identifying all internal and external users authorised to access IT systems, guaranteeing access to IT systems and data in line with the tasks assigned, tracing workflows and determining a structured governance of system authorisations.
Also in 2018, following the indications of the Ministry for Economic Development (MISE) and the Information Department for Safety/Security (DIS), Acea has focused **on the extension of protections within the cyberspace domain**, furthermore improving the measures for the protection of networks and SCADA (Supervisory Control And Data Acquisition) devices, already present.

THE COMMITMENT TO RESEARCH AND INNOVATION

Scientific and technological innovation at the service of business processes is one of the **pillars of the Group's strategic planning**, which in 2018 recorded total investments of approximately **€ 9.3 million**.
In order to achieve the challenging innovation objectives, in 2018 the **Open Innovation Unit** was set up within the Innovation, Technology and Solutions Function of Acea SpA. Its task is to **manage the Group's line of innovation** in accordance with industrial and financial strategies and in agreement with the various Departments and Functions of the parent and Group companies.
In order to systematise and coordinate the process, an **Innovation Model** was created that establishes **guidelines and frameworks at a Group level** to coordinate, manage and develop innovation, defining governance (management of the phases and methods of involvement of internal and external actors), processes (standardisation of the phases of engagement of internal and external actors) and tools (offering support in the different phases of the innovation framework).
In accordance with the Group's Innovation Model, in 2018 periodic meetings were organised with the **heads of innovation in each industrial segment to discuss and liaise with them**. A **mapping of existing and planned innovative projects** was produced, followed by a classification thereof according to the business of reference, the technology implemented and the level of innovation.
In addition, in order to enhance the value of the Group's patent and innovation assets, a study of the **intellectual property portfolio was launched**.
In 2018, a **patent was filed** for industrial inventions relating to the **remote reading device for water meters** (equipped with pulse device) with NB-IoT technology.

In addition, during the year innovation initiatives were launched with positive repercussions on **customers, infrastructure and personnel**.

With regard to the customer stakeholder, for example, the projects concerned the accessibility and inclusiveness of **customers with different forms and degrees of disability**; in the area of infrastructure, experiments were done with **blockchain technology in peer-to-peer energy exchange**, and, in the water area, a project for **finding hidden leaks using traditional techniques** (acoustic) and testing of innovative techniques (Noise Logger and Satellite Radar Interferometry). For the benefit of the **personnel**, an experiment was carried out to **improve the safety of operators in the field**, and more generally activities were organised to **involve** employees through workshops and **idea generation** sessions **on innovation topics** in line with the Group Leadership Model (see also the chapter on *Personnel*, section *Human capital development and communications*).

By way of example, the boxes below illustrate some of the main **research and innovation** projects carried out in 2018 in the Group's various Industrial Areas. In any case, remember also what was illustrated above in the paragraph *Relations with institutions*, and in particular in the sub-paragraphs *Some projects for the development of the territory* and *The comparison with the reference context*, see also the chapter *Customers and the community*, paragraph *Quality provided and the section Relations with the environment*.

RESEARCH AND INNOVATION IN THE CORPORATE SEGMENT

During the year, the Innovation, Technology and Solutions Function of Acea SpA, with the involvement of all the Industrial Segments, carried out **10 experiments**:

- **Green Data Centre**, a software for energy savings used by the servers of the Acea data centre;
- **Emotional Marketing**, methods of analysis for the creation of an emotional positioning map of employees;
- two experiments involving **innovative solutions for the Dashboard** analysing the company's performance, with collaboration functions, push notifications and chatbots with artificial intelligence;
- **Apps on smartphones** to increase the **safety of lone operators** by identifying a state of danger and situations of "man down";
- **Blockchain in the new energy market** for the creation of a **blockchain-based system to certify energy exchanges** between producer-storage-consumer and assign penalties or bonuses based on the effects produced on the network in terms of phase shift and voltage (see also the chapter *Customers and the community*);
- Robotic Process Automation (RPA) for the **automation of some of the purchasing processes**;
- **CrowdTesting** solutions, in the context of User Experience for the new Acea Energia website;
- two experiments with **virtual reality** applications.

RESEARCH AND INNOVATION IN THE ENERGY INFRASTRUCTURE SEGMENT

As part of its electricity distribution activities, in 2018 **Areti** developed numerous innovative projects, including:

- **the digitisation of stations and substations**, relevant for the definition of station architecture necessary for the **integration of the various systems** related to the many services needed for operation (e.g. remote control, measurement, sensors), maximising automation;
- **the search for grid leaks**, with the definition of **specific algorithms to measure/estimate grid leaks** at low voltage;
- the **Drone** project, which was definitively launched in 2018, with the development of a **remotely piloted drone system for the periodic inspection of the status of overhead electrical lines managed by the company**;
- the **intelligent helmet** for testing **protective helmets equipped with sensors, cameras and augmented reality views** for interventions in the field by operating personnel;
- **advanced multiservice meters** (Proteus project) for the remote reading of meters through the use of tablets to support the WFM; the project is in the field operation phase and a patent for industrial invention was filed during the year;
- **2G multifunctional smart metering** for the development of a **multiservice concentrator for first generation electronic meters duly re-engineered**, configured for the acquisition of second generation meters and to be integrated with a third unit for 169/868 MHz RF communication.

Also during the year, **Acea Produzione**, the Group company that generates electricity, set up **an innovative control room** at the Tor di Valle thermoelectric power plant equipped with data management and analysis software that guarantees more effective control of the machinery and a better user experience for technicians.

RESEARCH AND INNOVATION IN THE WATER SEGMENT

In collaboration with **Acea Elabori, Acea Ato 2** carried out **technological and digital research and innovation** during the year with the aim of improving operational performance.

With regard to process innovation in the management of **water distribution networks**, cutting edge techniques – **satellite, noise recorder and fibre optics used to search for hidden leaks** (Noise Logger and Satellite Radar Interferometry) – were tested and **4,696 km of network were divided into districts**, with the integration of a mathematical model for the preparation of pressure control valves and the installation of instrumentation for **advanced remote management**.

With regard to **wastewater treatment**, the main projects concerned:

- A study of **innovative sludge reduction technologies** and the experimental implementation of an **ozonolysis system** at the Ostia treatment plant;
- **Optimisation of the anaerobic sludge digestion sectors**, recently activated at some of the major treatment plants, also with respect to the sludge's biomethanisation power (primary, secondary, etc.);

RESEARCH AND INNOVATION IN THE WATER SEGMENT (follow)

- **research into emerging organic micropollutants (EOMs)** to limit their release into the natural environment as they are potentially dangerous (steroids and illicit drugs);
- the development of models to **reduce odours emitted** into the atmosphere by the plants managed.

As for the **protection of water**, with regard to the areas supplying drinking water, **hydrogeological and hydrological models were developed to identify areas requiring protection** (areas requiring absolute protection, respect and safeguarding) within the catchment areas and the recharge areas of the Capore springs water table. **Satellite monitoring of the protection areas** has also continued, aimed at detecting morphological variations (new buildings, earth movements and others) and carrying out the related inspections.

Finally, the **Water Management System** (WMS) project was developed and is currently being implemented: a **powerful, user-friendly web tool** capable of representing, analysing, monitoring and reporting huge amounts of data and information from multiple information systems (GIS-SAP-SCADA).

RESEARCH AND INNOVATION IN THE ENVIRONMENT SEGMENT

In 2018 in the Environment Segment the following research and innovation activities are highlighted:

- the development of a solution aimed at **recovering sodium bicarbonate and calcium chloride dihydrate** (by-products of reaction) from the treatment of the Residual Sodium Product (RSP) resulting from the neutralisation of acid fumes produced by the waste-to-energy plants;
- the implementation of a **thermo-visio-camera technology model** for monitoring and activating **fire-fighting equipment** in the storage areas for the Secondary Solid Fuel (CSS) in the Acea Ambiente waste-to-energy plant located in the municipality of San Vittore del Lazio.

RELATIONS WITH THE ENVIRONMENT

ENVIRONMENTAL SUSTAINABILITY AND THE PRIMARY CHALLENGES

The principal challenges for environmental sustainability, in the context in which Acea operates, are focused on a few issues, including **climate, water resources, technological innovation applied to infrastructure management and the circular economy**.
As far as climate change is concerned, the Group has been taking action for several years to progressively reduce climate-changing emissions. In 2018 it also embarked on a path towards the implementation of a system that reflects the **UNI EN ISO 14064 standard** (on the inventory of greenhouse gases), which will allow **more accurate analysis and knowledge** of emissions generated by plants.
With regard to water, after the extraordinary drought that hit Italy in 2017, in 2018 the interventions aimed at **reducing water losses continued**. In agreement with the institutions of reference, Acea has laid the foundations for the **construction of an infrastructure of particular value**, the design of a second aqueduct – the so-called "doubling of the Peschiera" – which will **secure the water supply and drinking water** for the city of Rome, from the Peschiera and Le Capore springs. On **technological innovation** (see also *Corporate Identity*, *Context Analysis*) particular attention is paid to applications that concern the **management of networks** and their evolution. Acea has been investing in the **circular economy** for some years now, pursuing the triple objective of reducing community waste, increasing the reuse of process waste – for example by transforming waste into a second raw material – and achieving energy recovery.

At an international level, climate change remains one of the most important environmental and social challenges. In particular, the European Commission has implemented the new long-term strategy "for a prosperous, modern and climate-neutral economy by 2050 - A clean planet for all"[99].
According to this Strategy, the **European Union will seek to lead the transition to a clean, zero-emission planet** (see the box). This is thanks to the commitment of all countries to the development of innovative technological and product solutions, carried out by involving all the players in the supply chain, from the public to politics, from finance to universities and research, with the aim of improving the quality of life. The strategy also aims to comply with the climate agreements defined by COP21 in Paris, which aim to keep the temperature increase well below 2° C, even 1.5° C if possible.
In particular, Europe's strategic vision[100] calls for actions in seven different areas: energy efficiency; deployment of renewable energies; clean, safe and connected mobility; industrial competitiveness and circular economy; infrastructure and interconnections; bio-economy and natural carbon sinks; and carbon capture and storage to reduce remaining emissions.
By the end of 2018, Member States were to submit their **national climate and energy plans**[101] to the European Commission, which are essential to ensure that the 2030 targets are met.

99 The European Commission requests that the European Council, the European Parliament, the Committee of the Regions and the Economic and Social Committee analyse the Union's vision for a zero climate impact Europe by 2050, so that ministers from different countries can present a joint draft at the European Council of 9 May 2019 in Sibiu. http://europa.eu/rapid/press-release_IP-18-6543_en.htm.

100 See https://ec.europa.eu/clima/policies/strategies/2050_en.

101 On 8.01.2019 the Ministry of Economic Development sent the European Commission the ***Proposal for an Integrated National Plan for Energy and Climate*** (PNIEC), as provided for in the Regulation of the European Parliament and of the Council 2016/0375 on the Governance of the Energy Union. The Plan is structured in 5 dimensions: decarbonisation, energy efficiency, energy security, internal energy market, research, innovation and competitiveness.

EU ZERO CLIMATE IMPACT STRATEGY BY 2050

On 28 November 2018, the European Commission presented its **long-term climate strategy**, setting the objective of *"a prosperous, modern, competitive and climate-neutral economy by 2050"*, indicating how *"Europe can take the lead in achieving zero climate impact, investing in realistic technological solutions, involving the public and harmonising actions in key areas, like industrial policy, finance or research while ensuring social equity for a just transition"* (source: European Commission Press Release, 28.11.2018).

The presentation of a long-term EU strategy to reduce greenhouse gas emissions was requested by the European Parliament and the Council. It is not a legislative proposal, but a **strategic vision**, proposing not to change the 2030 climate and energy targets but rather to build on them to enable the EU to develop policies that look to 2050.

The EU Commission underlines that its vision for a zero climate impact future covers almost all EU policies and is in line with the Paris Agreement objective of keeping the temperature increase well below 2° C. The idea is that for the EU to maintain a leading role in zero climate impact, this objective must be achieved by 2050.

The EU Commission invited all European institutions, national governments and parliaments, **companies** and other stakeholders **to examine and discuss the long-term climate strategy** so that it can be examined by the Heads of State and Government at the European Council of 9 May 2019.

(Source: L'Astrolabio 6.12.2018).

Following the Paris Climate Agreement, the **24th UN Climate Conference**, COP24 (see also the box), was held **in Katowice**, Poland in **December 2018**, to implement technical aspects of the Paris Agreement. Among others, the Italian Minister of the Environment spoke and reiterated the importance and urgency for the international community of "accelerating the pace of the fight against climate change, which must include the adoption of an effective package of ambitious rules applicable to all, in full agreement with the spirit of Paris".

THE DECEMBER 2018 CLIMATE CONFERENCE IN KATOWICE - COP24

COP24 closed on 15 December 2018 with the adoption of the **"Katowice Climate Package"**, the "rulebook" for implementing the Paris Climate Agreement. *"The multilateral system has produced a solid result"*, said Patricia Espinosa Cantellano, Secretary-General of the United Nations Framework Convention on Climate Change. *"Now there is a roadmap the international community can follow to decisively tackle climate change"*.

The Katowice Climate Package first sets out **how countries will provide information on their national contributions to reduce emissions** – the Nationally Determined Contribution (NDC) – including mitigation and adaptation measures and details of climate financing for developing economies. The package also includes guidelines for setting **new financing targets from 2025 onwards** and for assessing progress in technology development and transfer.

On the contrary, one of the problematic topics at COP24 on climate change was **the way in which countries will increase their emission reduction targets**. The NDCs as defined after Katowice would ensure an increase in world temperatures of as much as 3° C compared to pre-industrial levels. That is 1.5 degrees more than recommended by the latest report of the IPCC (Intergovernmental Panel on Climate Change).

Among the issues referred to the next Conference of the Parties is the use of cooperative approaches and the sustainable development mechanism, contained in Article 6 of the Paris Agreement. This should allow nations to achieve part of their national mitigation goals through the use of **"market mechanisms"**, like the carbon market or the counting of CO_2 credits linked to forests. However, the divergent positions at the Polish Summit prevented these instruments from being defined in the package.

The next UN conference to finalise the last elements of the Paris Regulation and to start work on future emission targets is scheduled for 2019 in Chile (COP25). However, the crucial moment is in 2020, when countries will have to show that they have met the deadline for their current emissions commitments and produce new targets for 2030. Both Italy and the United Kingdom have applied to host COP26 (source: www.rinnovabili.it).

In this context, recognising the centrality of environmental protection and the fight against climate change and in line with the Paris Agreement, on the one hand **Acea included in its strategy** some **adaptation and mitigation actions with respect to climate change** (see the *2018-2022 Sustainability Plan and the operational objectives* in the *Corporate identity*), on the other hand, as already mentioned, in 2018 it began to verify its own carbon dioxide emissions, setting the inventory of these emissions according to UNI EN ISO 14064-1. It is hoped that this effort, which includes precise reporting of GHG (Green House Gases) emissions by Group companies along with monitoring and calculation procedures will make it possible to improve knowledge of its impact in terms of GHG and, consequently, the effectiveness of mitigation efforts.

CLIMATE RISKS: IN-DEPTH ANALYSIS AND DISCLOSURE

Climate risks, classified by the Task Force on Climate-Related Financial Disclosures (TCFD) as physical and transition risks, fall within the scope of the risks assessed by Acea (see also the chapter on *Corporate Governance and Management Systems* for further information) and reported in the CDP international questionnaire. **As every year – and for more than ten years now – the company participated in the international CDP project (formerly Carbon Disclosure Project)**, considered from the outset to be an important driver at an international level on the subject of emission reduction/mitigation actions.

Acea not only continues to **implement a policy to limit greenhouse gas emissions** and participates in the CDP, but in 2018 it organised some internal initiatives to raise awareness on Climate Change and Carbon Disclosure. In particular, three meetings were held in September 2018:

- a session on **"Climate Change: risks and tools"**, conducted with the help of external professionals including a group of 12 people, managers and company representatives, on the topics of Energy/Environment and Risks. Among the aspects discussed: the international and national debate on climate change; the interest shown by investors in companies' abilities to manage the issue; the potential and related impacts, risks and opportunities for a company like Acea;
- a presentation of the **"CDP Questionnaire: activities and areas for improvement"** with the support of specialised consultants, addressed to the Energy Managers (EM) and other company CDP specialists;
- a meeting led by specialists on the subject of "carbon pricing" and the possibility of using this variable among the elements used to assess the feasibility/convenience of a project: **"Carbon Pricing: a strategic tool for enterprises"**. The meeting was attended by the Energy Managers (EM) of the Group Companies and other persons responsible for relevant issues, for a total of 15 people.

As mentioned above, this year's CDP score for the company – a B, "Management" level – is slightly lower than in 2017, although higher than the industry average (C). This slight regression, which also occurred for the majority of the Italian Utilities participating in the initiative, is partly due to the evolution of the assessment method, which is becoming more challenging year after year, with the aim of encouraging companies to continuously improve. In fact, the Organisation is pushing towards the implementation of increasingly effective measures to reduce emissions of climate-changing gases (GHG), first and foremost CO_2, so as to increase the effectiveness of the fight against climate change and its global consequences (see also the website https://www.cdp.net). Acea took the opportunity to **share the CDP results internally** in January 2019[102], with colleagues who worked on the questionnaire.

Acea has been conducting **a survey on emissions along the supply chain** for some years now, with the aim of raising suppliers' awareness of the issue. In 2018 **a questionnaire was administered to a panel of 114 suppliers**[103] of "goods and services" and "works", asking them, among other things, quantitative environmental information: fuels consumed for any ordinary processes and uses, energy consumed in offices, fuels consumed for transport (see the sections on *Energy consumption outside the Group* and *Greenhouse gas emissions* and also the chapter on *Suppliers*).
Over the last ten years, thanks to the commitment already described and to targeted initiatives like the increase in **production from renewable energy sources**, the increase in **efficiency in the final internal use of energy and in process uses**, the Group **has achieved carbon intensity values** (gCO_2/kWh produced) that are **among the lowest in Italy in the Utilities sector** (see Table no. 60 on energy intensity indices).

PROTECTION OF THE LOCAL REGION

Acea pays attention to the **protection of the local region and the safeguarding of biodiversity**. The main activities include, by way of example, the **protection of the areas around the water sources and the modernisation of the electricity distribution networks**, described in the following paragraphs.
Moreover, the protection of biodiversity is contemplated in the procedures of the **Environmental Management Systems**, in the context of the design and construction of plants, as well as in the management of the relevant areas. For example, in the design, construction and maintenance of overhead HV/MV and LV lines by Areti and in the protection of the basins of the hydroelectric power plants by Acea Produzione, particular attention is paid to the habitat of the birdlife and the ecosystem of the fish species living in surface watercourses. Finally, as required by the Authorisations of existing plants and every time an Integrated Environmental Authorisation is renewed for a plant, this is managed by protecting the flora and fauna and protecting the environment and the landscape in which it is situated.
With reference to a **specific indicator on biodiversity**, required by the GRI Standards and aimed at verifying the presence of species listed in the red list (IUCN) and in the national lists of protected species in the areas of operation, **in 2018** Acea **launched a specific analysis**. In particular, a first part of the investigation concerned an assessment of the possible location of the main treatment plants of the Water companies included in the *consolidated non-financial declaration* – for a total of about 50 plants – within the following types of protected areas: Sites of Community Interest (SCIs), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). A second phase will cover the identification of protected species, if present in the areas of activity, and possible interference. The work begun is expected to be completed in the next two years.

Acea has been monitoring a great deal of information about a particular species for years. In fact, the Peregrine Falcon nests in the area of the Acqua Vergine springs. It is a protected species that, despite preferring open and wild areas to live and nest in, can choose to do so even in artificial constructions, like towers and bell towers, in heavily built-up territories. Every year a large community including scholars, ornithologists and simple enthusiasts follows the lives of the Peregrine Falcons who live among the Acqua Vergine springs, thanks to a webcam managed by Ornis italica, an association of researchers promoting the Birdcam.it project, which broadcasts images of a nest situated on Acea infrastructure (www.birdcam.it).

[102] The results of the CDP 2018 scoring were made public on the web on 22 January 2019.

[103] The suppliers to whom the form was sent requesting data concerning the consumption of electricity and CO_2 emissions (in order to quantify the Group's Scope 3 type emissions) were identified, as was already done for 2016, among the most relevant in terms of turnover.

SPRINGS AND PROTECTED AREAS

Through the companies **Acea Ato 2, Acea Ato 5 and Gesesa**, the Group mainly uses springs located in uncontaminated areas for water supply. For example, Rome is one of the few metropolises in the world to be able to boast a water resource of such excellent quality at the origin that it hardly requires pre-treatment for purification.

The supply system of the entire area covered by Ato 2 - central Lazio is composed of **seven large aqueduct systems** that transport water derived from 14 main sources to the distribution networks and from numerous smaller local sources (mainly wells), for a **total flow that exceeds 21,000 litres/second**. The drinking water distribution network extends for **9,486 km**. In addition to this priceless natural heritage, Lake Bracciano is a reserve to be used only in cases of emergency, after treatment. In 2018, Acea Ato 2 **completed the preparation of a water purification plant** for the Tiber that, once having obtained the necessary authorisations, will be ready to be used for emergencies and after purification with an advanced treatment and disinfection process.

The drinking water system of the land of Ato 5 Southern Lazio - **Frosinone** is constituted by installations and networks, of conveyance and distribution, which are in charge of **7 principal sources** from which **likewise water pipeline systems** have their origin, for a total of **5,200 km**; the drinking water system of the province of **Benevento** also boasts a plurality of sources from which originates the water network of about 170 km of pipelines and conveyance and about 1,540 km of network of distribution.

Protection and safeguarding of water resources are also facilitated by compliance with the provisions of Legislative Decree no. 152/2006, which, in Article 94, regulates the methods for protecting areas where there is surface water and groundwater intended for human consumption.

Tables nos. 44, 45 and 46 describe the location and surface areas in square metres of the areas **subject to absolute protection**[104] respectively in the province of Rome, in the province of Frosinone and in that of Benevento.

TABLE NO. 44 - THE PRINCIPAL SOURCES UNDER PROTECTION IN ATO 2 - CENTRAL LAZIO

sensitive area	location	surface (m^2)
Peschiera springs	municipality of Cittaducale (Rieti, Lazio)	375,322
Le Capore springs	municipality of Frasso and Casaprota (Rieti, Lazio)	997,848
Acqua Marcia spring	municipalities of Agosta-Arsoli-Marano Equo (Rome)	1,181,979
Acquoria spring	municipality of Tivoli (Rome)	17,724
Acqua Felice - Pantano spring	municipality of Zagarolo (Rome)	779,143
Pertuso springs	municipality of Trevi - Filettino (Lazio)	133,711
Doganella sources	municipality of Rocca Priora (Rome)	350,000
Acqua Vergine springs	municipality of Rome	500,000
Torre Angela wells	municipality of Rome	70,829
Finocchio wells	municipality of Rome	64,166
Lake of Bracciano	municipality of Rome	169,200

TABLE NO. 45 - THE PRINCIPAL SOURCES UNDER PROTECTION IN ATO 5 - SOUTHERN LAZIO

sensitive area	location	surface (m^2) (*)
Posta Fibreno wells	municipality of Posta Fibreno (Frosinone)	20,000
Tufano wells	municipality of Anagni (Frosinone)	18,000
Capofiume spring	municipality of Collepardo (Frosinone)	10,000
Madonna di Canneto spring	municipality of Settefrati (Frosinone)	10,000
Forma d'Aquino wells	municipality of Castrocielo (Frosinone)	20,000
Carpello wells	municipality of Campoli Appennino (Frosinone)	15,000
Mola dei Frati wells	municipality of Frosinone	5,000

(*) The surface area data is estimated.

TABLE NO. 46 - THE PRINCIPAL SOURCES UNDER PROTECTION IN THE PROVINCE OF BENEVENTO - ATO - CALORE IRPINO

sensitive area	location	surface (m^2)
12 wells	municipalities of Benevento, Telese Terme, Castelpagano, Vitulano, Melizzano, Sant'Agata de' Goti, Cautano and Forchia	9,110
Ciesco spring	Castelpoto	307

[104] The areas of absolute protection are the areas immediately surrounding the catchments or off-springs, as defined in Legislative Decree no. 152/2006.

TABLE NO. 46 - THE PRINCIPAL SOURCES UNDER PROTECTION IN THE PROVINCE OF BENEVENTO - ATO - CALORE IRPINO (follow)

sensitive area	location	surface (m^2)
Faitillo and Orto dei Ciuffi spring	San Giorgio La Molara	2,412
Gradola spring	Tocco Caudio	707
Monticelli spring	Castelpagano	358
Pietrafitta and Ruggiero spring	Torrecuso	2,242
San Vito spring	Frasso Telesino	249
Voneventa spring	Molinara	516

For the monitoring of the territory where the springs are located, Acea has also been using **"satellite observation"** for some time. Surveillance has been concentrated in the places in which there has been noted – on the basis of the comparison between two images taken from space at a distance of several months – an unjustified or in any event suspect morphological variation, such as new, unsurveyed constructions, earth movements, small landfills. The staff of Acea Ato 2 have been invited to the identified site in order to ascertain the existence of real threats to the water resource, allowing a **precise and effective defence action**. Indeed, **246 suspect changes**[105] were found in 2018.
Satellite monitoring has been used mainly for the areas of East Rome and Southeast Rome, within which there are areas of protection for important water resources and related water systems. A new development in 2018 was the **internalisation of the change detection process**, which allowed **areas of interest to be more precisely defined**, making **control faster and more efficient**. The company's objective for 2019 is to extend satellite monitoring to all the plants managed for about 1,600 km of aqueducts and an area of 3,000 km^2.

Overhead infrastructure for the **distribution of electricity** (high and medium voltage) have **potential impacts on birds**. For this reason **Areti takes risk mitigation initiatives** in collaboration with the competent authorities, making use of the best technological solutions to the problems that might be encountered in sensitive areas or areas of particular naturalistic value (see the *Memorandum of Understanding for the rearrangement of the electricity network* in the paragraph *Energy distribution*).

SUSTAINABILITY INNOVATORS. THE CHALLENGE!

"Sustainability Innovators" is an internal company contest launched in 2018 to collect and select innovative ideas (product or process) in the businesses of the Acea Group that involved a large number of employees.
The competing projects had to have innovative content: new solutions to specific problems or products, processes, services, more effective and efficient ways than those already existing and demonstrate how to produce tangible benefits in one or more of the three meanings of **sustainability: economic, social, environmental.**
Participation in the contest was not allowed on an individual basis but rather as a **group**, which encouraged the exchange of ideas and engagement among colleagues from different professional backgrounds. 14 teams consisting of a total of 56 people participated, and in the end 18 projects were presented.
The Assessment Committee, composed of the Managing Director, the Directors of the Business Areas and a member representing the Acea Board of Directors **selected three projects** and rewarded the teams that proposed them during a specially organised event. The **winning projects** concerned innovation **applied to** both **production processes** and customer relations. Each team won € 2,000 offered by the Acea Ethics and Sustainability Committee. The **Social Prize** was also awarded to the **project receiving the most votes on the company's Intranet**.

ENVIRONMENTAL MANAGEMENT

The **Management Systems** integrated and certified according to the UNI EN ISO standards are implemented, or in the process of implementation in the majority by the company (see the chapter *Corporate governance and management systems* in *Corporate Identity*). The parent company itself has **an Integrated Management System with Quality, Environment, Safety and Energy components** that facilitates environmental compliance, and a **Sustainability Policy and QASE System** that guides the Group's approach to respecting and protecting the environment, also in line with the principles set out in the *Code of Ethics*, renewed in 2018.

Each year the commitment of the operational companies to keep the system of management of environmental issues efficient is very high. Nonetheless, situations can occur – usually provoked by contingent circumstances – that generate **non-conformities** that may be questioned by the competent control bodies.
During the year, about **180 environmental disputes** involving the main operating companies were recorded. In 2018 the amount paid for fines resulting from the outcome of this type of dispute was **approximately € 140,000**.
It should be noted that the Aprilia plant – placed under preventive seizure in 2017 by the Public Prosecutor's Office of Latina for aspects related to odorous emissions – despite the validity of the provisions of the Public Prosecutor's Office was able to restart practically full operations in April, Acea having responded to the notices of compliance prescribed by the relevant authorities (Arpa, Lazio Region, NOE).

Environmental complaints from individual users are not systematically monitored, except indirectly. The majority of the Companies of the Group (such as for example Acea Ato 2, Acea

[105] The 246 anomalies were found up to August, as the last batch of images is currently being processed. For the missing period a further 6 points requiring attention can be estimated.

Ato 5, Gesesa and the companies of the Environment Area), indeed, **receive reports principally from the Control Bodies** or other Relevant Bodies, to which individual citizens address themselves. The Bodies, therefore, act autonomously with checks on site and, at times, they initiate proceedings and impose penalties, as mentioned above. Exceptionally, it may happen that the company receives significant reports from individual persons; in this case they will be checked and, where opportune, it will intervene to resolve them.
Furthermore, in the case of Areti, with respect to energy distribution, observations can be made regarding alleged environmental damage in the case of buildings housing electrical plants. However, this concerns **installations indispensable for the correct exercise of the electricity distribution network**, created by Areti following **authorisations granted by Bodies which are custodians of the land** and therefore fully compliant with the legislation of reference, including both town planning and environmental legislation[106]. The Assets Unit, which defends the company's assets, receives the notes of dispute from the owners of the immoveable properties which host the **power lines/transformer substations**, and, subsequently, the **Safety/Security Unit carries out the instrumental checks** in response to the disputes. During 2018 **4 environmental checks were processed and closed with a positive outcome** (concerning electromagnetic fields and transformer substations).

THE MANAGEMENT AND CONTROL OF ACTIVITY WITH ENVIRONMENTAL IMPACTS

The Group monitors the processes which have the **potential capacity to generate environmental impacts** and in particular the activities which necessitate the use, or envisage the presence in installations, of materials which are intrinsically dangerous, such as for example sulphur hexafluoride, radon and dielectric oil.
With regard to the latter, in particular, Areti continued its **experimentation with vegetable oil** in 2018. If fact, **dielectric oil** is a substance used as an insulating and cooling fluid in power transformers, which has advantageous technological characteristics and also some environmental issues related to its chemical nature as a derivative of petroleum. The experiment, started a few years ago, is based on the use of an **insulating liquid of vegetable origin (natural esters)**, which has electrical and physical characteristics similar to oil of a mineral origin, but the significant advantages of a **higher temperature of flammability** and a **total biodegradability and reusability** at the end of life. The ongoing experiments, having the precautionary aim of maximising confidence with this new product by minimising any risks and/or defects connected with its use, concerns **three MV/LV transformers designed and built for this purpose** (two with 400 kVA power and the third with 630 kVA power put into operation in 2015.

ENERGY SEGMENT

REFERENCE BOUNDARY

The *Energy Segment* chapter includes Areti, Acea Produzione and Acea Ambiente's plants. The Ecogena production data are included, as in 2017, in a table in the chapter Energy and water use and are not included in the general data of this chapter. The waste to energy activities are described in the chapter Environment Segment - Waste Management.

968 GWh TOTAL PRODUCED ENERGY:
72% FROM RENEWABLE SOURCES
(**696** GWh)

130 TOE/1,000 SAVED
FROM CONVENTIONAL SOURCE AND **250,000**
TONS OF CO_2

The Group **oversees the entire electricity supply chain** thanks to the operations of companies that, as required by the regulation of the electricity market, are independent of each other.
In particular, Acea is active in the **production** of electricity and heat; in the **distribution** of electricity in the Rome and Formello areas, including the management of public lighting; and in the **sale** of electricity, heat and gas.

Acea is also committed to innovation applied to the management of networks – remote management and smart grid – having to manage, for example, prosumers connected to its energy distribution network, whose flows of electricity generation and consumption are no longer one-way (see also box *"Prosumers" connected to the Acea network* in the chapter *Customers and the community* and the sub-section *Commitment to research and innovation* in *Institutions and the company*).

ENERGY PRODUCTION: FOSSIL AND RENEWABLE ENERGY SOURCES

GROUP PLANTS

Acea produces electricity mainly through **hydroelectric plants; a significant share** is produced by **waste-to-energy** of **pulpers and Secondary Solid Fuel** - CSS, a primary energy source derived from waste and partly **renewable**.
The generation from hydroelectric sources (renewable) and thermoelectric from fossil sources – this latter principally by means of a **high-efficiency cogeneration plant, renovated in 2017** – is entrusted to **Acea Produzione**; the inventory of generators available to the company is comprised by:

106 In this case, the environmental regulatory reference is D.P.C.M. of 8 July 2003.

- **7 hydroelectric power stations** located in the Lazio and Abruzzo regions (**122 MW**);
- **2 thermoelectric power stations** located in the territory of the Municipality of Rome: Montemartini (78.3 MW) and Tor Di Valle (19.0 MW)[107], for **97.3 MW_e total installed power available**.

The company **Acea Ambiente** ensures the generation of energy from waste-to-energy with **two waste-to-energy plants** located in San Vittore del Lazio and Terni.
The total gross electrical power currently available is equal to about **58 MW_e**.
The installed power generation framework is completed by a small **photovoltaic farm** of about **8.5 MW_e** (see Chart no. 43).

ELECTRICITY PRODUCED

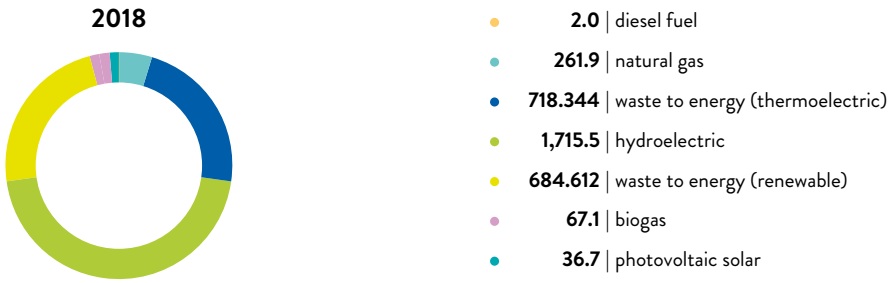
In 2018 total gross electricity production was **about 968 GWh, up** on the previous year (+16% compared to 838 GWh in 2017). The increase in production is due mainly to the full operation of the new CAR module in Tor di Valle and to the hydroelectric contribution (the latter +25%).

The share of electricity generated by **renewable sources**, about **696 GWh**, has proven to be **clearly predominant** and equal to **about 72% of the total**, with the following contributions:

- 477 GWh from hydroelectric power;
- 190 GWh from waste-to-energy;
- 19 GWh from biogas (Orvieto plant);
- 10 GWh from solar panels (see Chart no. 42 and Table no. 49).

With regard to the **share of green energy from waste to energy, about 49%** of the production from this type of plant **is renewable**, being associated to the combustion of the **biodegradable fraction of waste** used as a primary source. In particular, **the renewable share of the fuel** (RDF) entering the **San Vittore del Lazio plant** proves to be equal to **51%** of the total of waste to energy, while **in the Terni plant** this share proves to be around **42%**.

CHART NO. 42 - ELECTRICITY PRODUCED SUBDIVIDED BY PRIMARY ENERGY SOURCE (TJ) (2018)



NB The values reported in the chart are expressed in TJ (1 GWh=3.6TJ).

THERMAL ENERGY PRODUCED

During 2018 Acea Produzione continued the project of **extending the district heating network** of Mezzocammino district in the zone South of Rome was pursued.
After completion of the modernisation project, the Tor di Valle thermoelectric power plant generated about **98 GWh** of **thermal energy**.

The new plant, equipped with two high efficiency internal combustion engines of 9.5 MW each, **earned CAR qualification from the GSE**.
The heat generated was used to serve a basin of about **39,370 inhabitants in the zone South of Rome** (Mostacciano, Torrino, as well as the cited Mezzocammino) by means of a district heating network which sever a volume equal to about 3,590,632 cubic metres.

TABLE NO. 47 - GROSS HEAT PRODUCED BY THE TOR DI VALLE POWER STATION (2016-2018)

gross heat produced (kWh_t)	2016	2017	2018
Tor di Valle thermoelectric power station	90,027,823	96,187,780	98,375,640
CAR module (operational since September 2017)	*n.a.*	*34,917,430*	*98,375,640*
Gas Turbine Group in Cogeneration (January-August 2017)	*13,172,350*	*11,946,893 (*)*	*0*
Auxiliary furnaces (Galleri) (January-August 2017)	*76,855,473*	*49,323,157 (*)*	*0*

(*) The old plant was in production up until August 2017. The data is relative to the period January - August 2017. In 2018 the plant only operated as a CAR plant.

[107] The Tor Di Valle power station, historically constituted by a cogeneration plant (19.3 MW) and a combined cycle plant (126 MW), has taken the combined cycle plant out of action, whilst it has renovated the cogeneration plant. Today Tor di Valle consists of a single High Yield Cogeneration (CAR) plant, which has been in operation progressively since 2017. 2018 is therefore the first year in which it has been operating at full capacity for a full 12 months.

TABLE NO. 48 - THE ELECTRIC POWER STATIONS OF ACEA PRODUZIONE

hydroelectric power stations	thermoelectric power stations
Castel Madama Power Station (Rome) gross power **9.4 MW**	Tor di Valle Power Station: high efficiency cogeneration section (CAR)(*) (Rome) methane fuel - gross power **19.0 MW**
G. Ferraris power plant in Mandela (Rome) gross power **8.5 MW**	Montemartini (Rome) power plant diesel fuel - gross power **78.3 MW**
Salisano (Rieti) power plant gross power **24.6 MW**	
G. Marconi power plant in Orte (Viterbo) gross power **20.0 MW**	
Sant'Angelo (Chieti) power plant gross power **58.4 MW**	
Cecchina (Rome) power plant gross power **0.4 MW**	
Madonna del Rosario (Rome) power plant gross power **0.4 MW**	
GENERAL TOTAL: GROSS CAPACITY 219 MW	

(*) The CAR plant in Tor Di Valle, which has replaced the old cogeneration and combined cycle sections, provides district heating service in the area south of Rome.

The installed capacities, which **overall amount to about 287 MW**[108] are represented in Chart no. 43, distinguished by energy source.

CHART NO. 43 - INSTALLED ELECTRICAL POWER OF THE GROUP SUBDIVIDED BY ENERGY SOURCE (MW) (2018)

(*) Photovoltaic MW under the responsibility of Acea Produzione.

Acea Produzione has continued to **modernise and improve the efficiency of its hydroelectric plants**: after work carried out in previous years at the Guglielmo Marconi, Salisano and Alessandro Volta power plants, in 2018 revamping work continued on the **Galileo Ferraris hydroelectric plant in Mandela**, also in the province of Rome.
The set of works will allow, on the basis of the condition of power installed and authorised in concession, the **use of the available water resource to be optimised**.

The increase in the energy produced by hydroelectric power plants, equal to about 25% compared to 2017, is mainly due to the higher rainfall recorded during the year and to the fact that most hydroelectric power plants have now been revamped and are working better.
As mentioned earlier, the increase in production of thermoelectric power is due to the commissioning of the Tor di Valle power plant. Moreover, its modernisation has optimised the process and has made it possible to reduce consumption and emissions. In fact, while **the thermoelectric energy produced increased by 94%**, consumption of natural gas increased by only 34% and carbon dioxide emissions by 27%.

[108] The total installed power includes the Acea Produzione plants, the waste-to-energy plants and the Orvieto plant (Acea Ambiente) for the production of biogas.

TABLE NO. 49 - ELECTRICITY PRODUCED (BY PRIMARY ENERGY SOURCE) (2016-2018)

primary energy source	2016	2017	2018
	TJ (GWh) (*)		
ELECTRICITY PRODUCED (BY PRIMARY ENERGY SOURCE)			
diesel fuel	4.3 (1.2)	7.7 (2.2)	2.0 (0.6)
natural gas (cogeneration)	32.0 (8.9)	135.2 (37.6)	261.9 (72.8)
waste to energy (for 2018: about 51% of the total)	562.3 (156.2)	682.9 (189.7)	718.4 (199.5)
total thermoelectric	**601.9 (167.2)**	**825.8 (229.4)**	**982.3 (272.9)**
hydroelectric	1,402.8 (389.7)	1,369.7 (380.5)	1,715.5 (476.5)
waste to energy (for 2018: about 49% of the total)	613.8 (170.5)	700.2 (194.5)	684.6 (190.2)
biogas	59.8 (16.6)	78.7 (21.9)	67.1 (18.6)
photovoltaic solar (**)	39.2 (10.9)	41.7 (11.6)	36.7 (10.2)
total renewables	**2,115.7 (587.7)**	**2,190.4 (608.4)**	**2,503.9 (695.5)**
general total	**2,717.6 (754.9)**	**3,016.4 (837.9)**	**3,486.2 (968.4)**

(*) 1 GWh = 3.6 TJ.

(**) Photovoltaic includes the production at the plants of the water area (Acea Ato 2) and at the waste management plant of Orvieto, for a total of 1.5 GWh produced.

ENERGY DISTRIBUTION

THE DISTRIBUTION NETWORKS

DISTRIBUTION NETWORK - IN ROME AND FORMELLO: ABOUT **31,000 km**

APPROXIMATELY **10,600 GWh** ELECTRICAL POWER DEMAND ON OUR GRID

INCREASE IN TERRITORIAL PROTECTION (UNDERGROUND HV GRID/TOTAL HV GRID): **46%**

EFFICIENCY ENHANCEMENT ACTIONS ENABLED REDUCING CO_2 EMISSION BY **1,600** TONNES

Areti manages the **electricity distribution network** at Rome and Formello, extending over **about 31,000 km** and capable of supplying a basin of about 2.8 million resident inhabitants. In terms of volumes of electricity distributed, about 9,800 GWh/year, Acea is the third largest Italian operator in the sector.
In Table no. 50 the principal plant data is described with reference to the primary and secondary substations and to the overhead and underground distribution lines.

The **environmental indicator** correlated to the **protection of the land** and calculated as a percentage share of the **underground high voltage (HV) network in relation to the total of the high voltage lines in use** (overhead and underground) **has improved even more**. In fact, the data monitored by year in 2018 were again equal to **46%** (44% in 2017); also due to the **transformation and modernisation of the high and very high voltage electricity distribution networks**.

TABLE NO. 50 - ENVIRONMENTAL INDICATORS: NUMBER OF OVERHEAD AND UNDERGROUND DISTRIBUTION LINES AND PLANTS (2016-2018)

Areti

systems and output	u. m.	2016	2017	2018
High Voltage/High Voltage - High Voltage/ Medium Voltage primary sub-stations	no.	71	71	70
High Voltage/High Voltage and High Voltage/Medium Voltage transformers	no.	170	169	166
transformation power	MVA	7,924	7,921	7,631
sub-stations in use	no.	13,152	13,159	13,211
Medium Voltage/Medium Voltage - Medium Voltage/Low Voltage transformers	no.	12,831	12,832	12,838
transformation power	MVA	6,183	6,203	6,236

overhead and underground networks				
high voltage network - overhead lines	km	321	310	282
high voltage network - underground lines	km	243	243	243
medium voltage network - overhead lines	km	429	419	424
medium voltage network - underground lines	km	10,180	10,137	10,166
low voltage network - overhead lines	km	1,646	1,641	1,641
low voltage network - underground lines	km	17,917	18,147	18,306

With reference to the **electric and magnetic fields**, in particular relative to the primary transformer substations, High and Medium Voltage overhead electricity lines and secondary transformer cabins, the **possible risks for the health** of employees and the community of reference are dealt with, respectively, in the **Risks Evaluation Document** and in the **Corporate Environmental Analyses Document**. Areti conducts periodic **sample checks in the company's sites**, carried out also following reports by users/customers or External Bodies. Additional checks are conducted by ARPA Lazio[109] following specific requests by the public and customers.

MEMORANDUM OF UNDERSTANDING FOR THE REARRANGEMENT OF THE ELECTRICITY NETWORK

2018 saw the continuation of the **plan to modernise the high voltage electricity distribution network (150 kV)**, defined in the **Memorandum of Understanding** signed in 2010 among Areti SpA (formerly Acea Distribuzione), the Municipality of Rome and Terna SpA, which concerned, in particular:

- the completion of the demolition of the 150 kV Rome North-Cassia overhead line, for a total of 9.8 km and 39 supports, consequent upon the activation of the Flaminia-Cassia high voltage line;
- the completion of construction works for the 150 kV "Rome North-San Basilio" line, relative to the stretch to be adjusted for a length of 5.5 km with green coloured pylons and tubular supports, consistently with the requirements of the Rome Nature Body;
- the commencement of construction works for the 150 kV "Rome North-San Basilio" line, relative to the new section from the Rome North Electrical Station for a length of 4 km with green coloured pylons and tubular supports, consistently with the requirements of the Rome Nature Body;
- the start of the demolition of the 150 kV Flaminia 2 - East Sorting 2 line, for a length of 22.6 km and 74 supports.

Upon completion of the Plan, thanks to the lower energy losses, in addition to improving the service and the related social benefits, **there will also be a significant environmental benefit** thanks to the **significant energy savings expected, amounting to about 58 million kilowatt hours**, equivalent to the annual consumption of about 20,000 households.

The management of the electricity distribution network of Rome and Formello is characterised by the **continuous improvement of the performances**, with particular attention to energy efficiency. Therefore, **initiatives to reduce grid losses** continued also in 2018, ranging from the progressive and ongoing replacement of medium voltage levels from 8.4 kV to 20 kV, to the installation of MV/LV transformers with very low losses (see also the chapter on *Customers*, paragraph *Quality delivered*).

The activities performed for the smart city that continue to improve the performance of the networks thanks to the evolution and integration of management systems and, in general, the applications of technological innovation in the management of the network, are illustrated in the chapters *Customers* and *Institutions and the company*.

Also as a result of the activities mentioned above, **energy losses on the grid** during the year amounted to approximately **7.2% of the total transported**, a slight increase compared to the previous two years.

ENVIRONMENT SEGMENT - WASTE MANAGEMENT

REFERENCE BOUNDARY

The chapter includes the activities of the waste treatment hub, the waste-to-energy plants and the compost production plants, all in Acea Ambiente.

ABOUT **14,300 t** OF HIGH QUALITY COMPOST PRODUCED

ABOUT **10,800 kNm³** OF BIOGAS PRODUCED AND, FROM THIS, **19 GWh** OF ENERGY

389,7 GWh OF ENERGY PRODUCED BY WASTE-TO-ENERGY: **+1.4 %** COMPARED WITH 2017

WASTE-TO-ENERGY: ABOUT **457,150 t** OF WASTE INPUT AND ABOUT **100,300 t** OF WASTE OUTPUT: **22%** (OUTPUT/INPUT)

[109] According to the following legislative references: Legislative Decree no. 81/08; Italian Electro-technical Committee Guide 211-6 first ed. of 01/2001; Prime Ministerial Decree 8/7/2003 "Fixing of the limits of exposure, the values of attention and the quality objectives for the protection of the population from electric and magnetic fields at the network frequency (50Hz) generated by the power lines".

Once again this year Acea contributed to the pursuit of some of the objectives set by the four Directives of the "Circular Economy Package" of the European Union, in force since 04.07.2018. In particular, at Ecomondo Acea Ambiente presented some projects aimed at enhancing the value of the waste produced, transforming it into a "secondary raw material" to be reused in the industrial production cycle (see the boxes).

ACEA AT ECOMONDO

The 22nd edition of **Ecomondo** at the Rimini Trade Show took place from 6 to 9 November 2018. The Group participated again this year, taking the event as an **opportunity to spread the culture of social and environmental respect** and to **present some projects of Acea Ambiente** and the industrial initiatives related thereto.

In the **Acea exhibition space four seminars were held on innovative technologies connected with the recovery of matter and energy from scrap and waste**. In particular, the general outline of an industrial project for an innovative plant for the hydrothermal carbonisation of biological sewage sludge was presented, as well as an idea for the **treatment of fly ash** and, finally, a process aimed at transforming Residual Sodium Products (RSPs), waste with hazardous characteristics, into Secondary Raw Materials (SRMs).
For more information: https://www.gruppo.acea.it/it/gruppo/media-eventi/workshop-a-cea-ecomondo

Acea Ambiente closely follows the issue of **hazardous waste** treatment. Such waste is a by-product that presents the greatest problems for disposal, not only in environmental and social terms, but also in economic terms, given the high cost.
At a national level, in fact, there are few treatment facilities and there is a limited availability of space for the final destination in landfills.

Acea Ambiente is exploring the development of processes for the transformation of waste into second raw materials. For example, sodium bicarbonate and calcium chloride dihydrate can be produced from Residual Sodium Products (R.S.P.) remaining after the waste-to-energy process at the San Vittore del Lazio plant.

WASTE THAT TURNS INTO A SECOND RAW MATERIAL

The project developed by Acea Ambiente allows transforming waste into a second raw material, **reusable within the same production process**.
Thanks to the technology developed and tested experimentally, it will be possible to convert the salts contained in the Residual Sodium Products (R.S.P.) generated from the neutralisation of the acid component of the combustion fumes of the waste-to-energy plant of San Vittore del Lazio (FR), **regenerating sodium bicarbonate and producing pure calcium chloride dihydrate**.
The process involves the following operations:
- Leaching, during which all the sodium salts present in high concentrations in the P.S.R. are dissolved;
- Carbonation of the brine thus obtained to transform the sodium into a bicarbonate compound;
- Production of calcium chloride dihydrate in granules **for industrial uses**.

The residual fraction of hazardous waste resulting from the process and destined for disposal is thus **significantly reduced in volume and mass** compared to the quantities previously treated, with a consequent reduction in the costs of disposal and supply of sodium bicarbonate.
The carbon dioxide (CO_2) **necessary for the carbonation phase**, several thousand tonnes per year, **is drawn from the gas** sent into the atmosphere through the flue.
The objectives of the initiative and of the synergistic process undertaken between WA.TRE.CO and Acea Ambiente are the reduction of the quantities of waste to be sent to the landfill, the transformation of the same into a second raw material and the reduction of emissions into the atmosphere, meeting and sharing the principle of sustainable development and the promotion of a circular economy.
Source: https://www.gruppo.acea.it/it/gruppo/media-eventi/workshop-acea-ecomondo

In line with the European vision of the Circular Economy, Acea manages the waste cycle in order to recover, recycle and reuse waste in the best possible way and, when possible, recover energy. The Group, in particular, occupies itself with the following phases of the waste cycle:
- **treatment of municipal solid waste** (MSW) and other types of waste (like green waste from separate collection, industrial waste, etc.), **for the recovery of material** and disposal of only the residues in landfills;
- **incineration with energy recovery** with consequent reduction of the soil needed for disposal;
- **production of high quality compost** to be directed towards agriculture.

In addition to the above, **Aquaser**, a subsidiary of Acea, collects and manages **the sludge produced by the urban wastewater treatment cycle** so that it can be disposed of after any treatment, giving priority to the recovery of material and energy.
The following paragraphs provide further information on the operational aspects of the activities mentioned above. However, these are **modern plants**, recently revamped, that **use advanced technologies** necessary to make waste management as efficient as possible.

INTEGRATED WASTE TREATMENT AT THE ORVIETO PLANT

The company **Acea Ambiente** manages a major plant for the treatment, recovery and disposal of waste in Umbria, 3 km from the town of Orvieto. The main plant sections are mechanical biological treatment of solid urban waste, composting and refining of the organic fraction of the separated waste and disposal in landfills. The activities carried out allow the recovery of material (production of quality compost) and energy (use of the biogas produced).
Management is carried out in compliance with certified management systems (see *Corporate identity, Management systems*) with the aim of achieving **maximum recovery from the materials** and encouraging both the **production of energy from renewable sources** and the **reduction of waste to be sent to landfill**. In 2018 the total waste entering the plant was **91,142 tonnes**. 56% (about 51,300 tonnes) was disposed of in landfills and the remainder almost entirely sent to the **anaerobic digestion and composting** section of the treatment plant. For more details see *Environmental Accounts*.
As specified above, at the Orvieto site there are two energy production plants powered respectively by the biogas produced

by the anaerobic section of the treatment plant and by the biogas produced by the landfill. The electricity generated is broken down as follows:

- at the treatment plant, **in 2018, the biogas produced** was about **3.1 Mm³** and about **5.6 GWh of electricity was sold to the grid;**
- **about 7.7 Mm³ of biogas were produced at the landfill** and **about 11.7 GWh of electricity was sold to the grid.**

The drop in biogas and energy produced compared to 2017 (-15%) is due to ongoing works to extend the landfill the unavailability of techniques in the treatment plant because of improvements to the anaerobic digestion section.
The Orvieto hub **is also equipped with a photovoltaic plant** owned by Acea Produzione, which generated about 450 MWh in 2018, used to **cover part of the plant's consumption of electricity.**
Taken as a whole, the biogas treatment line, the plant making efficient use of the biogas from landfill and the photovoltaic plant have allowed a **transfer to the electricity grid equal to 3,230 TOE (Tonnes of Oil Equivalent).**

WASTE TO ENERGY

Energy recovery from waste is a phase of the Circular Economy[110] that both Europe and Italy want to develop. In fact, in addition to providing energy and economic advantages, it allows a **notable volumetric reduction and the biological stabilisation of waste**, avoiding as far as possible the disposal of this waste in landfill as such.

In addition to the activities already described of waste treatment and anaerobic digestion, **Acea Ambiente** also manages the waste-to-energy process through **two plants**, one in San Vittore del Lazio and the other in Terni. The plants operate according to certified environmental management systems. Indeed, between the end of 2017 and 2018 they obtained the renewal of their environmental certification (UNI EN ISO 14001:2015) and extended the EMAS III European registration to the whole of 2021. For more on these aspects see also the section on Management systems in Corporate identity.

The Plant of San Vittore del Lazio is comprised by **three independent lines** of waste to energy designed to be fed with fuel waste-derived fuel (WDF), now called Secondary Solid Fuel (SSF), with these characteristics:

- 52 MW_t of thermal power installed for line 1 and 56.7 MW_t of thermal power installed for each of the other two lines;
- 13.9 MW_t of electric power installed for line 1 and 15.1 MW_t of each of the other two lines;
- Approximately 400,000 t/year of CSS, sludge and other waste at full capacity.

2018 was a year of normal operation. The plant's **actual available electric power was about 44 MW** and about **307 GWh** of electric power was produced. In 2018 energy from waste has been generated from about **357,200 tonnes of waste**.
In its current configuration, the San Vittore del Lazio plant is the largest in the Lazio Region and plays an important role in the management of urban waste, both for the particularly advanced technologies used for its construction and for its considerable treatment potential.

TABLE NO. 51 - THE SAN VITTORE DEL LAZIO WASTE-TO-ENERGY PLANT: OPERATING DATA (2016-2018)

	u. m.	2016	2017	2018
incinerated fuel	t	281,917	345,639	357,174
gross electric power produced	GWh	243.68	301.15	306.731
conversion efficiency (*)	kWh/kg SSF	0.86	0.87	0.86

(*) Relationship between gross electricity produced (GWh) and quantity of SSF converted from waste to energy (t).

The Terni plant is comprised of **a waste to energy line** and has the following characteristics:

- 52 MW_t of thermal power installed;
- 13.6 MW_e of electrical power installed;
- 120,000 t/year of pulper waste (paper mill waste resulting from the pulping of waste paper), as the maximum potential for incoming waste.

TABLE NO. 52 - TERNI WASTE-TO-ENERGY PLANT: OPERATING DATA (2016-2018)

	u. m.	2016	2017	2018
pulp incinerated	t	99,768	99,970	99,971
gross energy produced	GWh	83.07	83.10	82.41
conversion efficiency (*)	kWh/kg pulp	0.83	0.83	0.82

(*) Relationship between gross electricity produced and quantity of pulper waste converted to energy.

110 The European Union's circular economy package has been in force since 04.07.2018.

The plant of Terni is **also equipped with a photovoltaic plant**, which in 2018 has generated about 341 MWh of electricity, in part consumed on site (about two-thirds) and in part injected into the grid.
For data on the emissions of both waste to energy plants see the chapter *Air emissions* in addition to the data in the Environmental accounts.

HIGH QUALITY COMPOST PRODUCTION

In addition to the plant in Orvieto, Acea Ambiente has three composting facilities located in Aprilia, Sabaudia and Monterotondo Marittimo.
While as mentioned above the **Aprilia plant** has been under seizure since December 2017, it has been running at almost full capacity[111]. The plant, which is one of the facilities used for the recovery of the organic fraction from separate waste collection in Lazio, will be expanded to allow the recovery of **up to 120,000 t/year of organic fraction** and to launch a **section for anaerobic digestion** with **recovery of electrical and thermal energy**. The plant will also be equipped with an industrial wastewater recovery system. The new section is expected to be operational by December 2019.
The Sabaudia plant has undergone various activities of revamping/maintenance since 2016, and operations were resumed in August 2018[112]. When the liquid waste treatment section is reactivated, as in the past it will be possible to reuse the purified water for industrial uses. The plant has a treatment capacity of **20,000 tonnes of compostable waste per year and 30,000 tonnes of liquid waste per year**.
Finally, during the year, the **Monterotondo Marittimo plant** started work on the construction of a new composting section and a **new anaerobic digestion section** that will allow recovery of electrical and thermal energy. In its final configuration, the plant will be able to recover up to **70,000 tonnes/year of organic waste fraction, green fraction and sludge**.
The aforementioned works, which will transform the Aprilia and Monterotondo Marittimo plants into **integrated composting and anaerobic digestion plants**, will make it possible to produce biogas and thus generate electricity from a renewable source, in line with the prospect of sustainable growth and to **combat climate change**.

In 2018 **Aquaser**, which performs the activity of **transporting and disposal of sludge** from biological purification and waste deriving from the purification of water, of treatment of waste water and liquid waste, **managed**, inter alia, **about 198,000 t of sludge from purification** coming from the water companies of the Group[113], of which about **152,000 tonnes of sludge from Acea Ato 2, Acea Ato 5 and Gesesa**.
The dried out and dehydrated sludge coming from these companies were transported to the following end destinations:

- 80.7% to material recovery operations (pretreatments aimed at agricultural use - conditioning, composting);
- 2.5% to recovery of energy (waste-to-energy).

The remaining 16.8% was disposed of. The direct spillage was not used in agriculture.

WATER SEGMENT

REFERENCE BOUNDARY

The scope of reference includes the companies Acea Ato 2, Acea Ato 5 and Gesesa. Acque, Gori[114], Acquedotto del Fiora, Publiacqua and Umbra Acque, water companies not included in the scope of the *Consolidated Non-Financial Statement* (pursuant to Legislative Decree no. 254/2016). They have been included only in the area of reporting of water graphs, where their contribution is immediately evident, and in a few other global data (water fed into the system and analytical calculations). Specific data concerning these companies are provided in a separate chapter, *Water Company data sheets and overseas activities*.

382 Mm³ OF POTABLE WATER SUPPLIED BY ACEA ATO 2, ACEA ATO 5 AND GESESA

ROME'S HISTORIC NETWORK: REAL LOSSES FALL TO **38%** (41% IN 2017)

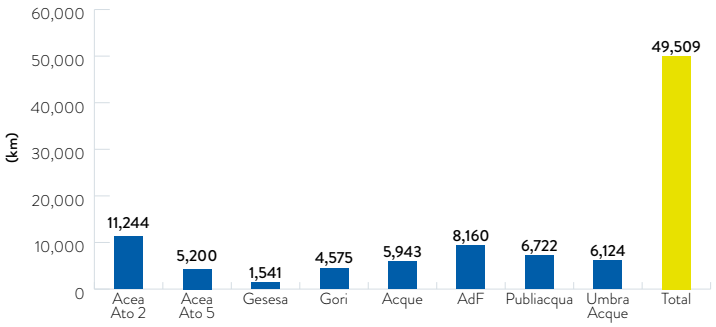
ABOUT **18,000 km** KM OF POTABLE WATER NETWORK MANAGED BY ACEA ATO 2, ACEA ATO 5 AND GESESA

MORE THAN **480,900 analytic tests** ON DRINKING WATER (ACEA ATO 2, ACEA ATO 5 AND GESESA)

111 On 14 April 2018 the Public Prosecutor authorised the resumption of operations by removing the seals from the Aprilia plant, without prejudice to the seizure.
112 On 16.08.2018 deliveries were resumed for composting only, while the liquid waste treatment section, also being revamped, is inactive. A review of the AIA (Integrated Environmental Authorisation) is pending.
113 The data detailed here for the sake of completeness concerns sludge for which Aquaser has managed the entire supply chain, from loading to transport and final disposal, originating from the following Group companies: Acea Ato 2, Acea Ato 5, Gesesa, Acquedotto del Fiora, Umbra Acque, Publiacqua.
114 Gori was added to the scope of consolidation on a full basis in November 2018. Therefore, for the present reporting cycle it has not been considered within the scope of the *Consolidated Non-Financial Declaration*. See the section on *Water Company data sheets and overseas activities*.

Of all the Group's core businesses, the **management of water** in all phases of the **integrated water service** is one of the **most important**. The activities are carried out with a growing focus, in line with the greater attention to water resources at an international level. The protection of the resource is expressed in the priority of **recovering losses** (see the box in the paragraph *Attention to water consumption*), in the already mentioned **protection of springs** (paragraph *Protection of the local region*) and searches for new springs and also in an increasingly precise **monitoring** of water consumption, seeking to reduce it.
The **total** pool of users served in Italy by the **Group**[115] is about 8.6 million inhabitants, with **volumes of drinking water fed** into the network in 2018 equal to about **1,260 million cubic metres**. The **volumes of drinking water introduced by Acea Ato 2, Acea Ato 5 and Gesesa** amounted to **721 million cubic metres**, with a total supply of 382 million cubic metres for **4.3 million inhabitants** served. For specific data on the three companies, see the *Environmental Accounts*.
In **Ato 2 - Central Lazio** alone, comprising the city of Rome and 111 other municipalities – of which 79[116] under management at 31 December 2018 – the **volume of water fed into the network** serving the approximately 3.7 million inhabitants, was approximately **600 million cubic metres** (of which 438 million cubic metres in the "historical network" of Rome and Fiumicino)[117].

CHART NO. 44 - THE WATER DISTRIBUTION NETWORK OF THE GROUP IN ITALY (2018)

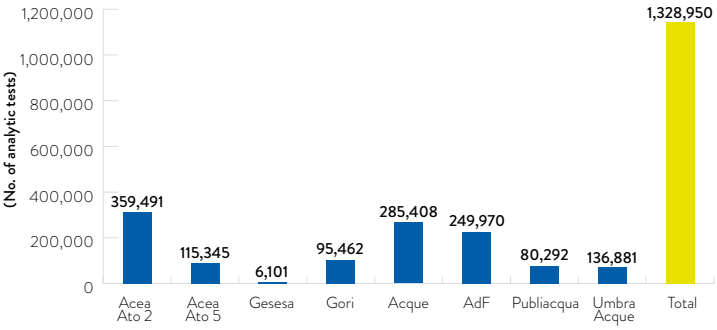


NB The kilometres of network include the aqueducts. The Acea Ato 2 data come from GIS.

WATER QUALITY

The **checks on the quality of the drinking water** supplied and of effluent returned to the environment, after the process of purification, are performed in a planned and constant manner by the companies of the water industrial area. The **analyses** on the **drinking water** distributed to users play an **essential role** for the resulting health spin-offs. A summary of the work carried out in this area, by all the water companies, is shown in Chart no. 45.

CHART NO. 45 - TESTS OF DRINKING WATER, TOTAL AND BY COMPANY (2018)



In **Rome**, the qualitative characteristics of the resource collected and distributed are monitored through **continuous testing**, with instruments located along the water systems and through **daily sampling** at the collectors and in the distribution network.
In Lazio there are areas of volcanic origin where the water has drinkability problems, linked to the natural presence of some substances in greater concentrations compared to those permitted by the relevant legislation. In these areas Acea Ato 2 has performed, over the years, a number of initiatives aimed at solving these problems, increasing the purification plants able to remove the unwanted substances and returning their values of concentration well below the legal limits.
Regular monitoring of the chemical/biological parameters of the water which circulates in the distribution network of the

115 As specified at the start of the chapter, the data of the total inhabitants served by the water business, of the volume fed into the network, and the size of the networks and checks on the water (shown in special graphs) include all the operational companies in the Group, also those not included within the scope of the Consolidated Non-Financial Statement.

116 In 17 other municipalities the integrated water service was managed partially.

117 The items of the water balance of the past three years were calculated using the calculation criteria supplied by ARERA.

water system allows the quality safety level to be kept high. Altogether about 359,491[118] analytical tests in the territory of Ato 2, for a total of 10,708 samples – in addition to those of the Health Authority – were carried out during 2018 in the Grottarossa Laboratories, managed by Acea Elabori.
The analytical checks on the water and the relative measurements are also performed by Group companies independently.

The subsidiary Acea Elabori, accredited pursuant to the ISO/IEC 17025 standard, performs and certifies chemical and physical and bacteriological analyses in different substrates, including water (see Table no. 53 for the analyses performed on Rome drinking water). Gesesa instead uses two outside laboratories (see the Environmental Accounts or the Gesesa data and also for the aggregate data).

ANALYSES PERFORMED BY ACEA ELABORI ON DRINKING WATER - ROME HISTORICAL NETWORK (2016-2018)

sampling area	no. of sampling points	no. of samples			no. of analyses		
	2018	2016	2017	2018	2016	2017	2018
collection	45	469	423	437	21,085	21,636	21,119
water system and water feed pipes	26	158	183	130	6,051	6,599	5,167
tanks/water centres	21	248	119	152	8,974	4,988	6,306
distribution networks	320	4,208	3,381	3,326	135,943	109,838	109,571
total	**412**	**5,083**	**4,106**	**4,045**	**173,702**	**143,061**	**142,163**

AVERAGE CHEMICAL AND MICROBIOLOGICAL PROPERTIES OF THE DRINKING WATER DISTRIBUTED AT ROME, THE MUNICIPALITIES OF ACEA ATO 5 AND BENEVENTO (2018)

parameters	unit of measurement	average value - Rome	average value - Acea Ato 5 municipalities	average value - Gesesa (Pezzapiana site)	legal parametric value (Legislative Decree no. 31/01)
turbidity	NTU	**<0.5**	**0.9**	**0.51**	no anomalous changes
temperature	°C	**12.7**	**13.5**	**exempt (*)**	not required
hydrogen ion concentration	pH unit	**7.4**	**7.3**	**7.5**	> 6.5 and < 9.5
electrical conductivity	µS/cm at 20 °C	**560**	**595**	**896**	<2500
chlorides	mg/l Cl	**6.6**	**5.9**	**46.8**	<250
sulphates	mg/l SO_4	**13.7**	**11.31**	**66**	<250
calcium	mg/l Ca	**100.6**	**115.9**	**exempt (*)**	not required
magnesium	mg/l Mg	**19.0**	**17.1**	**exempt (*)**	not required
sodium	mg/l Na	**4.7**	**3.6**	**37.0**	<200
potassium	mg/l K	**2.0**	**1.23**	**exempt (*)**	not required
hardness	°F	**32.9**	**36**	**35.6**	(**)
free residual chlorine	mg/l Cl_2	**0.15**	**0.19**	**0.15**	(***)
alkalinity	mg/l $CaCO_3$	**435**	**358**	**exempt (*)**	not required
calculated fixed residue	mg/l	**408**	**426.7**	**612**	(****)
nitrates	mg/l NO_3	**3.5**	**3.8**	**37.9**	<50
nitrites	mg/l NO_2	**<0.05**	**0.1**	**<0.03**	<0.50
ammonia	mg/l NH_4	**<0.10**	**<0.1**	**exempt (*)**	<0.50
fluorides	mg/l F	**0.14**	**0.15**	**0.5**	<1.50
bicarbonates	mg/l HCO_3	**400**	**436.3**	**exempt (*)**	not required
total organic carbon	mg/l C	**0.58**	**0.53**	**exempt (*)**	no anomalous changes
iron	µg/l Fe	**11.8**	**16.1**	**<20**	<200
copper	mg/l Cu	**0.003**	**0.00**	**<0.01**	<1.0
lead	µg/l Pb	**0.4**	**0.3**	**2**	<10
cadmium	µg/l Cd	**<0.2**	**<0.2**	**<2.0**	<5.0

[118] The data on analytical testing of drinking water from 2018 also include analyses on recently acquired aqueducts (Civitavecchia and others).

AVERAGE CHEMICAL AND MICROBIOLOGICAL PROPERTIES OF THE DRINKING WATER DISTRIBUTED AT ROME, THE MUNICIPALITIES OF ACEA ATO 5 AND BENEVENTO (2018) (follow)

parameters	unit of measurement	average value - Rome	average value - Acea Ato 5 municipalities	average value - Gesesa (Pezzapiana site)	legal parametric value (Legislative Decree no. 31/01)
chromium	µg/l Cr	<5.0	<5.0	<2.0	<50
nickel	µg/l Ni	<2.0	<0.2	<2.0	<20
manganese	µg/l Mn	0.4	3.1	<2.0	<50
arsenic	µg/l As	<1.0	2.9	exempt (*)	<10
vanadium	µg/l V	2.4	1.7	<2.0	<140
total trihalomethanes	µg/l	1.0	0.7	<0.9	<30
trichloroethylene	µg/l	<0.10	<0.10	<1.0	<10
tetrachloroethylene	µg/l	<0.10	<0.10	<1.0	<10
1.2 - dichloroethane	µg/l	<0.30	<0.30	<0.1	<3.0
benzene	µg/l	<0.10	<0.10	exempt (*)	<1.0
benzo (a) pyrene	µg/l	<0.003	<0.003	exempt (*)	<0.010
coliform bacteria at 37° C	MPN/100 ml	0	0	0	0
e. coli	MPN/100 ml	0	0	0	0
Enterococci	CFU/100 ml	0	0	0	0

(*) In accordance with Legislative Decree no. 31/01 and in agreement with the health authority, Gesesa is exempted from supplying the parameter.
(**) Recommended values: 15-50° F - the lower limit applies to water subjected to softening or desalination treatment.
(***) Recommended value 0.2 mg/l.
(****) Maximum value recommended: 1,500 mg/l.

WATER SAFETY PLANS

The implementation of a **Water Safety Plan** (WSP) is required for all water systems by the Decree of the Ministry of Health of 14.06.2017, in implementation of European Union Directive 2015/1787, which endorsed the WSP methodology developed by the World Health Organisation (WHO). The aforementioned Directive 1787 amends the annexes of the European Drinking Water Directive 98/83/EC, which is currently being revised by the European Parliament and the Council. It will make WSPs mandatory and the current draft provides for a six-year implementation period.
The WSP approach is to **prevent and reduce the risks inherent in the drinking water service**, assessing dangerous events along the entire water supply chain including collection, treatment and distribution to the user meter. The risk is calculated according to the severity and probability of a pollution event or water shortage. Based on this assessment, the following are defined: **actions to mitigate risks, monitoring systems, operating procedures** under normal and emergency conditions, the water **quality control plan**, the methods for **informing the public** and the competent authorities, etc. WSPs must also be constantly updated to take into account plant development, changes in the regulatory environment and climate and environmental changes. Finally, the implementation of WSPs must be carried out according to internationally recognised methodologies developed by the WHO. In Italy, the Istituto Superiore di Sanità (ISS) has introduced WHO guidelines and will therefore have to approve WSPs.

THE ACEA ATO 2 WATER SAFETY PLANS

For Acea Ato 2, in the first two years the implementation of the water safety plans (WSPs) will affect the water system supplied by the new water treatment plant of the Tiber located in Grottarossa and the water network of the City of Rome and the Vatican, now supplied by the Paolo Aqueduct, with non-potable water taken from the Tiber. The assessment of the health risks of the latter system, which is not drinkable, is included in the safety plan and is interconnected thereto since the Paolo Aqueduct will no longer be supplied by water from the Tiber but by the treated wastewater from the COBIS treatment plant.
Starting in the second half of 2019, the WSP will be launched for the water system supplied by other aqueducts, primarily serving Rome and Fiumicino.
In 2018 the WSP team was set up with the participation of Acea staff and representatives of the bodies concerned. A web platform was created with these same bodies on which the documents produced are published and a web/GIS environment where the data of the plants covered by the WSP are collected. Moreover, the risk assessment of the water system supplied by the new Grottarossa plant was carried out and shared with the authorities. To this end, plant inspections were carried out and checklists drawn up in accordance with WHO guidelines.
Finally, Acea Ato 2 established partnerships with major operators in the water sector to share experiences and best practices.

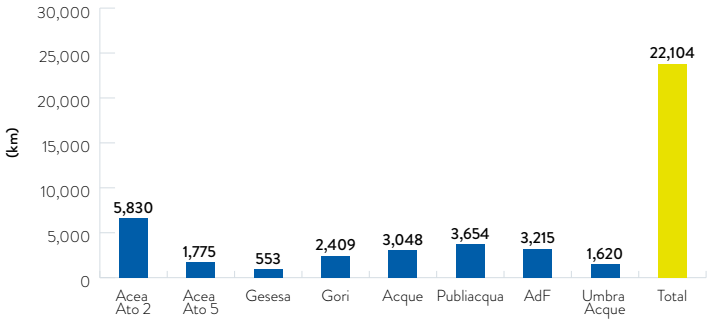
At Acea Ato 5 and Gesesa, before drafting the Water Safety Plans (WSPs), several employees attended the "National Training Course for team leaders for the implementation of Water Safety Plans (WSPs)" organised by the ISS and the Ministry of Health.

SEWERAGE SERVICE AND TREATMENT SYSTEM

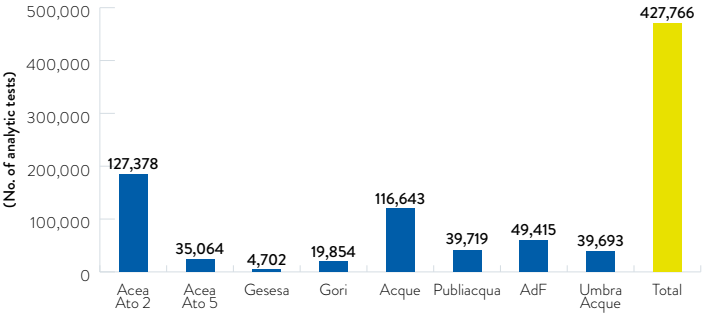
ABOUT **152,992 t** OF SLUDGE PRODUCED BY ACEA ATO 2, ACEA ATO 5 AND GESESA, OF WHICH **38%** RECOVERED

APPROXIMATELY **8,160 km** OF SEWERAGE NETWORK AND **333 treatment plants**, MANAGED BY ACEA ATO 2, ACEA ATO 5 AND GESESA, FOR **604 Mm^3** OF TREATED WATER

The integrated water service (IWS) includes the management of the sewerage and treatment system. The water resource, after uses for the various civil purposes, is **collected through the sewer pipes** and **sent to the purifiers**. There pollutants are **removed via physical processes** (filtering, sedimentation, flocculation) **and biological ones** (aerobic and/or anaerobic decomposition of the organic substance with bacteria). Thanks to approximately **865 treatment plants** (of which **333** managed by Acea Ato 2, Acea Ato 5 and Gesesa), the total volumes of water treated by the Group[119] in 2018 were approximately **859 million cubic metres**, of which 604 million cubic metres by Acea Ato 2, Acea Ato 5 and Gesesa. **The water in output from the plants** cited, after having undergone the purification treatments described, **has chemical and biological properties compatible with the life of the receiver body of water** and in accordance with the values of the parameters which must not be exceeded in order to guarantee full compatibility (as per Legislative Decree no. 152/2006). The sewerage networks managed amount to more than **22,100 km**, of which 9,158 km relate to the three companies cited.



NB The sewerage networks managed by Acea Ato 2 in 2018 are equal to about 6,830 km, of which 5,830 km monitored by GIS cartography.



For the companies operating in the Lazio area and partly in the province of Benevento, the percentage coverage of the sewer and purification services, out of the total users served by the water service, and the volumes of effluent treated are given in Tables nos. 54 and 55.
In particular, for **Acea Ato 2**, the **good abatement performance**

[119] Again in this case, the data relating to the number of treatment plants, the volumes treated, the size of the networks and the controls refer to the main Group companies operating in the water sector, including those not included in the full scope of consolidation.

achieved in the **purification process**, which allowed approximately 580 million cubic metres of sewage to be made compatible with the receiver ecosystem, were confirmed by the over **127,000 calculations** performed. A **positive result** was in fact confirmed, i.e. values of the concentrations of the contaminants below legal limits, **in 94% of the tests performed on water from the plants**, moreover in an environmental situation which foresees the observance of some of the strictest regulations in Italy.

TABLE NO. 54 - PERCENTAGE COVERAGE OF THE SEWER AND PURIFICATION SERVICES OVER THE TOTAL UTILITIES OF THE WATER COMPANIES OPERATING IN LAZIO AND AT BENEVENTO (2016-2018)

company	2016		2017		2018	
	sewer	purification	sewer	purification	sewer	purification
Acea Ato 2	91.9%	88.7%	91.7%	88.0%	91.6%	88.2%
Acea Ato 5	64.0%	52.5%	67.7%	56.5%	66.9%	56.1%
Gesesa	81.1%	26.2%	81.2%	26.1%	80.2%	27.3%

TABLE NO. 55 - VOLUMES OF EFFLUENT TREATED BY WATER COMPANIES OPERATING IN LAZIO AND AT BENEVENTO (2016-2018) (Mm^3)

company	2016	2017	2018
Acea Ato 2	595.2	553.6	582.7
Acea Ato 5	26.7	21.1	21.2
Gesesa (*)	-	-	-

(*) For the time being there are no flow meters at the entry of the purification plants managed by Gesesa. The company intends to install them by the end of 2019.

In the "historic" area managed by Acea Ato 2, which includes **Rome and Fiumicino**, the **main purification plants treated in 2018 approximately 490 million of cubic metres of wastewater**, a figure that has increased (467 million cubic metres of effluent treated in 2017). Considering also the smaller purifiers and the plants of the municipalities acquired in Ato 2 (a total of 170) a **total volume of approximately 583 million cubic metres of wastewater treated** is obtained, an increase of 5% compared to 2017. The cause of this increase was substantially due to the elevated rainfall, since part of the rainwater also flows into the Rome drains system.
Tables 56 and 57 show the details of the main parameters from the Acea Ato 2 and Acea Ato 5 treatment plants. Other indicators of the efficiency of purification are described in the section *Key environmental performance indicators - Water Segment* of the *Environmental Accounts*.

TABLE NO. 56 - OUTPUT PARAMETERS OF THE MAIN PURIFIERS MANAGED BY ACEA ATO 2 SPA - MUNICIPALITY OF ROME (2018)

	Rome South purifier	Rome North purifier	Rome East purifier (*)	Ostia purifier	concentration limits in surface waters LEGISLATIVE DECREE No. 152/06
parameter		average values (mg/l)			
BOD_5	15	9	8	4	≤ 25
COD	29	20	28	20	≤ 125
SST	17	15	19	10	≤ 35
Nitrogen (ammoniac, nitric and nitrous)	9	11	13	5	-
phosphorus	1	2	2	2	-
		output quantity (t)			
COD	7,957	1,676	2,285	522	-
SST	4,674	1,320	1,585	245	-

(*) The data of the Roma Est purifier are in part influenced by the various maintenance works carried out at the plant during the year.

TABLE NO. 57 - OUTPUT PARAMETERS OF THE MAIN PURIFIERS MANAGED BY ACEA ATO 5 SPA - MUNICIPALITY OF FROSINONE (2018)

parameter	average values (mg/l)	concentration limits in surface waters (Legislative Decree no. 152/06)
BOD_5	3.7	≤ 25
COD	20.3	≤ 125
SST	6.0	≤ 35
NH_4^+	4.3	-
phosphorus	1.0	-
	output quantity (t)	
COD	1,175	
SST	493	

The sludge produced during the purification process **is mostly** sent for **recovery of material** (see in *Environment Segment*, the paragraph *High quality compost production*). Due to uncertainties about the application of current legislation, 2018 was a difficult year for those who produce sludge and have the burden of managing its disposal or final recovery (see also the dedicated box).

THE SITUATION OF SLUDGE DISPOSAL AND RECOVERY FOR ACEA ATO 2

In 2018, as a result of some legal pronouncements and **possible regulatory revisions regarding sludge suitable for agronomic recovery**, problems arose along the entire sludge production and management chain. In particular, there was a critical progressive reduction of the spaces in the treatment sites where the sludge coming from the treatment plants was to be conferred. The situation has been made even more critical due to the extraordinary weather events (snow emergency in winter 2018) that have not allowed the continuous use of the contracted disposal companies.
Following sentence no. 1782 of 20 July 2018 issued by the Lombardy Regional Administrative Court, there was a block on deliveries to disposal plants that guaranteed up to 50% of the company's disposal space, and Acea Ato 2 made efforts using targeted communications and discussions with the relevant bodies to resolve the critical situation.
During the year, the production of sludge, sands and gratings for all the plants managed amounted to approximately 67,000 tonnes (excluding liquid sludge, which was disposed of to third parties precisely because of the emergency situation), with a **reduction of approximately 50,000 tonnes** compared to 2017. The company has taken steps to ensure the management of the plants and, in June, the dryer in North Rome.
In addition, measures have been planned for the medium term to reduce the quantities of sludge produced by major plants, including:

- The launching in November 2018 of a technological trial for sludge reduction at the Ostia plant;
- The signing of disposal contracts with foreign suppliers.

These actions will allow for a **substantial reduction in the quantities produced** in the near future and **greater flexibility in the management of deliveries** to disposers.

THE USE OF ENERGY AND WATER

ENERGY EFFICIENCY ENHANCEMENT: IN ARETI, ABOUT **4.4 GWh** OF SAVINGS PER YEAR AND **1,600 t** OF CO_2 NOT EMITTED
IN ACEA ATO 2 ABOUT **5.2 GWh** OF SAVINGS PER YEAR AND **1,900 t** OF CO_2 NOT EMITTED

APPROXIMATELY **422,000 GWh of electrical consumption** OF THE GROUP'S MEMBER COMPANIES FROM GO-CERTIFIED **renewable energy**

leak search campaigns: IN ATO 2 MORE THAN **10,000 km** OF WATER DISTRIBUTION NETWORK WERE MONITORED

ENERGY CONSUMPTION

THE GROUP'S ENERGY CONSUMPTION

Total direct and indirect energy consumption amounted to **about 12,300 TJ**, an increase of about 2% compared to 2017. The increase was due to the **increase in direct consumption** (Table no. 58) – which involves **the use of primary sources for the operation of the production system** – in particular the energy produced by the hydroelectric power plants, the CAR power plant in Tor di Valle and, to a lesser extent, also by the waste-to-energy plants, almost entirely offset by the **decrease in indirect consumption**, which includes the losses that occur in the Rome electrical grid, attributable to the transformation and transport phases (Table no. 59). The latter, in fact, have **fallen by about 5%**, thanks mainly to **lower consumption of public lighting** due to the numerous replacements of traditional lamps with LED systems, but also thanks to a **slight decrease in technical losses of the grid** (-3%) and a **decrease in global electricity consumption for the distribution of potable/non-potable water**.

It should also be pointed out that, for the second year running, the **electricity consumption of the main companies**, and in particular consumption linked to waste management plants, the distribution of drinking and non-drinking water, purification and consumption for the work sites, **for a total of approximately 422,000 GWh, was certified as coming from renewable sources** (certification by means of the Guarantees of Origin - GOs). (Table no. 59).

Trends in **energy consumption intensity indices** are shown in Table no. 60.

TABLE NO. 58 - DIRECT ENERGY CONSUMPTION OF THE MAIN COMPANIES IN THE GROUP (2016-2018)

	2016	2017	2018
ENERGY PER SOURCE		TJ (GWh)	
RDF/SSF and pulper (waste to energy) - renewable share	3,198.9 (888.6)	3,638.2 (1,010.6)	3,947.1 (1,096.4)
biogas (100% renewable)	169.9 (47.2)	207.2 (57.6)	179.5 (49.9)
RDF/SSF and pulper (waste to energy) - non-renewable share	2,952.8 (820.2)	3,584.5 (995.7)	3,594.0 (998.3)
methane (for electricity generation, district heating, water area dryers and heating for offices)	566.2 (157.3)	732.0 (203.3)	955.7 (265.5)
fuel oil (for electricity generation and for heating offices)	34.5 (9.6)	48.2 (13.4)	22.7 (6.3)
petrol (road haulage)	4.9 (1.4)	2.9 (0.8)	3.5 (1.0)
diesel (road haulage) (*)	61.6 (17.1)	129.6 (36.0)	124.4 (34.6)
LPG (heating)	0.8 (0.2)	0.8 (0.2)	0.2 (0.1)
total	**6,989.6 (1,941.6)**	**8,343.4 (2,317.6)**	**8,827.1 (2,452.0)**

(*) The figures for diesel consumption for road transport in 2017 and 2018 include Aquaser heavy vehicles.

NB The energy produced by the Group plants and fed into the network is illustrated in the Environmental Accounts (Products - Energy Segment).

TABLE NO. 59 - INDIRECT ENERGY CONSUMPTION OF THE MAIN COMPANIES IN THE GROUP (2016-2018)

	2016	2017	2018
TYPES OF INDIRECT CONSUMPTION		TJ (GWh)	
electrical energy losses on the distribution networks and transport	1,283.8 (356.6)	1,244.9 (345.8)	1,204.6 (334.6)
plosses and self-consumption in the production of electrical energy (*)	209.8 (58.3)	232.5 (64.6)	243.4 (67.6)
losses of heat in the district heating network	86.2 (23.9)	72.5 (20.1)	91.0 (25.3)
consumption for public lighting	604.3 (167.9)	416.3 (115.6)	302.3 (84.0)
electrical consumption for waste management plants (**)	19.7 (5.5)	27.5 (7.7)	28.5 (7.9)
electricity consumption for distribution of drinking and non-drinking water (*) (***)	875.9 (243.3)	994.5 (276.2)	885.2 (245.9)

TABLE NO. 59 - INDIRECT ENERGY CONSUMPTION OF THE MAIN COMPANIES IN THE GROUP (2016-2018) (follow)

	2016	2017	2018
TYPES OF INDIRECT CONSUMPTION		TJ (GWh)	
electricity consumption for effluent purification (*) (***)	681.7 (189.4)	662.4 (184.0)	699.6 (194.3)
consumption of electrical energy for the offices (**)	35.7 (9.9)	36.1 (10.0)	34.8 (9.7)
total indirect energy consumption	**3,767.5 (1,046.5)**	**3,686.7 (1,024.0)**	**3,489.4 (969.3)**

(*) Following adjustments, some data for 2016 and 2017 have been modified with respect to the published figures. There have been minimum adjustments for energy produced in 2016 and consolidated figures for 2017 (electricity consumed by the distribution of drinking water and by sewerage treatment plants).

(**) GO-certified energy (Guarantee of Origin).

(**) 90% of the energy used is GO-certified.

TABLE NO. 60 ENERGY INTENSITY INDICES (2016-2018)

energy consumption intensity index	u.m.	2016	2017	2018
electrical energy consumed for public lighting per lamp	TJ/lamp	0.0027	0.0019	0.0013
total electrical energy consumed by Acea Ato 2, Acea Ato 5 and Gesesa for water supplied (*)	TJ/Mm^3	3.8429	4.1592	4.1339
electrical energy consumed by Acea Ato 2, Acea Ato 5 and Gesesa for sewer service per km of sewer network	TJ/km	0.0193	0.0163	0.0172

(*) The decrease in electricity consumption for water delivered in 2018 is mainly due to the higher rainfall of the year compared to 2017. The figures for the previous two years have been corrected with actual results.

ENERGY CONSUMPTION OUTSIDE OF THE GROUP

Since 2015, Acea has been monitoring **energy consumption outside the Group** along the supply chain using specific questionnaires. In December 2018 the questionnaire was sent to more than 100 suppliers, the most representative in relation to the orders value for the year. Thanks to the results from 37 of those contacted (equal to 29% of the total Acea expenditure for the procurement of goods/services and works), their total energy consumption was estimated at approximately 318,676 GJ.

ENERGY SAVING

During 2018 **Ecogena** maintained its certification as an ESCo (Società di Servizi Energetici - Energy Services Company), in accordance with UNI CEI 11352. It is therefore the appropriate body to develop the **energy efficiency initiatives of the Group companies** and report their results to the Gestore dei Servizi Energetici (GSE) for the **awarding of Energy Efficiency Certificates** (TEE).

The activities assigned to Ecogena include also the design and building of **trigeneration plants**[120] for the production, in combined mode, of **electrical, heat and cooling energy**. In **2018 cogeneration plants were managed**, combined with **district heating networks for a total of 6.6 MW of electrical power**[121]. Total energy production is in line with the previous year.

As at **31.12.2018**, the plants managed by Ecogena had been awarded **6,683 TEEs** under the Ministerial Decree of 5 September 2011, of which 1,359 related to 2017 production (and finalised in 2018) (see Table no. 61).

In order to achieve the aim of energy saving, as regards Areti, actions concentrated on acquiring EETs on the market governed by the electricity market authority (EMA), as well as purchasing 1,359 certificates from Ecogena. The residual obligation for 2018 was **89,078 TEEs**, compared with the initial 111,348 TEEs, to which should be added the residual portion of the 2017 obligation, equal to 44,512 TEEs, and the residual portion for 2016, equal to 35,610 TEEs. In November **2018, part of the remainder of 2016, equal to 15,344 TEE, was cancelled**.

TABLE NO. 61 - ENERGY EFFICIENCY CERTIFICATES AND THE PRODUCTION OF ENERGY BY ECOGENA PLANTS (2016-2018)

	2016	2017	2018
ENERGY PRODUCED (*)		TJ (GWh)	
Electricity	66.2 (18.4)	61.9 (17.2)	54.1 (15.0)
of which plants owned by Ecogena	*65.0 (18.1)*	*56.7 (15.7)*	*50.3 (14.0)*

120 Cogeneration, i.e. the combined production of electrical and thermal energy, allows high efficiencies to be achieved, between 80 and 90%. Trigeneration, which is a special application of cogeneration, allows use of a part of the thermal energy recovered in order to produce cooling energy in the form of cooled water for air conditioning in rooms or for industrial processes.

121 The 6.6 MW includes 1 MW relating to management of the Prepo power plant, in the municipality of Perugia, not owned by Ecogena.

TABLE NO. 61 - ENERGY EFFICIENCY CERTIFICATES AND THE PRODUCTION OF ENERGY BY ECOGENA PLANTS (2016-2018) (follow)

	2016	2017	2018
ENERGY PRODUCED (*)		TJ (GWh)	
of which plants owned by third parties	*1.4 (0.4)*	*5.1 (1.4)*	*3.9 (1.1)*
Thermal energy	87.6 (24.3)	90.4 (25.1)	95.4 (26.5)
of which plants owned by Ecogena	72.1 (20.0)	74.8 (20.8)	81.1 (22.5)
of which plants owned by third parties	15.4 (4.3)	15.7 (4.4)	14.3 (4.0)
Refrigeration energy (all owned plants)	15.6 (4.3)	17.0 (4.7)	34.5 (9.6)
		TEEs	
TOTAL TEEs (all from plants owned by Ecogena)	1,203	1,039	1,359

(*) Estimated 2018 data, due to unavailability of November and December. Figures for the previous two years have been adjusted due to improved reporting.

ENERGY EFFICIENCY ACTIONS

Acea, during the year in question, carried out various **schemes for the recovery of energy efficiency in the processes managed**, in particular in the **companies in the Water, Energy Infrastructure and Environment segments**.

With regard to the headquarters in Piazzale Ostiense and following the energy efficiency works in 2017, in 2018 the **Energy Performance Service** was launched, i.e. the measurement and periodic reporting of the consumption recorded on the power lines being reconfigured in the same location. As at 31.12.2018 the intervention produced **energy savings of 109 MWh**.

For the **Water industrial segment** – considering the companies in the perimeter: Acea Ato 2, Acea Ato 5 and Gesesa – this year there was a decrease in consumption (-5% compared to 2017), mainly due to less dry weather conditions, which allowed less use of emergency systems that are very energy-intensive. In addition, **where possible the companies have improved their specific energy efficiency**.

In terms of energy efficiency, in 2018 **Acea Ato 2 achieved energy savings of about 18.7 TJ/year,** with **savings of about 1,870 tonnes of CO_2 emissions**. More specifically, significant projects focused on the one hand on **the recovery of water losses**, which led to an **efficiency gain of 11.5 TJ**, and on the other hand on **treatment**, where projects to **optimise the oxidation sector of the treatment plants** (Capoluogo, Cerquette, Cobis and Ostia) led to an **energy efficiency gain of 6.8 TJ**. The replacement of lighting fixtures with LED systems at the company's plants continued in 2018, with savings of about 0.14 TJ.

Acea Ato 5 saw a **decrease in consumption** (about 7%) mainly due to better climatic conditions, but also to some interventions aimed at increasing energy efficiency, both at two purifiers (Madonna del Piano and Castro dei Volsci) and at water pumps and well fields, thanks to the installation of suitable instrumentation – inverters, level probes and interconnections – which produced an efficiency of about 3.5 TJ.

Gesesa's consumption increased in absolute terms, but this is due to the acquisition of a municipality (Morcone) and the commissioning of five new sewerage pumps and the same number of treatment plants. Compared to 2017, savings of about 1 GWh was achieved with the same number of electrical user accounts due to an **optimisation of the distribution of the flow rates of the Sorienza spring and a reduction in network pressures**.

For the **Energy Infrastructure** segment, the company **Areti**, which manages electrical energy distribution, continued the **efficiency raising schemes** set up following the **energy diagnoses performed at some company locations**, as part of the UNI EN ISO 50001 energy management system and according to Legislative Decree no. 102/2014.

In particular, in 2018 the transformation of the air conditioning and domestic hot water production system into heat pumps at the San Leone site in Via Grotte d'Arcaccio, Rome was completed.

Particularly **important are the works on the distribution network** aimed at energy saving. This involves, in particular, optimisation of the set-up of the MV network and gradual transformation of the voltage level from 8.4 to 20 kV and other adjustments for the HV and LV lines and the use of **268** MV/LV **transformers with very low losses**. Table no. 62 shows the type of work and the relative energy savings of the last three years. These efficiencies have led **in 2018** to overall energy savings of **about 15.8 TJ and about 1,600 tonnes of CO_2 avoided**.

There was also a **reduction in the energy consumption of public lighting systems**: between 2016 and 2018, the total number of lamps fell from 220,474 to 225,619. On the other hand, consumption for public lighting **fell from 167.9 GWh** (604 TJ) in 2016 **to about 84 GWh** (302 TJ) in 2018, being halved mainly due to the installation of **LED technology lamps**: from 84,871 in 2016 to 191,200 in 2018.

Finally, in the **Environment** segment, in 2018 a number of energy **efficiency initiatives** were launched for lines 2 and 3 **of the San Vittore plant**. The initiatives consisted in replacing the "overheating benches" of lines 2 and 3, which improved the thermal exchange of combustion fumes in the boiler with water, and in creating a new "setting" for the $DeNO_x$ [122] plant of line 3, with the reprogramming of the quantities of methane (and ammonia solution) necessary to reduce nitrogen oxides, both with positive repercussions on consumption.

[122] The $DeNO_x$ system is the system for the reduction of nitrogen oxides (NO_x) that uses a conversion reaction with ammonia, generating nitrogen.

TABLE 62 - ENERGY EFFICIENCY IN ARETI (2016-2018)

action	2016	2017	2018
ENERGY SAVING OBTAINED		(GJ)	
reduction in losses on the network	29,365	24,959	14,627 (*)
reduction in losses through the purchase of new transformers	474	662	1,112
Transformation of air conditioning and domestic hot water production system into heat pumps	-	-	47
thermal power plant revamping	61	61	61
renovation of inside lighting system in one of the locations	5	5	5
renovation of outside lighting system at CP Casaletto	-	54	54

(*) Value estimated while awaiting the network analytical study.

ATTENTION TO WATER CONSUMPTION

The **water consumption of the Group**, illustrated in Table no. 63, refers both to **industrial processes** and uses for district heating and **civil uses**. The decrease in consumption is due to the **reduction in consumption by processes**, mainly attributable to efficiency actions at plants of the company Acea Ato 2.

TABLE NO. 63 - WATER CONSUMPTION OF THE GROUP'S MAIN COMPANIES (2016-2018)

	2016	2017	2018
type of consumption		**(Mm^3)**	
industrial processes: district heating and others for thermoelectric generation, other Acea Ambiente plants, Water companies	**0.14**	**0.97**	**0.29**
of which aqueduct	*0.080*	*0.896*	*0.211*
of which well	*0.060*	*0.060*	*0.053*
of which rainfall	*0.000*	*0.003*	*0.000*
of which river water	*0.000*	*0.003*	*0.003*
from tankers	*0.000*	*0.001*	*0.000*
of which recovered water	*0.002*	*0.005*	*0.025*
water consumption for civil use	**2.12**	**1.43**	**1.71**
of which aqueduct	2.117	1.432	1.712
of which well	0.000	0.000	0.001
of which tankers	0.004	0.001	0.001
total water consumption	**2.26**	**2.40**	**2.01**

In some plants, **projects have been launched to recover process wastewater, to reuse it for industrial use**. At the San Vittore del Lazio waste-to-energy plant the rainwater is reused in the process of production of demi water after treatment in a special chemical and physics plant[123]. Thanks to the presence of this technology the volumes of water discharged into a body of water were zero and the **volumes of water recovered** were equal to **12,200 cubic metres**.

At the **Aprilia composting plant**, where the treatment plant for wastewater that can be reused in the industrial cycle has been operating since 2017, **approximately 5,900 cubic metres of water have been recycled**.

Overall, **Acea Ato 2** recorded a reduction in consumption for civil/process uses that went from 1.8 Mm^3 in 2017 to 1.3 Mm^3 in 2018.

Finally, at the Orvieto installations centre a system is in operation for collection of rainfall coming from the roof of the treatment system building to top up the fire-fighting reserve.

WATER LEAKS

Sustainable water management includes the issue of **limiting losses from distribution networks**. During 2018, in line with the previous year, the water companies – and in particular Acea Ato 2 – continued its intense search for leaks in order to recover as much water as possible (see box *Recovery of losses in Rome and in the municipalities of Ato 2*).

Together with the search for hidden leaks, Acea Ato 2 continued **dividing the area into districts**, aimed at increasing the efficiency of portions of the region, defining interventions or reconfigurations of network structures through the verification of the perimeters of water districts and the optimisation of pressures. To date, approximately 4,200 km of Rome's distribution network have been studied and **72 measurement districts** have been created. For about 1,000 km of distribution network the study was complemented by a mathematical model using pressure control valves and the installation of instrumentation for remote management of the network.

[123] The dedicated chemical-physical plant went into operation in January 2017.

During the year, Acea Ato 2 also carried out network **efficiency improvement** actions in **21 municipalities** in the province. The study focused on **1,200 km of water network** (to complement the 1,000 km already examined in 2017), the activity involving surveys, flow and pressure measurements, map production, user analysis and water balancing, mathematical modelling and searches for leaks. The results of the study and efficiency actions were imported into the GIS systems.

LEAK RECOVERY PLAN IN ROME AND THE COMMUNITIES OF ATO 2

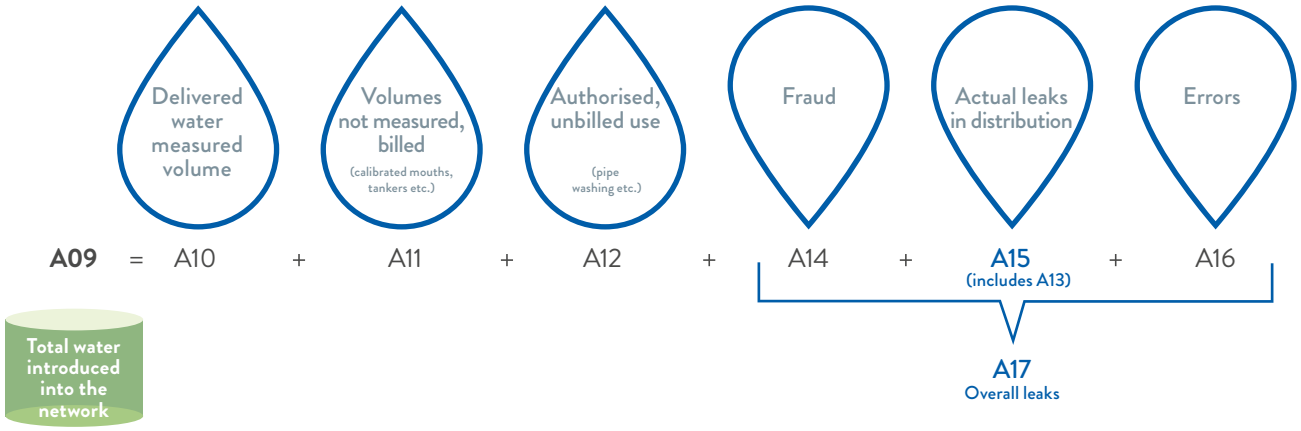
In 2018, following the water emergency that involved the city of Rome in 2017, the search for leaks in the city's water network continued and was extended to the networks of the municipalities of Ato 2.
The Action Plan provided for the subdivision of the territory to be monitored in lots and the searches for leaks were carried out with the help of operational squads in the various areas, coordinated by a team of experts who then processed the data acquired and directed the repair work.

A total of **10,000 km of distribution network were monitored** during the year (for a total of 21,000 km of network monitored since the start of activities in 2017) with the identification of about **2,000 hidden leak**.[124]

In 2018 Acea Ato 5 carried out the analysis of the water network (in particular in parts of the territories of Arpino, Pico, Villa Santa Lucia) and the **search and repair of leaks, scheduling** about 2,654 orders to **search for leaks**. Moreover, in the municipalities of **Ceccano and Frosinone**, reclamation works were carried out on the water networks that allowed a **recovery of water** estimated at about 4 l/s for the municipality of Ceccano and about 10 l/s for the municipality of Frosinone.
In 2018 **Gesesa** further developed the division of water networks into districts by extending the reduction of pressures and setting the goal of covering all the municipalities managed.
In 2018, the analysis of the set-up of the water networks and **leak detection and recovery** led to **291 interventions and the reclamation of about 0.84 km** of water supply network.

As regards the issue of water losses, in order to make the data from different operators comparable and define the quantities that contribute to estimating them, Ministerial Decree no. 99/97 supplies a reference model, together with the measures with which, in recent years, **ARERA** has intervened by introducing progressive changes to the calculation process. The water balance data, illustrated in detail in the ***"Environmental Accounts"***[125], were processed, ensuring the comparability of the last three years. Chart no. 48 shows **the model specified in Ministerial Decree 99/97**, considering the interventions of the ARERA regulation.

CHART NO. 48 - REAL WATER LOSSES (MODEL OF MINISTERIAL DECREE NO. 99/97, REGULATORY INTEGRATIONS OF ARERA)



In 2018, the search and repair of leaks in the city of **Rome** described above ("historical network") resulted in a **decrease in real losses**, which stood at **38%** (compared to 41% in 2017). The value of real losses also fell for the entire Ato 2 network to 44% (45.5% in 2017).

In **Acea Ato 5** (Frosinone) the real losses in 2018 amounted to approximately 72.8% of the amount injected into the network. As the figure has increased, an extraordinary plan is expected to be launched in 2019 that will lead to the division of the networks into districts, which – together with the results of a user search campaign that has not yet been initiated – is expected to result in a reduction in the losses.
Finally, at **Gesesa** the real losses in 2018 amounted to approximately **38%**, with a significant improvement (45% in 2017). See the *Environmental Accounts* for details.

[124] Hidden leaks are defined as water leaks due to breakage or malfunctioning of private water systems, whether they are buried or embedded, they are not detectable from the outside in a direct or obvious way.

[125] The water reports of the companies of Campania, Umbria and Tuscany, with consolidated net worth, can be examined in the chapter *Water Company data sheets and overseas activities.*.

EMISSIONS

CONTINUOUS ANALYSIS OF EMISSIONS FROM WASTE-TO-ENERGY PLANTS: VALUES OF POLLUTANTS SIGNIFICANTLY BELOW THE LEGAL LIMITS

EMISSIONS INTENSITY INDEX (SCOPE 2) FROM NETWORK LEAKS OUT OF THE TOTAL DISTRIBUTED ELECTRICAL POWER IMPROVED:

0.0113 t/MWh

AIR EMISSIONS

Atmospheric emissions from Acea plants are carefully monitored every year. In particular, at the **waste-to-energy plants** monitoring is carried out by means of **fixed and mobile stations** that sample and analyse the fumes coming out of the chimneys, measuring numerous parameters that are periodically checked by internal personnel and certified by qualified external laboratories. In 2018, the **values of the main pollutants** were also **significantly below the legal limits** (see Table no. 64). In any case, the **principle of precaution** still applies, as well as attention and seeking out technological solutions with increasing performance from the issue quality viewpoint.

In 2018, surveys of **odorous emissions** and the monitoring of **"diffuse and fugitive emissions"** were also conducted, with outcomes that were not critical.

The waste-to-energy plants are also managed according to UNI EN ISO 14001 standard, the OHSAS 1800:2007 standard and the European EMAS III scheme. The EMAS registration, after verification by the competent authorities during the year, has been extended until 2021.

TABLE NO. 64 - AIR EMISSIONS FROM THE SAN VITTORE DEL LAZIO AND TERNI WASTE-TO-ENERGY PLANTS (2016-2018)

		San Vittore del Lazio plant (*)				Terni plant (*)			
pollutant	**u.m.**	**benchmark(**)**	**2016**	**2017**	**2018**	**benchmark(**)**	**2016**	**2017**	**2018**
HCl	mg/Nm^3	8	0.069	0.053	0.184	10	4.221	4.002	4.499
NOx	mg/Nm^3	70	16.440	18.089	28.273	200	134.445	134.274	140.157
SO_2	mg/Nm^3	40	0.032	0.014	0.006	50	0.297	0.490	0.194
HF	mg/Nm^3	1	0.010	0.011	0.021	1	0.924	0.122	1.084
CO	mg/Nm^3	40	1.065	1.447	1.320	25	0.108	1.018	0.084
total particles (particulate matter)	mg/Nm^3	3	0.004	0.006	0.006	5	0.753	0.678	0.705
PAH (polycyclic aromatic hydrocarbons)	mg/Nm^3	0.01	0.00001	0.00001	0.00002	0.01	<0.001	0.0001	0.5900
dioxins and furans (PCDD +PCDF)	mg/Nm^3	0.1	0.0044	0.0047	0.0065	0.1	<0.01	0.0173	0.00005
heavy metals (Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V)	mg/Nm^3	0.5	0.0193	0.0262	0.0253	0.5	0.0263	0.1085	< 0.001

(*) The analysis of PAH, dioxins and furans and heavy metals and their composites are four-monthly and discontinuous. The "<" symbol identifies the concentration values that are equal to or below the thresholds that the devices used by the laboratory are capable of measuring.

(**) Reference parameters, Legislative Decree no. 46/2014, 2000/76/EC and AIA, are separate for each waste-to-energy plant.

NB The figures for the San Vittore plant refer to the arithmetic averages on the two operating lines for 2016 and three lines for the two-year period 2017-2018.

In addition to the monitoring of air quality mentioned above, at the San Vittore del Lazio waste-to-energy plant the **quality of the surrounding soils and groundwater** are also periodically monitored, in particular, the bioaccumulation of heavy metals on the lichen present in the soils. During the year, two monitoring campaigns of 15 days each were carried out at the two fixed control units to determine heavy metals, particulate matter (PM_{10} e $PM_{2,5}$) and other pollutants. The results of **all the monitoring campaigns**, using both fixed and mobile monitoring devices, **did not indicate excessive levels** for the measured parameters.

GREENHOUSE GAS EMISSIONS

Greenhouse gas emissions, as defined in the international document Greenhouse Gas Protocol (or GHG Protocol), aligned with **ISO 14064** which was **implemented in 2018**, are classified into the following three types:

- **Scope 1 emissions**: direct greenhouse gas emissions;
- **Scope 2 emissions**: indirect greenhouse gas emissions;
- **Scope 3 emissions**: other indirect greenhouse gas emissions.

Acea quantifies its CO_2 emissions by **assessing the carbon footprint of individual macro production processes** according to the guidelines of the *GHG Protocol*[126]; In fact, as mentioned above, it participates in the annual completion of the international questionnaire on carbon dioxide emissions, the so-called "CDP" (see the box in the section *Mitigation and adaptation to climate change*).
Scope 1 emissions are **direct emissions**. They **mainly come from the Group's waste-to-energy plants and thermoelectric power plants** and include emissions from the heating process, dryers, generators, vehicles in its fleet (with reference to petrol and diesel engines) and, lastly, from sulphur hexafluoride (SF_6) losses that can occur at Areti plants, and from freon gases in air conditioners, the latter being reported this year for the first time.
As mentioned, the most significant contribution comes from the CO_2 emitted by the waste-to-energy plants. The figure decreased in 2018 mainly due to a new method of determining CO_2 emissions at the San Vittore plant in Lazio: instead of calculating the value we now have the actual data from continuous monitoring of the chimney.
Scope 2 greenhouse gas emissions are indirect, deriving from the consumption of electricity and also kept under control.
In both cases, they concern emissions which Acea monitors regularly, also disclosing them, as mentioned, by means of the *CDP* (see Table no. 67).

Finally, greenhouse gas emissions of the ***Scope 3*** type are represented by **other indirect emissions**, like those deriving from the purchase of goods/services and works, from employee travel for work and from commuting by employees. With regard to Scope 3 emissions, Acea has been monitoring its suppliers for some years now, so that they are aware of the environmental impact and estimates the data relating to the movements of employees (see Table no. 67 below).

Three Group plants, specifically the waste-to-energy plant in Terni and the thermoelectric plants in Montemartini and Tor di Valle, are subject to the Emission Trading Scheme (ETS). The allowances assigned under the NAP (National Allocation Plan) framework, in respect of the actual emissions registered in the three-year period 2016-2018, are shown in Table no. 65.

TABLE NO. 65 - CO_2 EMISSION ALLOWANCES AS PER THE NATIONAL ALLOCATION PLAN (NAP) AND ACTUAL EMISSIONS BY PLANT (2016-2018)

	2016		2017		2018	
system	t					
	assigned by NAP	actual	assigned by NAP	actual	assigned by NAP	actual
Tor di Valle (*)	7,969	23,313	6,869	33,507	5,805	41,946
Montemartini	0	1,297	0	2,278	0	607
Terni waste-to-energy plant	0	112,865	0	118,653	0	114,093 (**)

(*) As with previous years, in 2018 the applicable legislative framework allowed the Tor di Valle plant to benefit from free of charge emission allowances (5,805 t) as it serves a remote heating network.

(**) Estimated emissions, pending certification by the responsible body.

INTENSITY INDICES FOR GREENHOUSE GAS EMISSIONS

One of the monitored intensity indices for greenhouse gas emissions (see Table no. 67) concerns **Scope 2 carbon dioxide emissions, deriving from leaks** in the network for the distribution of electricity, in **respect to the total electricity distributed**. This index has **improved further**, changing from 0.0115 t/MWh in 2017 to **0.0113 t/MWh** in 2018, in line with the continuous decrease in relative leaks in the network (technical leaks/distributed electricity).

With regard to other atmospheric emissions and in particular to the most significant macro-pollutants due to the main production processes of the plants (Acea Ambiente and Acea Produzione), see the summary data in Table no. 66. Compared to the 2017 data, they show substantial stability relating to NO_x (nitrogen oxide) and a decrease in other types of pollutants, in particular SO_x (sulphur oxide).

126 See www.ghgprotocol.org for more information.

TABLE NO. 66 - TOTAL EMISSIONS OF ATMOSPHERIC POLLUTANTS FROM ACEA GROUP PLANTS (2016-2018)

emissions	2016	2017	2018
		(t)	
CO	6.28	6.81	6.38
NO_x	171.13	198.20	189.40
SO_x	0.28	0.42	0.16
particles (particulate matter)	0.55	0.55	0.50

NB The emissions refer to the following companies: Acea Ambiente - waste-to-energy plant and Acea Produzione.

Monitoring carried out on installations at risk[127] has shown that **emissions of substances responsible for reducing the ozone layer** are **not present in significant quantities** (see Table no. 67 and the *Environmental accounts, Resources used*).

TABLE NO. 67 - ENVIRONMENTAL INDICATORS: CO_2 EMISSIONS, GREENHOUSE GAS INTENSITY INDICES AND VEHICLE EMISSIONS (2016-2018)

CO_2 EMISSIONS				
SCOPE 1 EMISSIONS				
FROM ENERGY PRODUCTION PLANTS				
	u. m.	**2016**	**2017**	**2018**
CO_2 emissions from Acea Produzione thermoelectric plants	t	24,610	33,507	42,553
CO_2 emissions from Acea Ambiente waste-to-energy plants (*)	t	338,552	375,159	307,160
FROM WASTE MANAGEMENT, ENERGY DISTRIBUTION, HEATING PLANTS AND VEHICLE FLEET				
CO_2 emissions from waste management plants	t	-	932	927
CO_2 emissions from dryers water plants	t	-	2,026	3,381
CO_2 emissions from heating	t	1,018	1,008	751
CO_2 emissions from vehicle fleet (**)	t	4,891	7,371	9,407
CO_2 emissions from Areti plants (from SF_6) (***)	t	14,820	14,100	11,233
CO_2 emissions from refrigerants (****)	t	-	-	46
TOTAL SCOPE 1 EMISSIONS	**t**	**383,891**	**434,103**	**375,458**
SCOPE 2 EMISSIONS				
CO_2 emissions from location based consumption of electricity consumption (market based) (*****)	t	349,718 (422,576)	332,547 (170,072)	304,412 (158,479)
SCOPE 3 EMISSIONS				
CO_2 emissions deriving from the purchase of goods/services and works (******)	t	17,099	24,134	23,876
CO_2 emissions from commuting	t	3,687	3,286	4,088
CO_2 emissions from business travel	t	197	152	160

127 This is primarily air conditioning equipment using refrigerant gases subject to the 1987 Montreal protocol, particularly chlorofluorocarbons.

INTENSITY INDICES FOR GREENHOUSE GAS EMISSIONS

intensity indices of the GHG emissions	u. m.	2016	2017	2018
CO_2 emissions (Scope 1 + Scope 2)/Acea Group added value	(t/k€)	0.723	0.789	0.647
Scope 1 CO_2 emissions/gross production (*******)	(g/kWh)	480.9	487.7	361.3
Scope 2 CO_2 emissions deriving from losses on the electrical energy distribution network/distributed GWh (******)	(t/MWh)	0.0119	0.0115	0.0113

(*) The 2016 figure for San Vittore has been corrected. In 2018, the plant's data was measured at the chimney (in the previous two years it was calculated). The 2017 figure for Terni has been adjusted, while the 2018 figure is estimated pending certification by a third-party body.

(**) 2018 includes emissions from the fuel consumption of heavy duty vehicles used by Aquaser.

(***) These are the tonnes of equivalent CO_2 corresponding to the emissions of insulating SF_6 present in Areti's HV equipment (1 t di SF_6 equates to 23,500 t of CO_2, GHG Protocol-5th Assessment Report- AR5): 0.478 tonnes in 2018 (0.60 x 23,500 = 11,233 t). The values for 2017 and 2018 are not comparable to those of the previous years when factor 22,800 of the 4th Assessment Report- AR4 was used.

(****) The contribution due to the replenishment of HCFC fluids in the Group's plants was calculated for the first time in 2018.

(*****) The indirect emissions (Scope 2) include the companies within the scope of the consolidated Non-Financial Statement: Acea Ambiente, Acquaser, Acea Produzione, Areti, Acea SpA and the water companies Acea Ato 2, Acea Ato 5 and Gesesa. As an emission factor per unit of electricity consumed (t CO_2/MWh), for the location-based calculation the value of 0.36 was used, as per Terna's "International comparisons" document (October 2018).
As from 2016 Scope 2 type emissions datum was also calculated using the Market Based method. The Residual Mixes coefficients are respectively for 2016, 2017 and 2018: 0.435 t/MWh, 0.465 t/MWh and 0.476 t/MWh (Source: AIB document "European Residual Mixes 2017").
Considering the whole Group and so also including the other water companies, Gori, Umbra Acque, Acquedotto del Fiora, Publiacqua, Acque, for the sole proprietary quota part of Acea, for the three-year period 2016-2018, di Location based CO_2 emissions are equal to 409,128 t, 398,287 t and 369,596 t respectively, whereas for the Market-based emissions they are equal to 494,363 t, 235,812 t and 244,750 t.

(******) This value, estimated, refers to suppliers of goods, services and works and includes transport emissions. The figure for 2017 was corrected.

(*******) Since 2018, the emissions of Scope 1 included in this index have been emissions from power generation plants. The reduction in 2018 depends mainly on the value of emissions at San Vittore, where emissions were measured instead of using the calculation used for the previous two years. The 2017 value of Terni emissions has been adjusted and is greater than what was previously published in the Environmental accounts.

(********) Network leakage considered for Scope 2 emissions and for calculating the indicator regarding the three-year period 2016-2018, are as follows: 128,388 t, 124,479 t and 120,450 t (due to the technical leakage of electricity from the network).

NB Emission factors for Scope 1 emissions are taken from the standard parameters - ISPRA data 2017, DEFRA 2018 and GHG Protocol-5th Assessment Report- AR5.

WATER COMPANY DATA SHEETS AND OVERSEAS ACTIVITIES

This chapter presents data and information outside the scope of the consolidated non-financial declaration (see *Disclosing Sustainability: methodological note*). The first part presents the activities, information and environmental accounts data for the main companies of the Group which operate in the water segment in Campania, Umbria and Tuscany, consolidated using the equity method in the statutory Sustainability Report. The second part describes the activities of the operating companies abroad. It should be noted that the company Gori, which joined the scope of consolidation on a line-by-line basis in November 2018, has not been included within the scope of the DNF for this reporting cycle, but is considered to be the same as the other water companies in which it has an interest.

WATER ACTIVITIES IN CAMPANIA, UMBRIA AND TUSCANY

Once again in 2018, for the preparation of water balances and, in particular, for the calculation of water losses, the companies followed the criteria specified by ARERA, in addition to Ministerial Decree 99/97, for the three-year period, unless otherwise specified.

GORI

Gori SpA is the entity that manages the Integrated Water Service for the Sarnese-Vesuvian District Area (formerly Ato 3 "Sarnese-Vesuvian" of the Campania Region).
It is a joint-stock company with a predominantly public-owned share capital, where the first private minority shareholder (which holds 37.05% of the share capital) was identified given its technical-industrial and management abilities: it is Sarnese Vesuviano Srl, 99.16% of whose share capital is owned by Acea SpA. The Sarnese Vesuviano district comprises 76 municipalities (59 in the province of Naples and 17 in the province of Salerno), fully acquired under management as of 31/12/2009. The district served has around 1,446,000 inhabitants, with over 526,000 customers; the water network and sewerage network cover more than 4,500 km and 2,400 km, respectively.

HUMAN RESOURCES IN FIGURES

GORI SPA EMPLOYEES: STAFF BREAKDOWN (2017-2018)

(no.)	2017				2018			
	men	women	**total**	weight %	men	women	**total**	weight %
executives	6	2	**8**	1.2	6	2	**8**	1.0
managers	17	1	**18**	2.8	18	1	**19**	2.4
clerical workers	299	60	**359**	55.4	359	81	**440**	55.8
workmen	263	0	**263**	40.6	322	0	**322**	40.8
total	**585**	**63**	**648**	**100.0**	**705**	**84**	**789**	**100.0**

GORI SPA EMPLOYEES: CONTRACT TYPE (2017-2018)

(no.)	2017			2018		
	men	women	**total**	men	women	**total**
staff with permanent contract	585	63	**648**	705	83	**788**
(of which) part-time staff	*0*	*1*	*1*	*0*	*1*	***1***
permanent staff	0	0	**0**	0	0	**0**
staff under apprenticeship contracts	0	0	**0**	0	1	**1**
total	**585**	**63**	**648**	**705**	**84**	**789**

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2017-2018)

	2017	2018
accidents (no.)	33	20
total days of absence (*)	241	443
hours worked	1,023,504	1,249,176
Frequency index (FI) (number of accidents per 1,000,000/working hours)	**32.42**	**16.01**
Severity index (SI) (days of absence per 1,000/working hours)	**0.23**	**0.35**

(*) The value also includes the days of absence due to the continuing or returning effects of accidents occurring in previous years.

TRAINING COURSES AND COSTS IN GORI SPA (2017-2018)

course type	courses (no.)		editions (no.)		training (hours)		costs (€)	
	2017	2018	2017	2018	2017	2018	2017	2018
personnel management (*)	0	0	0	0	0	0	0	0
IT	25	21	42	46	3,462	2,826	76,613	2,343
new hires (*)	0	1	0	3	0	192	0	0
environment	3	2	5	2	1,508	60	24,980	0
technical-specialised (**)	13	22	20	36	850	3,696	3,608	31,499
managerial (***)	2	2	8	13	358	1,236	12,919	0
administrative-managerial	0	0	0	0	0	0	0	0
safety	13	11	49	39	5,270	5,055	18,493	70,023
legal	3	8	12	15	1,596	284	3,300	3,500
experiential	2	7	5	23	5,233	5,428	108,740	88,840
total	**61**	**72**	**141**	**174**	**18,277**	**18,777**	**248,653**	**196,206**

(*) The training may be carried out by teaching staff within the Group.

(**) Technical-specialised training includes the courses given to the staff of the laboratory by the accredited bodies regarding technical quality and sampling.

(***) In 2018, a representation of managers and executives was involved in the "Managerial Academy" training programme promoted by the Parent Company.

TRAINED EMPLOYEES (2017-2018)

(no.)	2017			2018		
	men	women	**total**	men	women	**total**
	565	57	**622**	696	80	**776**

NETWORK AND PLANT CONSISTENCY AND ENVIRONMENTAL DATA

WATER SYSTEM MANAGED BY GORI SPA (active plants) (2016-2018)

	2016	2017	2018
water network (km)	4,501.50	4,500.38	4,574.50
aqueducts and transport networks (km)	*452.96*	*455.89*	*467.19*
distribution network (km)	*4,048.55*	*4,044.49*	*4,107.31*
well intake structures (no.)	75	76	90
spring intake structures (no.) (*)	4	4	10
pumping stations (no.) (**)	98	104	101
reservoirs (no.) (***)	163	169	170

(*) In 2018 the data relating to springs increased following the adoption of a new calculation method which, for the Funuto Spring complex – until last year counted as a single spring – separately considers the active springs belonging to the same complex (in 2017 the complex was considered as one spring only, in 2018 the 7 active springs out of the 12 total were considered).

(**) The 2017 data have been adjusted and aligned with the ARERA communication. Compared to the previous year, the data for 2018 are affected by the decommissioning of the Pastore, Sistema Alto, Via Ponte Don Melillo and Rione Gescal water pumping plants and the inclusion of the Traiano pumping station.

(***) The data for 2017 have been adjusted and aligned with the ARERA communication. The data include the Boccia al Mauro di Gori, Traiano, Per Visciano and Piano del Canto tanks.

CONSISTENCY OF THE PURIFICATION AND SEWERAGE PLANTS MANAGED BY GORI SPA (2016-2018)

	2016	2017	2018
purification plants (no.)	7	7	7
sewerage pumping stations (no.) (*)	165	169	174
sewerage network (km)	2,333	2,413	2,409

(*) Since 2018, Gori has taken over the management of 5 new sewerage systems (net of two divestments).

CERTIFICATIONS

Since 2015, Gori has had an occupational safety management system certified in accordance with **BS OHSAS 18001:2007**. In 2018 the company Gori Servizi received certifications for its Quality Management System compliant with the **UNI ISO 9001:2015 standard** and for the Environmental Management System meeting the **UNI ISO 14001:2015 standard**.

GORI SPA ENVIRONMENTAL ACCOUNTS (2016-2018)

PRODUCTS AND ANALYTICAL TESTS	u. m.	2016	2017	2018	Δ% 2018/2017
DRINKING WATER					
drinking water from the environment	**Mm³**	**44.41**	**70.98**	**55.89**	**-21.3**
From wells	*Mm³*	*41.45*	*69.10*	*54.14*	*-21.6*
From springs	*Mm³*	*2.96*	*1.87*	*1.74*	*-7.0*
water from other aqueduct systems	**Mm³**	**158.20**	**126.20**	**139.47**	**10.5**
drinking water released into the network (*)	**Mm³**	**202.62**	**202.52**	**193.34**	**-4.5**
Total drinking water supplied (*)	**Mm³**	**90.37**	**89.49**	**89.93**	**0.5**
ASSESSMENT OF THE LOSSES ACCORDING TO MINISTERIAL DECREE NO. 99/97 AND IN CONFORMITY WITH THE ARERA REQUIREMENTS					
Overall leaks (size A17) (*)	Mm³	111.80	113.03	103.41	-8.5
Actual leaks (size A15 of Ministerial Decree 99/97) (*)	Mm³	87.76	88.16	81.17	-7.9
WASTEWATER TREATED					
water treated in the main treatment plants	**Mm³**	**8.2**	**9.0**	**7.7**	**-14.4**
ANALYTICAL TESTS ON DRINKING WATER AND WASTEWATER					
no. analytical tests on drinking water	**no.**	**81,590**	**101,460**	**95,462**	**-5.9**
no. analytical tests on wastewater (**)	**no.**	**19,454**	**19,180**	**19,854**	**3.5**

(*) The data for 2017 have been updated compared to the previous publication and are consistent with the final data sent to ARERA..

(**) The value includes determinations completed on sewerage network and purification plant wastewater.

RESOURCES USED	u. m.	2016	2017	2018	Δ% 2018/2017
COLLECTION, SUPPLY AND DISTRIBUTION DRINKING AND NON-DRINKING WATER					
materials					
sodium hypochlorite	t	401.9	196.9	159.5	-19.0
ELECTRICITY (*)					
Total electricity for drinking water	**GWh**	**52.38**	**71.63**	**78.31**	**9.3**
electricity for water pumping stations	*GWh*	*52.14*	*71.46*	*77.54*	*8.5*
electricity for offices	*GWh*	*0.24*	*0.17*	*0.76*	*-*
WASTEWATER TREATMENT					
materials					
polyelectrolyte powder	t	30.7	19.0	14.5	-23.7
polyelectrolyte emulsion	t	33.1	34.0	49.2	44.7
sodium hypochlorite	t	172.2	152.0	101.9	-33.0
ferric chloride aiding flocculation (40%)	t	129.0	122.0	165.0	35.2
citric acid	t	1.2	4.0	5.0	25.0
peracetic acid, polyamine/anti-foaming agent	t	96.2	81.0	100.4	24.0
aluminium polychloride	t	4.1	4.0	7.3	82.5
mineral oil and fats	t	6.4	6.0	3.5	-41.7
other (artificial COD + soda for deodorisation)	t	2.2	3.1	4.7	51.6
ELECTRICITY FOR WASTEWATER					
Total electricity for wastewater	**GWh**	**14.76**	**14.00**	**14.59**	**4.2**
electricity for treatment	*GWh*	*10.15*	*9.02*	*9.20*	*2.0*
electricity for pumping stations	*GWh*	*4.61*	*4.99*	*5.39*	*8.0*

RESOURCES USED (follow)	u. m.	2016	2017	2018	Δ% 2018/2017
OTHER CONSUMPTION (**)					
Total other drinking water consumption	**m³**	**7,797**	**7,282**	**8,827**	**21.2**
drinking water consumed for non-industrial water uses (the data relate to consumption for offices, outside showers, etc.)	*m³*	*7,797*	*7,282*	*8,827*	*21.2*
drinking water consumed for process water uses (washing machinery and bays, etc.)	*m³*	*0*	*0*	*0*	-

(*) In 2018 the increase in electricity consumption relating to pumping equipment and administrative offices was due to the transfer of the management and related accounting of electricity use – which until last year were managed by third parties – to Gori.

(**) The data related to the item "other consumption" are estimated. The value related to process water usage is null given that industrial water is used.

WASTE	u. m.	2016	2017	2018	Δ% 2018/2017
SPECIFIC WASTE FROM TREATMENT OF WASTEWATER					
treatment sludge (*)	t	12,526	6,318	4,743	-24.9
sand and sediment from treatment	t	2,382	2,187	944	-56.8
WASTE (PURSUANT TO LEGISLATIVE DECREE NO. 152/06 EXCLUDING SLUDGE AND SAND (**)					
hazardous waste	t	0.067	0.058	0.060	3.4
non-hazardous waste	t	5.20	10.0	93.0	-

(*) The reduced production of sludge is due to the activation in 2017 of the dryer at the Scafati purification plant which allowed a notably reduction in the humidity fraction of dehydrated sludge.

(**) As in previous years, the variability in quantities of hazardous and non-hazardous waste derives from purification processes – excluding sludge, sediment and sand – these are associated to extraneous factors, and therefore can be highly variable.

TOTAL COD IN INPUT AND OUTPUT (2016-2018)

(t/year)	2016	2017	2018
COD_{in}	2,772	3,239	1,882
COD_{out}	158	213	152

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY GORI SPA (2016-2018)

parameter	average values (mg/l) 2016	average values (mg/l) 2017	average values (mg/l) 2018
BOD_5	9	9	10
COD	20	24	22
SST	20	23	15
NH_4^+	1	1	2
phosphorus	1	1	1

TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY GORI SPA (2016-2018)

parameter	average values (%) 2016	average values (%) 2017	average values (%) 2018
$100x(COD_{in} - COD_{out})/COD_{in}$	94	93	93
$100x(SST_{in} - SST_{out})/SST_{in}$	84	84	86
$100x(NH_4^+{}_{in} - NH_4^+{}_{out})/ NH_4^+{}_{in}$	97	97	96
$100x(PO_4^{-3}{}_{in} - PO_4^{-3}{}_{out})/ PO_4^{-3}{}_{in}$	69	53	67

EFFICIENCY

During the three-year period 2016-2018, Gori has implemented energy efficiency interventions and achieved the savings shown in the table.

GORI SPA ENERGY EFFICIENCY (2016-2018)

action	energy savings achieved 2016 (kWh)	energy savings achieved 2017 (kWh)	energy savings achieved 2018 (kWh)
Tartaglia plant - well field - actions on networks and division into districts (Municipalities of San Giorgio a Cremano and Portici)	833,424	-	1,014,394
Scafati treatment plant - removal of waste water in the tanks for secondary pumping, rationalisation of the biological oxidisation system - installation of the new lighting system using LED bulbs (Municipality of Scafati)	676,424	864,448	-
Suppezza plant - well field - installation of load regulation valve and remote control there of (Municipality of Castellammare di Stabia)	466.396	-	520.495
Fontana Grande plant - pumping - actions on networks and division into districts (Municipality of Castellammare di Stabia)	418,929	-	422,934
Murata plant - lifting - regulation and functioning electric pumps via inverter (Municipality of Cercola)	385,525	-	-
Sala well - actions on networks and division into districts (Municipality of Corbara)	101,586		78,696
Parrocchia well - actions on networks and division into districts (Municipality of Palma Campania)	69,951	46,664	12,607
Torretta well - actions on networks and division into districts (Municipality of Pagani)	31,699	-	42,366
Spiano well - actions on networks and division into districts (Municipality of Mercato San Severino)	13,353	-	36,179
Mercato Palazzo field wells - installation of TLC system - electromechanical revamping (Municipality of Sarno)	-	-	4,232,926

UMBRA ACQUE

Umbra Acque SpA is a company with predominantly public capital, in which Acea SpA has a 40% interest. Since 1 January 2003 the company manages the integrated water service for integrated territorial authorities (ATI) - Umbria 1 and 2, consisting of 38 municipalities, of which 37 in the province di Perugia and 1 (San Venanzo) in the province of Terni, serving a total population of around 502,000 inhabitants for 233,000 users served. The water network extends for about 6,124 km and the sewerage network 1,620 km.

HUMAN RESOURCES IN FIGURES

UMBRA ACQUE SPA EMPLOYEES: BREAKDOWN OF HUMAN RESOURCES (2017-2018)

(no.)	2017				2018			
	men	women	**total**	weight %	men	women	**total**	weight %
executives	4	0	**4**	1.2	4	0	**4**	1.1
managers	7	2	**9**	2.7	9	2	**11**	2.9
clerical workers	63	58	**121**	35.9	72	75	**147**	39.1
workmen	203	0	**203**	60.2	214	0	**214**	56.9
total	**277**	**60**	**337**	**100.0**	**299**	**77**	**376**	**100.0**

UMBRA ACQUE SPA EMPLOYEES: CONTRACT TYPE (2017-2018)

(no.)	2017			2018		
	men	women	**total**	men	women	**total**
staff with permanent contract	272	50	**322**	255	51	**306**
(of which) part-time staff	*2*	*8*	***10***	*2*	*6*	***8***
permanent staff	5	9	**14**	36	24	**60**
staff under apprenticeship contracts	0	1	**1**	8	2	**10**
total	**277**	**60**	**337**	**299**	**77**	**376**

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2017-2018)

	2017 (*)	2018
accidents (no.)	15	19
total days of absence	1,212	818
hours worked	568,260	615,479
Frequency index (FI) (number of accidents per 1,000,000/working hours)	**26.39**	**30.87**
Severity index (SI) (days of absence per 1,000/working hours)	**2.13**	**1.33**

(*) The value "hours worked" 2017 was estimated; the FI and SI indices are also consequent to estimation.

COURSES AND TRAINING COSTS IN UMBRA ACQUE SPA (2017-2018)

course type	courses (no.)		editions (no.)		training (hours)		costs (€)	
	2017	2018	2017	2018	2017	2018	2017 (*)	2018
advanced training	0	1	0	1	0	4	0	2,600
specialised technician	37	62	58	87	1,929	3,561	77,748	71,714
legal	7	6	7	6	61	92	1,110	8,384
managerial	11	10	11	15	706	1,016	28,366	27,307
administrative-managerial	0	0	0	0	0	0	0	0
safety	0	16	0	39	0	1,366	0	13,240
total	**55**	**95**	**76**	**148**	**2,696**	**6,039**	**107,224**	**123,245**

(*) Costs 2017 were calculated proportionately to the hourly cost related to the previous year.

TRAINED EMPLOYEES (2017-2018)

(no.)	2017			2018		
	men	women	**total**	men	women	**total**
	277	60	**337**	182	64	**283**

NETWORK AND PLANT CONSISTENCY AND ENVIRONMENTAL DATA

WATER SYSTEM MANAGED BY UMBRA ACQUE SPA (2016-2018)

	2016	2017	2018
water network (km)	6,398	6,071	6,124
aqueducts and transport networks (km)	*385*	*1,363*	*1,388*
distribution network (km)	*6,013*	*4,708*	*4,736*
well intake structures (no.)	219	222	219
spring intake structures (no.)	289	289	285
river intake structures (no.)	2	2	2
pumping stations (no.)	238	250	261
piezometers (no.)	1	1	1
reservoirs (no.)	580	587	587
disinfection/treatment plants (no.)	249	250	250

CONSISTENCY OF THE PURIFICATION AND SEWERAGE PLANTS MANAGED BY UMBRA ACQUE SPA (2016-2018)

	2016	2017	2018
purification plants (no.)	117	117	114
sewerage pumping stations (no.)	206	216	223
sewerage network (km) (*)	3,543	3,543	1,620

(*) The significant change in the 2018 figure compared to previous years is attributable to the different way in which data are recorded using the GIS geographical information system.

CERTIFICATIONS

Umbra Acqua has implemented an **Integrated Quality, Environment and Safety Management System** (QAS) in compliance with the **UNI ISO 9001:2015, UNI ISO 14001:2015 and BS OHSAS 18001:2007** standards.

In 2018, the company successfully passed the audit for the renewal of the Quality Management System certification according to the **UNI ISO 9001:2015 standard**.

The Laboratory of Analysis, accredited as per the **UNI ISO/IEC 17025:2005 standard**, has extended the accreditation to both chemical and microbiological tests, for aqueous matrices of natural type, for human consumption and discharge, on multiple parameters, including pH, conductivity, metals, anions, microbiological tests (like bacteria Escherichia Coli and Enterococci), total nitrogen and total phosphorus.

In 2018, 54 accredited tests were carried out.

UMBRA ACQUE SPA ENVIRONMENTAL ACCOUNTS (2016-2018)

PRODUCTS AND ANALYTICAL TESTS	u. m.	2016	2017	2018	Δ% 2018/2017
DRINKING WATER					
drinking water from the environment	**Mm³**	**58.17**	**58.63**	**58.69**	**0.1**
From wells	*Mm³*	*44.30*	*46.85*	*46.05*	*-1.7*
From springs	*Mm³*	*13.87*	*11.78*	*12.64*	*7.3*
water from other aqueduct systems	**Mm³**	**1.07**	**1.21**	**1.37**	**13.2**
drinking water released into network	**Mm³**	**59.00**	**59.59**	**60.06**	**0.8**
Total drinking water supplied	**Mm³**	**27.83**	**28.04**	**28.55**	**1.8**
ASSESSMENT OF THE LOSSES ACCORDING TO MINISTERIAL DECREE NO. 99/97 AND IN CONFORMITY WITH THE ARERA REQUIREMENTS					
Overall leaks (size A17)	Mm³	26.04	26.08	25.65	-1.6
Actual leaks (size A15 of Ministerial Decree 99/97)	Mm³	24.59	24.67	24.50	-0.7
TREATED WASTEWATER					
water treated in the main treatment plants	**Mm³**	**59.2**	**56.0**	**61.3**	**9.5**
ANALYTICAL TESTS ON DRINKING WATER AND WASTEWATER					
total no. analytical tests on drinking water	**no.**	**72,420**	**79,750**	**136,881**	**71.6**
of which no. analytical tests on drinking water (*)	*no.*	*69,820*	*71,250*	*129,381*	*81.6*
of which no. analytical tests on surface water	*no.*	*2,600*	*8,500*	*7,500*	*-11.8*
no. analytical tests on wastewater	**no.**	**36,169**	**38,128**	**39,693**	**-4.1**

(*) The higher value is linked to an increase in the parameters tested for each sample analysed and in particular to the expression of the individual analytes linked to pesticides in the Test Reports.

RESOURCES USED	u. m.	2016	2017	2018	Δ% 2018/2017
COLLECTION, SUPPLY AND DISTRIBUTION DRINKING AND NON-DRINKING WATER					
materials (*)					
sodium hypochlorite	t	52.1	60.0	60.0	-
sodium chloride	t	153.0	200.0	200.0	-
hydrochloric acid	t	150.6	200.0	200.0	-
aluminium polychloride	t	4.0	12.0	12.0	-
phosphoric acid (10%)	t	6.4	9.0	9.0	-
acetic acid	t	86.7	100.0	0.0	-
ELECTRICITY					
Total electricity for drinking water	**GWh**	**63.20**	**71.86**	**71.46**	**-0.6**
electricity for water pumping stations	*GWh*	*62.85*	*71.49*	*71.08*	*-0.6*
electricity for offices	*GWh*	*0.36*	*0.37*	*0.38*	*2.7*

RESOURCES USED (follow)	u. m.	2016	2017	2018	Δ% 2018/2017
WASTEWATER TREATMENT					
materials					
polyelectrolyte emulsion	t	78.7	80.0	90.9	13.6
ferric chloride (40%)	t	49.6	40.0	28.0	-30.0
mineral oil and fats (*)	t	1.40	1.40	1.40	-
ELECTRICITY FOR WASTEWATER					
Total electricity for wastewater	**GWh**	**20.58**	**20.93**	**21.02**	**0.4**
electricity for treatment	*GWh*	*16.27*	*16.97*	*16.29*	*-4.0*
electricity for pumping stations	*GWh*	*4.19*	*3.84*	*4.62*	*20.3*
electricity for offices	*GWh*	*0.12*	*0.12*	*0.11*	*-8.3*
OTHER CONSUMPTION					
OTHER DRINKING WATER CONSUMPTION (*)	**m^3**	**28,889**	**28,889**	**28,889**	**-**
drinking water consumed for non-industrial water uses (the data relate to consumption for offices, outside showers, etc.)	*m^3*	*2,282*	*2,282*	*2,282*	-
drinking water consumed for process water uses (washing machinery and bays, etc.)	*m^3*	*26,607*	*26,607*	*26,607*	-

(*) Data are estimated.

WASTE	u. m.	2016	2017	2018	Δ% 2018/2017
SPECIFIC WASTE FROM TREATMENT OF WASTEWATER					
treatment sludge (*)	t	23,099	19,573	13,185	-32.6
sand and sediment from treatment	t	1,321	1,238	841	-32.1
WASTE PURSUANT TO LEGISLATIVE DECREE NO. 152/06 EXCLUDING SLUDGE AND SAND					
hazardous waste	t	11.8	8.9	6.0	-32.6
non-hazardous waste (*)	t	16,747.5	9,604.6	6,693.0	-30.3

(*) The figure includes liquid sludge transported to other plants for the dewatering process, for a value of 8,100 t in 2017 and 4,913 t in 2018.

TOTAL COD IN INPUT AND OUTPUT (2016-2018)

(t/year)	2016	2017	2018
COD_{in}	21,312.71	24,015.45	33,394.80
COD_{out}	3,411.79	3,079.46	2,777.02

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY UMBRA ACQUE SPA (2016-2018)

parameter	average values (mg/l) 2016	average values (mg/l) 2017	average values (mg/l) 2018
BOD_5	29.3	24.4	21.6
COD	57.6	55.0	45.3
SST	33.7	25.1	24.6
NH_4+	5.3	7.3	8.0
phosphorus	1.9	2.3	2.0

TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY UMBRA ACQUE SPA (2016-2018)

parameter	average values (%) 2016	average values (%) 2017	average values (%) 2018
$100x(COD_{in} - COD_{out})/COD_{in}$	84.0	87.2	91.7
$100x(SST_{in} - SST_{out})/SST_{in}$	91.4	94.5	90.3
$100x(NH_4+_{in} - NH_4+_{out})/ NH_4+_{in}$	85.9	83.3	80.7
$100x(PO_4^{-3}{}_{in} - PO_4^{-3}{}_{out})/ PO_4^{-3}{}_{in}$	38.9	35.9	31.4

PUBLIACQUA

Publiacqua SpA is a mixed company, for the majority in public hands; Acea's equity interest is through the company Acque Blu Fiorentine SpA. It has managed the integrated water service in Ato 3 - Medio Valdano since 2002. The territory includes more than 1.2 million inhabitants, with 395,000 users served, with cities of great artistic and environmental merit, including Florence, Prato and Pistoia. The water network and sewerage network cover more than 6,720 km and 3,650 km, respectively.

HUMAN RESOURCES IN FIGURES

PUBLIACQUA SPA EMPLOYEES: STAFF BREAKDOWN (2017-2018)

(no.)	2017 (*)				2018			
	men	women	**total**	weight %	Men	women	**total**	weight %
executives	3	1	**4**	0.7	3	1	**4**	0.7
managers	10	8	**18**	3.2	9	8	**17**	3.0
clerical workers	170	132	**302**	53.0	172	127	**299**	52.4
workmen	240	6	**246**	43.2	245	6	**251**	44.0
total	**423**	**147**	**570**	**100.0**	**429**	**142**	**571**	**100.0**

(*) The figures for 2017 have been restated compared to what was previously published.

PUBLIACQUA SPA EMPLOYEES: CONTRACT TYPE (2017-2018)

(no.)	2017			2018		
	men	women	**total**	men	women	**total**
permanent staff with open-ended contract (*)	422	147	**569**	425	142	**567**
(of which) part-time staff (*)	*3*	*12*	***15***	*3*	*12*	***15***
permanent staff	1	0	**1**	4	0	**4**
staff under apprenticeship contracts	0	0	**0**	0	0	**0**
total	**423**	**147**	**570**	**429**	**142**	**571**

(*) Figures for 2017 have been restated compared to last year's publication.

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2017-2018)

	2017 (*)	2018
accidents (no.)	22	25
total days of absence (**)	274	594
hours worked	934,119	938,324
Frequency index (FI) (number of accidents per 1,000,000/working hours)	**23.55**	**26.64**
Severity index (SI) (days of absence per 1,000/working hours)	**0.29**	**0.63**

(*) Figures for 2017 have been restated compared to last year's publication.

(**) The value also excludes days of absent related to persistent or reopened injuries from previous years.

TRAINING COURSES AND COSTS IN PUBLIACQUA (2017-2018)

course type	courses (no.)		editions (no.)		training (hours)		costs (€)	
	2017	2018	2017	2018	2017 (*)	2018	2017	2018
advanced training	33 (*)	5	33 (*)	12	601	615	37,000	11,000
IT	10	4	24	6	1,121	85	23,000	10,700
languages	1	1	12	15	186	100	4,800	4,000
technical-specialised	38	36	71	66	3,275	4,050	23,000	64,500
managerial	1	5	7	11	138	338	9,000	19,300
administrative-managerial	39	46	87	77	1,217	1,438	73,000	28,500
safety	32	42	116	186	5,728	5,555	45,000	60,000
total	**154 (*)**	**139**	**350 (*)**	**373**	**12,264**	**12,180**	**214,800**	**198,000**

(*) Figures for 2017 have been restated compared to last year's publication.

TRAINED EMPLOYEES (2017-2018)

(no.)	2017 (*)			2018		
	men	women	**total**	men	women	**total (**)**
	397	140	**537**	440	148	**588**

(*) Figures for 2017 have been restated compared to last year's publication.

(**) The number of employees trained in 2018 is higher than the number of employed since the figure also includes trained employees no longer present in the workforce as at 31.12.2018.

In 2018 the training focused mainly on safety and technical-specialised areas.

NETWORK AND PLANT CONSISTENCY AND ENVIRONMENTAL DATA

WATER SYSTEM MANAGED BY PUBLIACQUA SPA (*) (2016-2018)

	2016 (**)	2017 (**)	2018
water network (km)	6,701	6,715	6,722
aqueducts and transport networks (km)	*1,347*	*1,347*	*1,357*
distribution network (km)	*5,354*	*5,368*	*5,365*
well intake structures (no.)	594	595	608
spring intake structures (no.)	846	846	861
river intake structures (no.)	60	60	62
lake intake structures (no.)	20	22	23
pumping stations (no.)	421	423	424
reservoirs (no.)	913	910	911
disinfection/treatment plants (no.)	103	106	107

(*) The data are consistent with the communication to ARERA concerning the managed infrastructures.

(**) Data for 2016 and 2017 have been restated compared to what was published in previous years.

CONSISTENCY OF THE PURIFICATION AND SEWERAGE PLANTS MANAGED BY PUBLIACQUA SPA(*) (2016-2018)

	2016	2017	2018
purification plants (no.)	127	126	128
sewerage lifting systems (no.)(**)	203	209	208
sewerage network (km) (**)	3,567	3,622	3,654

(*) The data are consistent with the communication to ARERA concerning the managed infrastructures.

(**) The data for the years 2016 and 2017 have been adjusted compared to what was published in previous years.

CERTIFICATIONS

Publiacqua has developed an Integrated Management System for Quality, Environment and Safety in compliance with the **UNI ISO 9001:2015, UNI ISO 14001:2015 and BS OHSAS 18001:2007** standards applied to all company activities.

In 2018 it passed the audits for the maintenance of the three certifications.

Finally, the analysis laboratory is accredited according to the **UNI ISO/IEC 17025:2005** standard.

PUBLIACQUA SPA ENVIRONMENTAL ACCOUNTS (2016-2018)

PRODUCTS AND ANALYTICAL TESTS	u. m.	2016 (*)	2017 (*)	2018	Δ% 2018/2017
DRINKING WATER					
drinking water from the environment	**Mm³**	**165.9**	**165.8**	**163.8**	**-1.2**
from lakes/rivers	*Mm³*	*105.4*	*106.5*	*105.2*	*-1.2*
from wells	*Mm³*	*49.2*	*48.0*	*47.4*	*-1.3*
from springs	*Mm³*	*11.3*	*11.3*	*11.2*	*-0.9*
drinking water released into network	**Mm³**	**152.6**	**151.4**	**150.4**	**-0.7**
total drinking water supplied	**Mm³**	**81.0**	**81.0**	**80.0**	**-1.2**

PUBLIACQUA SPA ENVIRONMENTAL ACCOUNTS (2016-2018) (follow)

PRODUCTS AND ANALYTICAL TESTS	u. m.	2016 (*)	2017 (*)	2018	Δ% 2018/2017
ASSESSMENT OF THE LOSSES ACCORDING TO MINISTERIAL DECREE NO. 99/97 AND IN CONFORMITY WITH THE ARERA REQUIREMENTS					
Overall leaks (size A17)	Mm^3	67.1	65.9	65.8	-0.2
Actual leaks (size A15 of Ministerial Decree 99/97)	Mm^3	54.6	53.5	53.5	-
TREATED WASTEWATER					
water treated in the main treatment plants	**Mm^3**	**106.8**	**102.0**	**112.5**	**10.3**
ANALYTICAL TESTS ON DRINKING WATER AND WASTEWATER					
no. analytical tests on drinking water	**no.**	**220,787**	**225,261**	**249,970**	**11.0**
of which no. analytical tests on surface water (**)	*no.*	*21,447*	*22,743*	*23,309*	*2.5*
no. analytical tests on wastewater	**no.**	**40,906**	**39,535**	**39,719**	**0.5**

(*) Data for 2016 and 2017 have been restated compared to what was published in previous years.

(**) This concerns analyses on crude surface water (untreated); they are include in the value for the analytical tests on drinking water.

RESOURCES USED	u. m.	2016	2017 (*)	2018	Δ% 2018/2017
COLLECTION, SUPPLY AND DISTRIBUTION DRINKING AND NON-DRINKING WATER					
materials					
sodium hypochlorite	t	1,396	1,509	1,354	-10.3
sodium chloride	t	314	278	276	-0.7
hydrochloric acid	t	359	302	312	3.3
flocculant	t	5,474	4,219	4,611	9.3
purate	t	384	431	407	-5.6
sulphuric acid	t	586	709	682	-3.8
oxygen	t	54	31	70	-
acetic acid	t	143	76	104	36.8
carbon dioxide excluding drinking fountains	t	705	791	682	-13.8
ferrous chloride	t	31	40	37	-7.5
phosphoric acid	t	19	13	18	38.5
ELECTRICITY					
total electricity for drinking water	**GWh**	**79.5**	**79.3**	**78.3**	**-1.3**
electricity for water pumping stations	*GWh*	*78.4*	*77.8*	*76.8*	*-1.3*
electricity for offices	*GWh*	*1.1*	*1.5*	*1.4*	*-6.7*
WASTEWATER TREATMENT					
materials					
polyelectrolyte emulsion	t	236	308	288	-6.5
sodium hypochlorite	t	13	15	30	100.0
peracetic acid, caustic soda, polyamine/anti-foaming agent	t	7	7	11	57.1
aluminium polychloride	t	4,318	4,120	4,080	-1.0
lime	t	224	305	387	26.9
acetic acid 80%	t	272	304	214	-29.6
ELECTRICITY FOR WASTEWATER					
total electricity for wastewater	**GWh**	**36.2**	**35.5**	**37.1**	**4.5**
electricity for treatment	*GWh*	*31.2*	*31.3*	*33.1*	*5.8*
electricity for pumping stations	*GWh*	*4.5*	*4.1*	*3.9*	*-4.9*
electricity for offices	*GWh*	*0.5*	*0.1*	*0.1*	-

RESOURCES USED (follow)	u. m.	2016	2017 (*)	2018	Δ% 2018/2017
OTHER CONSUMPTION					
Other drinking water consumption	m^3	**n.a.**	**n.a.**	**n.a.**	-

(*) Figures for 2017 have been restated compared to last year's publication.

WASTE	u. m.	2016	2017	2018	Δ% 2018/2017
SPECIFIC WASTE FROM TREATMENT OF WASTEWATER(*)					
treatment sludge	t	26,159	28,792	29,340	1.9
sand and sediment from treatment	t	1,086	767	793	3.4
WASTE PURSUANT TO LEGISLATIVE DECREE NO. 152/06 EXCLUDING SLUDGE AND SAND(*)					
hazardous waste	t	46	39	42	7.7
non-hazardous waste	t	11,570	9,606	11,136	15.9

TOTAL COD IN INPUT AND OUTPUT (2016-2018) (*)

(t/year)	2016	2017	2018
COD_{in} (*)	16,441	18,091	17,031
COD_{out}	1,774	1,756	2,011

(*) Figures for 2017 have been restated compared to last year's publication.

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY PUBLIACQUA SPA - SAN COLOMBANO (2016-2018) (*)

parameter	average values (mg/l) 2016	average values (mg/l) 2017	average values (mg/l) 2018
BOD_5	2.2	2.1	2.4
COD	15.6	16.0	16.8
SST	7.6	6.0	8.4
NH_4^+	1.1	0.7	0.8
phosphorus	0.9	0.9	0.8

(*) It should be noted that the San Colombano wastewater treatment plant (600,000 population equivalent) treats about half of the global wastewater.

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY PUBLIACQUA SPA (2016-2018) (*)

parameter	average values (mg/l) 2016	average values (mg/l) 2017	average values (mg/l) 2018
BOD_5	2.4	4.1	3.0
COD	16.6	24.7	21.0
SST	6.7	7.1	11.0
NH_4^+	1.3	3.2	2.5
phosphorus	1.0	2.0	1.6

(*) The figures include 36 treatment plants, including San Colombano, which treat a total of 98% of wastewater and 96% of the organic load (COD) of Publiacqua.

PURIFICATION EFFICIENCY OF THE MAIN PURIFICATION PLANTS MANAGED BY PUBLIACQUA SPA (2016-2018)

parameter	average values (%) 2016	average values (%) 2017	average values (%) 2018
$100x(COD_{in} - COD_{out})/COD_{in}$	85.7	89.4	86.1
$100x(SST_{in} - SST_{out})/SST_{in}$	84.0	92.1	88.4
$100x(NH_{4\,in}^{+} - NH_{4\,out}^{+})/ NH_{4\,in}^{+}$	94.8	97.1	96.1
$100x(PO_{4\,in}^{-3} - PO_{4\,out}^{-3})/ PO_{4\,in}^{-3}$	67.2	70.9	68.3

EFFICIENCY OF THE MAIN PURIFICATION PLANTS MANAGED BY PUBLIACQUA SPA (2016-2018) (*)

parameter	average values (%) 2016	average values (%) 2017	average values (%) 2018
$100x(COD_{in} - COD_{out})/COD_{in}$	89.2	90.6	93.3
$100x(SST_{in} - SST_{out})/SST_{in}$	89.9	93.2	91.8
$100x(NH_{4\,in}^{+} - NH_{4\,out}^{+})/ NH_{4\,in}^{+}$	94.6	95.5	91.9
$100x(PO_{4\,in}^{-3} - PO_{4\,out}^{-3})/ PO_{4\,in}^{-3}$	66.5	67.4	60.6

(*) The figures include 36 treatment plants, including San Colombano, which treat a total of 98% of wastewater and 96% of the organic load (COD) of Publiacqua.

In addition to programmes to replace energy-intensive machinery and measures to improve the efficiency of water addition and purification processes undertaken in recent years, important results were achieved in 2018 in processes to improve network efficiency. To this end, the "indirect" energy costs saved as a result of the division of the network into districts have been quantified.

ENERGY EFFICIENCY PUBLIACQUA SPA (2016-2018)

action	energy savings achieved 2016 (kWh)	energy savings achieved 2017 (kWh)	energy savings achieved 2018 (kWh)
Anconella drinking water conversion plant - check valve boosted	115,000	-	130,000
Acquifer 1 (Prato acquifer) - new pumps boosted	100,000	100,000	-
Acquifer 2 - inverter pumps boosted	100,000	-	-
San Giovanni V water treatment system - revamping of pump delivery pipes	-	-	30,000
network efficiency project	-	-	300,000

ACQUEDOTTO DEL FIORA

Acquedotto del Fiora SpA has managed the integrated water service for the largest Optimal Area of Operations in Tuscany, Ato 6 - Ombrone, comprising 56 municipalities and covering an area of over 7,600 km^2, since 1 January 2002. The population served is about 403,000 inhabitants, since in the summer period it doubles, for more than 231,000 users served. The territory served has many **protected areas featuring high biodiversity**, including in particular, due to their special natural importance, Maremma Natural Park and Monte Labro Natural Park.
Activities for management of the water service relate to both networks (aqueduct and sewers) and plants (water purification, wastewater treatment, desalination, etc.) of the 28 municipalities of the province of Grosseto and 27 (out of a total 35) municipalities of the province of Siena. The water network is about 8,160 km long and the sewerage network about 3,215 km long.

HUMAN RESOURCES IN FIGURES

ACQUEDOTTO DEL FIORA SPA EMPLOYEES: STAFF BREAKDOWN (2017-2018)

(no.)	2017				2018			
	men	women	**total**	weight %	men	women	**total**	weight %
executives	1	0	**1**	0.3	1	0	**1**	0.2
managers	11	5	**16**	3.9	11	5	**16**	3.9
clerical workers	125	99	**224**	55.0	122	101	**223**	54.5
workmen	165	1	**166**	40.8	168	1	**169**	41.3
total	**302**	**105**	**407**	**100.0**	**302**	**107**	**409**	**100.0**

ACQUEDOTTO DEL FIORA SPA EMPLOYEES: CONTRACT TYPE (2017-2018)

(no.)	2017			2018		
	men	women	**total**	men	women	**total**
staff with permanent contract	299	100	**399**	298	102	**400**
(of which) part-time staff	*4*	*13*	***17***	*4*	*15*	***19***
permanent staff	2	5	**7**	4	4	**8**
staff under apprenticeship contracts	1	0	**1**	1	0	**1**
total	**302**	**105**	**407**	**303**	**106**	**409**

(*) The value also includes the days of absence due to the continuing or returning effects of accidents occurring in previous years.

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2017-2018)

	2017	2018
accidents (no.)	6	11
total days of absence (*)	92	264
hours worked	656,850	670,106
Frequency index (FI) (number of accidents per 1,000,000/working hours)	**9.13**	**16.42**
Severity index (SI) (days of absence per 1,000/working hours)	**0.14**	**0.58**

TRAINING COURSES AND COSTS IN ACQUEDOTTO DEL FIORA SPA (2017-2018)

course type	courses (no.)		editions (no.)		training (hours)		costs (€)	
	2017	2018	2017	2018	2017	2018	2017	2018
IT	11	7	23	21	1,701	750	8,123	10,632
new hires	1	1	4	4	64	84	0	0
technical-specialised	3	25	55	48	1,925	926	17,614	27,140
managerial	1	3	7	13	89	976	12,200	0
administrative-managerial	13	10	17	42	610	844	6,960	14,505
Safety	11	26	32	55	3,674	3,879	7,856	13,449
total	**40**	**72**	**138**	**183**	**8,063**	**7,459**	**52,753**	**65,726**

TRAINED EMPLOYEES (2017-2018)

(no.)	2017			2018		
	men	women	**total**	men	women	**total**
	271	80	**351**	236	80	**316**

In 2018, the company intensified its training in the field of occupational health and safety, also after obtaining certification in 2017. In particular, the project "Take care of yourself" was implemented, aimed at personnel with operational tasks, and e-learning training was launched for updates required by Legislative Decree 81/08 and on Basic Life Support first aid.

The project "Task analysis and skill review" was also carried out, which analysed critical training issues and identified the appropriate improvement, process and/or organisational actions. Finally, specific training was provided on the General Data Protection Regulation - Privacy (GDPR).

NETWORK AND PLANT CONSISTENCY AND ENVIRONMENTAL DATA

WATER SYSTEM MANAGED BY ACQUEDOTTO DEL FIORA SPA (active plants) (2016-2018)

	2016	2017	2018
water network (km) (*)	9,294	9,315	8,160
aqueducts and transport networks (km)	*1,955*	*1,967*	*1,966*
distribution network (km)	*7,339*	*7,348*	*6,194*
well intake structures (no.)	184	184	188
spring intake structures (no.)	248	248	248
river intake structures (no.)	1	1	1
lake intake structures (no.)	3	3	3
pumping stations (no.)	284	284	291
piezometers (no.)	13	13	13
reservoirs (no.)	796	796	800
disinfection/treatment plants (no.)	31	31	32
seawater desalination plant (n.)	3	3	3

(*) From 2018 the total length of the water network does not include the connections, as resolved by ARERA 917/2017.

CONSISTENCY OF THE PURIFICATION AND SEWERAGE PLANTS MANAGED BY ACQUEDOTTO DEL FIORA SPA (2016-2018)

	2016	2017	2018
treatment plants (no.) (*)	142	144	145
sewerage pumping stations (no.)	270	271	273
sewerage network (km)	3,214	3,215	3,215

(*) The figure does not include the Imhoff pits.

CERTIFICATIONS

In 2018 Acquedotto del Fiora obtained its **first Integrated Quality and Safety Certification.**

In particular, the transition to the 2018 edition of the **UNI ISO 9001 standard** took place and compliance with the **BS OHSAS 18001:2007 standard** was audited.

ACQUEDOTTO DEL FIORA SPA ENVIRONMENTAL ACCOUNTS (2016-2018)

PRODUCTS AND ANALYTICAL TESTS	u. m.	2016	2017	2018	Δ% 2018/2017
DRINKING WATER (*)					
drinking water from the environment	**Mm³**	**60.72**	**62.79**	**60.36**	**-3.9**
from lakes/rivers	*Mm³*	*0.72*	*1.27*	*1.75*	*37.8*
from wells	*Mm³*	*19.36*	*23.71*	*21.90*	*-7.6*
from springs	*Mm³*	*40.31*	*37.81*	*36.71*	*-2.9*
water from other aqueduct systems	**Mm³**	**0.72**	**0.94**	**0.61**	**-35.1**
drinking water released into network	**Mm³**	**56.27**	**58.29**	**56.03**	**-3.9**
total drinking water supplied	**Mm³**	**29.40**	**29.40**	**29.40**	**-**
ASSESSMENT OF THE LOSSES ACCORDING TO MINISTERIAL DECREE NO. 99/97 AND IN CONFORMITY WITH THE ARERA REQUIREMENTS					
Overall leaks (size A17)	Mm³	27.61	27.99	25.73	-8.1
Actual leaks (size A15 of Ministerial Decree 99/97)	Mm³	26.05	26.17	23.91	-8.6
TREATED WASTEWATER					
water treated in the main treatment plants	**Mm³**	**16.16**	**15.70**	**16.89**	**7.6**
water treated in plants with a capacity of more than 2,000 population equivalent	**Mm³**	**25.20**	**23.20**	**26.54**	**14.4**
ANALYTICAL TESTS ON DRINKING WATER AND WASTEWATER					
total no. analytical tests on drinking water	**no.**	**81,847**	**77,137**	**80,292**	**4.1**
no. analytical tests on drinking water	*no.*	*81,216*	*76,459*	*79,862*	*4.5*
no. analytical tests on surface water	*no.*	*631*	*678*	*430*	*-36.6*
no. analytical tests on wastewater	**no.**	**44,730**	**44,304**	**49,415**	**11.5**

(*) Figures for 2017 have been restated compared to last year's publication. The 2018 data are estimated because they were only partially available at the time of publication.

RESOURCES USED	u. m.	2016	2017	2018	Δ% 2018/2017
COLLECTION, SUPPLY AND DISTRIBUTION DRINKING AND NON-DRINKING WATER					
materials (*)					
sodium hypochlorite	t	303	227	278	22.5
sodium chloride	t	5	5	6	20.0
hydrochloric acid	t	2	3	5	66.7
aluminium polychloride	t	13	9	4	-55.6
carbon dioxide	t	20	26	10	-61.5
descaling	t	13	17	8	-52.9
sodium hydroxide	t	3	4	6	50.0
magnesium sulphate heptahydrate	t	17	14	12	-14.3
semicalcium dolomite	t	15	10	9	-10.0
calcium carbonate	t	16	11	9	-18.2
food polyphosphates	t	1	2	2	-
ELECTRICITY					
total electricity for drinking water (**)	**GWh**	**35.9**	**36.7**	**35.1**	**-4.4**
electricity for water lifting stations (***)	*GWh*	*35.5*	*36.3*	*34.6*	*-4.7*
electricity for offices	*GWh*	*0.4*	*0.4*	*0.5*	*25.0*

WASTEWATER TREATMENT					
materials (****)					
polyelectrolyte emulsion	t	117.55	155.25	123.85	-20.2
sodium hypochlorite	t	250.94	316.05	319.16	1.0
aluminium polychloride	t	48.6	12.65	7.35	-41.9
peracetic acid	t	-	26.4	102.76	-
ELECTRICITY FOR WASTEWATER					
total electricity for wastewater	**GWh**	**21.0**	**24.2**	**25.1**	**4.1**
electricity for treatment	*GWh*	*17.4*	*21.8*	*22.5*	*3.2*
electricity for pumping stations	*GWh*	*3.6*	*2.4*	*2.6*	*8.3*
OTHER CONSUMPTION					
other drinking water consumption	**m^3**	**n.a.**	**n.a.**	**n.a.**	**-**

(*) The figures for 2016 and 2017 have been adjusted compared to what was published in previous years.

(**) 2018 data are estimated.

(***) Includes consumption for cathodic protection, storage tanks, switching chambers and others.

(****) Deviations from previous years in the quantities of materials used in the drinking water segment result from changes in the quantity and quality of the resource treated and from plant efficiency. The changes of the treatment materials depend on the entry into operation of the disinfection treatment with peracetic acid and on the lower need for aluminium polychloride in the sedimentation phase at the plants that may need it.

In some purification plants of Ponte a Tressa in the municipality of Siena, there is an industrial water network which allows treated wastewater for washing machinery and for the bathrooms in the office building. Moreover, at the Punta Ala purification plant in the Municipality of Castiglione della Pescaia, treated water is reused for irrigation purposes.

WASTE (*)	**u. m.**	**2016**	**2017**	**2018**	**Δ% 2018/2017**
SPECIFIC WASTE FROM TREATMENT OF WASTEWATER					
treatment sludge	t	11,625.51	11,289.34	8,486.43	-24.8
sand and sediment from treatment	t	507.32	484.40	524.58	8.3
WASTE PURSUANT TO LEGISLATIVE DECREE NO. 152/06 EXCLUDING SLUDGE AND SAND					
hazardous waste	t	74.36	48.42	10.71	-77.9
non-hazardous waste	t	666.74	732.51	237.73	-67.5

(*) The waste produced was all delivered for disposal or final recovery in Italy. The lack of delivery plants, despite the fact that the Order of the President of the Region of Tuscany no. 2/2018 required local landfills to accept quotas of sludge from various operators of the regional water service, led in 2018 to a decrease in the quantities of sludge produced sent for disposal. With regard to the items "hazardous waste" and "non-hazardous waste", the decrease recorded in 2018 is due to the completion of extraordinary works that in recent years have produced large quantities of obsolete materials sent for recovery/disposal.

TOTAL COD IN INPUT AND OUTPUT (2016-2018)

(t/year)	**2016**	**2017**	**2018**
COD_{in}	7,990	6,428	8,752
COD_{out}	900	720	592

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY ACQUEDOTTO DEL FIORA SPA (*) (2016-2018)

parameter	**average values (mg/l) 2016**	**average values (mg/l) 2017**	**average values (mg/l) 2018**
BOD_5	13.4	7.9	8.3
COD	55.6	41.0	35.0
SST	12.5	10.0	9.1
NH_4^+	4.8	6.4	10.4
phosphorus	2.5	2.6	2.8

(*) Installations with a treatment capacity greater than 20,000 population equivalent are considered.

TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY ACQUEDOTTO DEL FIORA SPA (*) (2016-2018)

parameter	average values (%) 2016	average values (%) 2017	average values (%) 2018
$100x(COD_{in} - COD_{out})/COD_{in}$	88.7	88.8	92.3
$100x(SST_{in} - SST_{out})/SST_{in}$	93.7	92.9	95.0
$100x(NH_{4\ in}^{+} - NH_{4\ out}^{+})/ NH_{4\ in}^{+}$	85.4	81.8	74.7
$100x(PO_{4\ in}^{-3} - PO_{4\ out}^{-3})/ PO_{4\ in}^{-3}$	53.5	46.0	53.5

(*) Installations with a treatment capacity greater than 20,000 population equivalent are considered.

Acquedotto del Fiora brought about interventions to increase energy efficiency both in the context of known technologies (inverter, high efficiency motors, recourse to LED technology for lighting, more efficient pumps, remote control) and developing **pilot projects**, especially regarding more energy consuming plants.
The table shows the main actions with an estimate of the related energy saving.

ACQUEDOTTO DEL FIORA ENERGY EFFICIENCY (2016-2018)

action	energy savings achieved 2016 (kWh)	energy savings achieved 2017 (kWh)	energy savings achieved 2018 (kWh)
efficiency improvement of drinking water pumping systems	129,682	225,000	-
efficiency improvement of treatment processes	-	-	38,000
replacement of lighting fixtures with LED fixtures	10,000	2,100	-

ACQUE

Acque SpA operates as the sole manager of the integrated water cycle of Lower Valdarno, a region that includes 55 municipalities in the provinces of Pisa, Lucca, Florence, Pistoia and Siena, where more than 738,000 inhabitants live, equal to about 328,000 user accounts. The service is carried out on the basis of the concession agreement issued by the Autorità Idrica Toscana (AIT). The water network extends for about 5,943 km and the sewerage network for about 3,048 km.

HUMAN RESOURCES IN FIGURES

ACQUE SPA EMPLOYEES: STAFF BREAKDOWN (2017-2018)

(no.)	2017				2018			
	men	women	**total**	weight %	men	women	**total**	weight %
executives	4	2	**6**	1.5	3	2	**5**	1.2
managers	5	4	**9**	2.2	5	4	**9**	2.2
clerical workers	94	144	**238**	59.4	91	151	**242**	60.0
workmen	148	0	**148**	36.9	147	0	**147**	36.5
total	**251**	**150**	**401**	**100.0**	**246**	**157**	**403**	**100.0**

ACQUE SPA EMPLOYEES: CONTRACT TYPE (2017-2018)

(no.)	2017			2018		
	men	women	**total**	men	women	**total**
staff with permanent contract	250	140	**390**	239	146	**385**
(of which) part-time staff	*4*	*32*	**36**	*4*	*29*	**33**
permanent staff	1	10	**11**	7	11	**18**
staff under apprenticeship contracts	0	0	**0**	0	0	**0**
total	**251**	**150**	**401**	**246**	**157**	**403**

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2017-2018) (*)

	2017	2018
accidents (no.)	9	6
total days of absence (**)	173	99
hours worked	639,710	646,149
Frequency index (FI) (number of accidents per 1,000,000/working hours)	**14.07**	**9.29**
Severity index (SI) (days of absence per 1,000/working hours)	**0.27**	**0.15**

(*) The values of the frequency and severity indices improved compared to 2017, returning to values similar to those of previous years.
(**) The value also excludes days of absent related to persistent or reopened injuries from previous years.

TRAINING COURSES AND COSTS IN ACQUE SPA (2017-2018)

course type	courses (no.)		sessions (no.)		training (hours)		costs (€) (*)	
	2017	2018	2017	2018	2017	2018	2017	2018
IT	16	7	46	14	1,333	490	n.a.	n.a.
new hires	1	1	3	3	313	326	n.a.	n.a.
technical-specialised	47	47	59	54	1,155	923	n.a.	n.a.
managerial	3	4	13	9	521	504	n.a.	n.a.
safety	21	25	65	84	2,853	4,643	n.a.	n.a.
environment	3	2	10	4	442	84	n.a.	n.a.
cross-cutting (**)	10	5	24	15	1,215	643	n.a.	n.a.
total (***)	**101**	**91**	**220**	**183**	**7,832**	**7,613**	**134,711**	**50,844**

(*) No cost data are available broken down by type of training.
(**) Cross-cutting training also includes training pursuant to Legislative Decree 231/01 and e-learning. Figures for 2017 have been restated compared to last year's publication.
(***) Some data have been restated compared to last year's publication.

TRAINED EMPLOYEES (2017-2018)

(no.)	2017 (*)			2018		
	men	women	**total**	men	women	**total**
	268	162	**430**	256	135	**391**

(*) The figures are higher than the number of employees as they include employees of other companies, posted workers and workers who provided services only for a few months of the year.

In 2018 training was provided to personnel from all business sectors (operational, commercial, administrative and personnel management), for a total of 7,613 hours. Safety training has been consistent, also as a result of the implementation of the **Road Safety Management System** in accordance with **UNI ISO 39001:2016**. Training initiatives promoted by the internal Academy have also been implemented to encourage the professional and personal growth of employees through the exchange of experience and information.

NETWORK AND PLANT CONSISTENCY AND ENVIRONMENTAL DATA

WATER SYSTEM MANAGED BY ACQUE SPA (active plants) (2016-2018)

	2016	2017	2018
water network (km)	5,912	5,921	5,943
aqueducts and transport networks (km)	*829*	*834*	*835*
distribution network (km)	*5,083*	*5,087*	*5,107*
well intake structures (no.)	531	531	525
spring intake structures (no.)	299	299	297
river and lake intake structures (no.)	22	21	20
reservoirs (no.)	569	568	561
disinfection/treatment plants (no.)	267	240	234
pumping stations (no.)	415	415	409

CONSISTENCY OF THE PURIFICATION AND SEWERAGE PLANTS MANAGED BY ACQUE SPA (2016-2018)

	2016	2017	2018
purification plants (no.)	139	139	138
sewerage pumping stations (no.)	527	531	544
sewerage network (km)	3,095	3,066	3,048

CERTIFICATIONS

Acque has implemented an Integrated Management System certified according to the **Best4 plus** scheme (quality, environment, safety, energy and social responsibility). This is accompanied by the **UNI ISO/IEC 17025:2005** certification of the laboratories, for which in the year was obtained renewal of accreditation and extension to additional parameters and the certification of the management system for road safety according to **UNI ISO 39001:2016**. Moreover, in 2018 Acque received certification for the implementation of the management system for the prevention of corruption according to the **UNI ISO 37001:2016** standard.

ACQUE SPA ENVIRONMENTAL ACCOUNTS (2016-2018)

PRODUCTS AND ANALYTICAL TESTS	u. m.	2016	2017	2018	Δ% 2018/2017
DRINKING WATER (*)					
drinking water from the environment	**Mm³**	**71.78**	**73.29**	**71.13**	**-2.9**
from lakes/rivers	*Mm³*	*3.36*	*3.48*	*3.83*	*10.1*
from wells	*Mm³*	*61.08*	*63.38*	*60.16*	*-5.1*
from springs	*Mm³*	*7.34*	*6.43*	*7.14*	*11.0*
water from other aqueduct systems	**Mm³**	**7.03**	**6.77**	**6.62**	**-2.2**
drinking water transferred to other aqueduct systems	Mm³	0.95	1.08	0.86	-20.4
production losses between catchment and network entry	Mm³	4.09	4.71	4.08	-13.4
drinking water released into company network	Mm³	73.76	74.26	72.81	-2.0
drinking water injected into the network + drinking water transferred to other systems and production losses between catchment and entry into the network	**Mm³**	**78.80**	**80.05**	**77.74**	**-2.9**
total drinking water supplied	**Mm³**	**47.68**	**44.42**	**44.42**	**-**
ASSESSMENT OF THE LOSSES ACCORDING TO MINISTERIAL DECREE NO. 99/97 AND IN CONFORMITY WITH THE ARERA REQUIREMENTS (**)					
Overall leaks (size A17)	Mm³	27.03	27.80	26.35	-5.2
Actual leaks (size A15 of Ministerial Decree 99/97)	Mm³	18.32	18.79	17.56	-6.5
TREATED WASTEWATER					
treated water in all treatment plants	**Mm³**	**51.40**	**45.31**	**47.25**	**4.3**
ANALYTICAL TESTS ON DRINKING WATER AND WASTEWATER					
no. analytical tests on drinking water *(including surface water tests)*	**no.**	**278,603**	**266,850**	**285,408**	**7.0**
no. analytical tests on wastewater	**no.**	**123,646**	**119,742**	**116,643**	**-2.6**

(*) The figures for 2016 and 2017 have been adjusted and are to be considered as definitive. The 2018 figures are estimated.

(**) The 2017 figures have been restated and are final. The 2018 figures are estimated.

RESOURCES USED	u. m.	2016	2017	2018	Δ% 2018/2017
COLLECTION, SUPPLY AND DISTRIBUTION DRINKING AND NON-DRINKING WATER					
materials					
laboratory reagents (chemical section and microbiological section)	t	2.49	2.37	3.51	48.1
sodium hypochlorite	t	250.03	220.30	187.92	-14.7
hydrochloric acid	t	395.03	394.51	383.53	-2.8
potassium permanganate	t	3.00	3.85	2.12	-44.9
aluminium polychloride	t	17.91	9.41	30.60	-

RESOURCES USED (follow)	u. m.	2016	2017	2018	Δ% 2018/2017
COLLECTION, SUPPLY AND DISTRIBUTION DRINKING AND NON-DRINKING WATER					
materials					
salt in bags	t	4.85	7.05	0.00	-
sodium chloride	t	357.23	377.47	384.68	1.9
lye	t	3.65	1.12	0.00	-
sodium metabisulphite	t	1.25	2.17	0.00	-
phosphoric acid	t	0.15	0.00	0.00	-
citric acid	t	1.58	1.98	0.45	-77.3
alifos L	t	0.00	0.03	0.10	-
aluminium polychlorosulphate	t	157.49	170.22	154.83	-9.0
other	t	0.00	0.00	1.32	-
ELECTRICITY (*)					
total electricity for drinking water	**GWh**	**52.08**	**55.41**	**54.04**	**-2.5**
electricity for water pumping stations	*GWh*	*51.55*	*55.09*	*53.58*	*-2.7*
electricity for offices	*GWh*	*0.53*	*0.32*	*0.46*	*43.8*
WASTEWATER TREATMENT					
materials					
polyelectrolyte powder	t	1.00	0.00	0.00	-
polyelectrolyte emulsion (**)	t	130.60	140.98	137.93	-2.2
aluminium polychloride	t	4.45	9.00	15.70	74.5
ferric chloride for sludge dehydration (40%)	t	529.65	437.83	471.76	7.8
sodium hypochlorite for final disinfection	t	1.00	14.42	64.9	-
peracetic acid for disinfection	t	9.50	12.00	4.0	-66.7
sulphuric acid	t	0.00	2.30	0.00	-
ferrous chloride 31.5%	t	0.00	10.22	5.37	-47.5
caustic soda 30% (sodium hydroxide) - Solvay	t	0.40	1.57	0.38	-75.8
citric acid	t	0.00	0.10	0.00	-
biotek base L - biological reactivator	t	0.06	0.12	0.00	-
nutrients	t	466.93	479.40	514.85	7.4
other	t	0.00	0.26	0.01	-
ELECTRICITY FOR WASTEWATER (*)					
total electricity for wastewater	**GWh**	**31.69**	**31.83**	**33.18**	**4.2**
electricity for treatment	*GWh*	*24.92*	*26.12*	*26.81*	*2.6*
electricity for pumping stations	*GWh*	*6.44*	*5.53*	*6.09*	*10.2*
electricity for offices	*GWh*	*0.33*	*0.18*	*0.28*	*55.6*
OTHER CONSUMPTION					
Other drinking water consumption	**m^3**	**287,554**	**277,104**	**283,673**	**2.4**
drinking water consumed for non-industrial water uses (the data relate to consumption for offices, outside showers, etc.) (***)	*m^3*	*59,862*	*55,459*	*62,028*	*11.8*
drinking water consumed for process water uses (washing machinery and bays, etc.) (****)	*m^3*	*219,413*	*221,645*	*221,645*	-

(*) Electricity data 2018 are estimated for December.

(**) The figure for 2017 has been adjusted from what was published last year.

(***) The value is partially estimated.

(****) The 2017 value has been adjusted; the 2018 figure, not available at the time of publication, was estimated in line with the 2017 figure.

WASTE (*)	u. m.	2016	2017	2018	Δ% 2018/2017
SPECIFIC WASTE FROM TREATMENT OF WASTEWATER					
treatment sludge	t	21,125.40	21,577.26	17,634.77	-18.3
sand and sediment from treatment	t	2,894.49	2,308.86	3,500.43	51.6
WASTE PURSUANT TO LEGISLATIVE DECREE NO. 152/06 EXCLUDING SLUDGE AND SAND					
hazardous waste	t	10.38	30.15	31.82	5.5
non-hazardous waste	t	43,919.86	49,410.19	63,179.64	27.9

(*) The lack of delivery plants, despite the fact that the Order of the President of the Region of Tuscany no. 2/2018 required local landfills to accept quotas of sludge from various operators of the regional water service, led in 2018 to a decrease in the quantities of sludge produced sent for disposal.

To wash the sludge dewatering equipment (belt presses) the company uses water recovered from industrial processes, for an estimated volume of about 239,803 m^3 in 2018.

TOTAL COD IN INPUT AND OUTPUT (2016-2018)

(t/year)	2016	2017	2018
COD_{in}	24,167	22,789	21,708
COD_{out}	2,380	1,603	1,521

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY ACQUE SPA (*) (2016-2018)

parameter	average values (mg/l) 2016	average values (mg/l) 2017	average values (mg/l) 2018
BOD_5	8.4	5.3	6.2
COD	43.3	34.3	30.6
SST	10.3	7.6	7.4
NH_4^+	6.3	4.7	5.0
phosphorus	2.5	2.4	2.1

(*) Installations with a treatment capacity greater than or equal to 10,000 population equivalent are considered.

TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY ACQUE SPA (*) (2016-2018)

parameter	average values (%) 2016	average values (%) 2017	average values (%) 2018
$100x(COD_{in} - COD_{out})/COD_{in}$	90.1	93.5	93.5
$100x(SST_{in} - SST_{out})/SST_{in}$	95.4	97.2	97.5
$100x(NH_{4\,in}^{+} - NH_{4\,out}^{+})/ NH_{4\,in}^{+}$	84.4	87.4	87.2
$100x(PO_{4\,in}^{-3} - PO_{4\,out}^{-3})/ PO_{4\,in}^{-3}$	68.4	74.6	73.0

(*) Installations with a treatment capacity greater than or equal to 10,000 population equivalent are considered.

Acque has brought about energy efficiency interventions, predicting the savings indicated in the table.

ACQUE SPA ENERGY EFFICIENCY (2016-2018)

action	energy savings achieved 2016 (kWh)	energy savings achieved 2017 (kWh)	energy savings achieved 2018 (kWh)
Le Lame plant - replacement of the aeration system	30,000	45,000	45,000
S. Jacopo system - replacement of the aeration system	40,000	40,000	70,000
intermunicipal water treatment - automation and revamping	550,000	550,000	600,000
La Fontina treatment plant - start automation and other efficiency improvements	-	-	10,000
smaller plants - efficiency improvements and pumps	6,000	6,000	6,000

OVERSEAS ACTIVITIES

Acea operates abroad in the water service sector. In particular, it is present in Peru, Honduras and the Dominican Republic, serving a total of about 4.2 million people.
Overseas activities have a limited incidence from an economic and financial viewpoint, in terms of consolidation percentage, but a brief description of them is given here because of their social importance.
The operations are carried out by companies created **through partnerships with local and international stakeholders**. The objective is to improve the service, especially as regards **technical and management aspects**. This is possible thanks to **staff training** and the **transfer of know-how** to local businesses.

CONSORCIO AGUA AZUL SA

The Consorcio Agua Azul was set up with the mission to produce drinking water for the local public-owned water company: SEDAPAL (Drinking water and sewerage service in Lima). The Consortium constructed the infrastructures required to satisfy part of the drinking water needs of the **northern areas of Lima, Peru**, using the surface and underground waters of the river Chillón and will be responsible for their management until 2027, when it will be transferred to the State.

CONSORCIO AGUA AZUL SA - MAIN CORPORATE AND OPERATIONAL DATA

Country (area)	Peru (north Lima - Cono Norte)
inhabitants served	839,000
customer	Sedapal (Drinking water and sewerage service in Lima, state owned)
sources of financing	equity capital and bonds issued on the Peruvian market
duration of the contract	07.04.2000 – 18.06.2027
purpose of the project	BOT (Build-Operate-Transfer) project for the construction and management of a drinking water supply system that draws on the water of the Chillón river and the underlying aquifer
shareholders	Acea SpA (25.5%), Impregilo International Infrastructures N.V. (25.5%), Marubeni Co. (29%), Inversiones Liquidas S.A.C (20%)
number of employees at 31.12.2018	33
turnover (in thousands of euro)	12,300

In 2018, in continuity with previous years, the Consorcio carried out several important initiatives for sustainability.
With regard to the development of human capital, the following were carried out: **training programme on environmental issues and safety at work** staged at university specialisation departments and local companies of primary importance, offering **2,382 hours of training** for internal staff and contractors; coordinated safety drills for the Carabayllo fire brigade; theoretical and practical courses **on the use of fertilisers, garden care and conversion to organic farming**, organised by the Chillón Valley Producers' Association, for a total of **1,796 hours of training provided**.
The relationship with the education world has been the subject of great attention. In partnership with the Faculty of Engineering of the National University of Peru training courses were organised on the **design and management of treatment plants with rapid filtration** for graduates of Latin American countries, and continued the **internship** programme offered to students and recent graduates of schools in the area.
In addition, **1,679 kits** containing teaching materials were distributed to primary schools and preschools (compared to 1,641 in 2017). This year too, distributed backpacks were made entirely of **recycled plastic materials** and distinguished by printed phrases encouraging the **proper use of water resources** and the respect of the environment.
Still with a view to involvement and attention to the territory, in 2018 the company hosted **309 visitors at its facilities**, including students, delegations of companies operating in the sector and regional institutions.
With regard to corporate welfare, in addition to administering the **annual assessment questionnaire on company climate**, which again this year registered a level of satisfaction equal to 100%, the Consorcio promoted an **influenza vaccination campaign** for employees and their families.
From the viewpoint of corporate social responsibility, the Consorcio Agua Azul confirmed its **support to state entities** (such as the State Police, primary schools, the Ministry of Agriculture and the Ministry of Health), **non-profit organisations** (such as associations for the rehabilitation of drug addicts) **and consumer associations**. For the Christmas holidays, **2,014 toys were donated to the children** of the local communities and restaurant vouchers were offered to the children of employees.
The Consorcio has maintained its **certification of the Integrated Quality and Environment System** according to **UNI ISO 9001:2008** and **UNI ISO 14001:2004**, valid until 2020. The management system implemented enables the optimisation of the production processes and simultaneously the significant reduction of the environmental impact, through actions aimed at energy saving and reducing the use of paper. During the year, the company satisfied the regulatory requirements concerning workers' rights and health and safety in the workplace.
Finally, in January a **multi-sector working group** was set up with the aim of **sharing certain issues related to the company's contractual activities** concerning the protection of the Chillón river basin. The monthly meetings were called directly by the local water authority, with the participation of the Water Resources Council of the Chillón - Rímac - Lurín basin.

CONSORCIO SERVICIO SUR

In the second half of 2018, the Consorcio Servicio Sur joint venture, led by Acea International in partnership with Peruvian partners, was awarded the tender for the management of the preventive and corrective maintenance contract for the water and sewerage network in the southern area of Lima (Peru), launched by the Peruvian state water company SEDAPAL, for a period of three years.

CONSORCIO SERVICIO SUR - MAIN CORPORATE AND OPERATIONAL DATA

Country (area)	Peru (south Lima)
inhabitants served	1,121,886
customer	Sedapal (drinking water and sewerage service in Lima, state owned)
sources of financing	equity
duration of the contract	24.08.2018 – 24.08.2021
purpose of the project	preventive and corrective maintenance of the water and sewerage system in the area south of Lima
shareholders	Acea International (50%), Acea Ato 2 (1%), Conhydra (29%), Valjo (14%), India (6%)
number of employees at 31.12.2018	193
turnover 2018 (in thousands of euros)	1,000

From the point of view of the **sharing economy**, the company allows employees to use **company vehicles** for **commuting** and promotes **carpooling in company cars**. This significantly reduces travel times and energy consumption.

AGUAS DE SAN PEDRO

Aguas de San Pedro ASP is the holder of a thirty-year contract for the management of the integrated water service in the city of San Pedro Sula in Honduras. During the year the company started a programme of interventions for the **enhancement, treatment and improvement of the water service and sewerage network** covering the entire city.

In 2018, 119,222, users were served and 69% of them were supplied with meters. The coverage of the drinking water service is equal to 99% of the population, 83% for sewerage services.

AGUAS DE SAN PEDRO SA - MAIN COMPANY AND OPERATING DATA

Country (area)	Honduras (San Pedro Sula)
inhabitants served	755,000
customer	municipal administration
sources of financing	equity capital and loans from commercial banks
duration of the contract	01.02.2001 – 01.02.2031
purpose of the project	concession of the integrated water service for the town of San Pedro de Sula
shareholders	Acea SpA 60.65%, Ireti SpA 39.35%
number of employees at 31.12.2018	425
turnover (in thousands of euro)	32,400

In line with previous years, in 2018 the company continued its programme of **technical assistance to rural communities**, and confirmed its commitment to promoting **initiatives to protect the environment**, continuing the **programme for the conservation of the El Merendón nature reserve**, declared a protected area for the production of water in San Pedro Sula.
The initiatives include various measures implemented starting in 2016, including:

- the "Un millon de Árboles para el Merendón" (One million trees for the Merendon) **reforestation** project: fruit trees – **56,093 in 2018** – and others for producing wood in the affected areas were planted, reaching a total of 765,628 plants since the start of the project;
- **environmental training**, which included 12 training courses for farmers benefiting from the reforestation project, involving 295 people for a total of 70 hours;
- **fire prevention**, with campaigns for the protection of the local region;
- **social assistance** of various kinds and technical assistance for the rural communities of Merendón.

In particular the programme for technical assistance to rural communities involved training for the community leaders who **manage and maintain water systems**, with the objective of enhancing their knowledge on the quality of water, the management and maintenance of the systems and the basic principles of hydraulics. In addition, about **1,500 bio-filters for drinking water** have been installed in 33 local communities of the Merendón; the creation of **5 committees for the promotion and dissemination of good hygiene practices was promoted** to benefit children, and the maintenance of water and sanitation equipment was performed in some schools.
With regard to personnel, implementation of the **workplace health plan continued**, as provided for in the *EMS-IHSS-ASP Corporate Medical System*, with the implementation of **targeted campaigns** on women's well-being, nutrition and healthy lifestyles; sports activities were organised for employees, and **vaccination campaigns** were offered against influenza, hepatitis A and B, tetanus and medical examinations to diagnose osteoporosis, as well as campaigns for ophthalmology and dentistry.
In 2018 certifications of the Quality Management System in compliance with the **UNI ISO 9001:2008** standard and of the laboratories according to the **UNI ISO/IEC 17025:2005** standard were confirmed.

ACEA DOMINICANA SA

Acea Dominicana deals with the commercial management of the water service in the **northern and eastern areas of Santo Domingo** in the **Dominican Republic**. The activities include the management of customer relations, the billing cycle and cost estimates, the installation of new meters and directing the works for new connections. The project is one of the first experiments of private participation in water services in the Dominican Republic.

The framework of a contractual addendum already signed by Acea Dominicana and Corporacion del Acueducto y Alcantarillado De Santo Domingo (CAASD), which extended the contract duration until 30 September 2023, also includes the financing, supply and installation of 30,000 meters for new users and the replacement of 10,000 meters for existing users. Apart from the foregoing, the company also carries out maintenance on the entire meter park.

ACEA DOMINICANA SA - MAIN CORPORATE AND OPERATIONAL DATA

Country (area)	Dominican Republic (north and east Santo Domingo)
inhabitants served	1,500,000
customer	Corporación del Acueducto y Alcantarillado de Santo Domingo (CAASD)
duration of the contract	01.10.2003 – 30.09.2023
purpose of the project	commercial management of the water service
shareholders	Acea SpA 100%
number of employees at 31.12.2018	178
turnover (in thousands of euro)	3,800

In 2018, the company supported various social activities in order to improve the relationship between the customer and the institutions. In this sense, in collaboration with CAASD, **educational campaigns for schools in the capital were launched** with the aim of **raising awareness among students about the proper use of water**, also distributing gadgets and kits containing school supplies.

In the **poorest areas of Santo Domingo** and **Boca Chica**, the promotional campaign **"Plan Deuda Cero" (Zero Debt Plan)** continued, aimed at users who are in arrears and want to cancel their debt through personalised payment plans, thus being able to fully enjoy the service.

Acea Dominicana also continued its commitment to **raising public awareness of the correct use of water resources** and **respecting the economic conditions of the contract**, necessary for the continuous improvement of the service offered by the company.

In 2018, with reference to the Quality Management System implemented and certified according to **UNI ISO 9001:2015**, numerous activities were carried out to improve the level of services offered both to the main customer (CAASD) and to users in the areas managed.

Moreover, the **development of software and applications** continued, aimed at improving **operational efficiency** in the land and facilitated bill payment options for clients. With these programs, Acea Dominicana **has achieved a total and timely control of the activities that take place in the field**, resulting in an **increase in the level of performance of the service**, allowing each customer, through a simple free app, to report faults in real time, make a complaint, **monitor their consumption** and make payments.

As regards the management of human resources, Acea Dominicana, in fulfilment of the regulations provided by the Dominican law on Employment and Social Rights, has always adopted **corporate policies aimed at safeguarding the rights and dignity of its workers**. Consistently with this approach, the private health insurance policy has been renewed and a severance fund has been allocated, **neither of which are compulsory** in the Dominican Republic.

GRI STANDARD CONTENT INDEX: REPORTING PRINCIPLES, GENERAL STANDARDS AND SPECIFIC MATERIAL STANDARDS

The Sustainability Report was prepared in accordance with **GRI Standards (ed. 2016): comprehensive**[128] **option**, as shown below in the GRI Content Index, which includes:

- reference to Reporting Principles (GRI 101 - Foundation 2016);
- the **definition of the 56 general standards** (GRI 102: General Disclosure 2016) **and 25 specific topics** ("Topic-specific Standards": 200-Economic, 300-Environmental, 400-Social) **deemed material** and **relevant indicators**, with **the indication of sections and pages of the document** where they can be found - **or responses to the indicators - and reporting of any omissions or "non-materiality" of certain indicators** included in material topics;
- **the extension of the "materiality" of each topic (specific standards), in other words its significance within the organisation** (Group or companies traceable to specific business sectors) **or outside of it** (for example supply chain, community).

Lastly, the right-hand columns of the Content Index give the main compliances with the topics provided under Legislative Decree no. 254/2016.

STANDARD GRI CONTENT INDEX		
GRI Standard	definition of GRI standards notes (responses or reporting of omissions or non-materiality) sections and reference pages	Compliance with Legislative Decree 254/2016
GRI 101: Foundation 2016 (Reporting Principles)		
GENERAL DISCLOSURES		
	ORGANIZATIONAL PROFILE	
GRI 102: General Disclosures 2016	**102-1 Name of the organization.** Acea SpA *Corporate identity* page 24.	**Art. 3 paragraph 1, letter a)**: the corporate management and organisation model
	102-2 Activities, brands, products, and services. *Corporate identity* pages 24ff., 25 chart no. 2.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-3 Location of headquarters. Piazzale Ostiense 2, 00154 Rome	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-4 Location of operations (number of countries where the organization operates, and the names of countries where it has significant operations and/or that are relevant to the topics covered in the report). *Corporate identity* pages 24f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-5 Ownership and legal form. *Corporate identity* pages 33f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-6 Markets served (including: geographic locations, sectors served, types of customers and beneficiaries). *Corporate identity* pages 24f., 34, 82ff.; *Relations with stakeholders* pages 82ff., 84 table no. 11.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-7 Scale of the organization (including: number of employees; net sales - for private sector organizations - or net revenues – for public sector organizations; total capitalization broken down in terms of debt and equity; quantity of products or services provided). *Corporate identity* pages 24, table no 6, 34 table no. 7; *Relations with stakeholders* pages 144, table no. 35, 166.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-8 Information on employees and other workers (total number of employees by employment type and gender, employment contract by region etc.; whether a significant portion of the organization's activities are performed by workers who are not employees. If applicable, a description of the nature and scale of work performed). *Relations with stakeholders* pages 142f., 144f., 152.	**Art. 3 paragraph 2, letter d):** social aspects and aspects related to staff management

[128] The definition of the general and specific standard elements have been translated from the English version of the Consolidated set of GRI Sustainability reporting standards 2016, see the original edition.

GRI 102: General Disclosures 2016	**102-9 Description of the organization's supply chain.** *Corporate identity* pages 26-29; *Relations with stakeholders* pages 137, 139.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-10 Significant changes to the organization's size, structure, ownership, or supply chain (including: changes in the location of, or changes in operations, including facility openings, closings, and expansions; changes in the share capital structure and other capital formation, maintenance, and alteration operations; changes in the location of suppliers, the structure of the supply chain, or relationships with suppliers etc.). *Corporate identity* pages 33f.; *Relations with stakeholders* page 139.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-11 Precautionary Principle or approach (whether and how the organization applies the Precautionary Principle or approach). *Corporate identity* pages 67ff., 73 and table no. 8; *Relations with stakeholders* page 172; *Relations with the environment* page 202.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-12 External initiatives (a list of externally-developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes, or which it endorses). *Membership in the United Nations Global Compact* pages 19ff.; *Corporate identity* pages 36ff., 73 table no. 8; *Relations with stakeholders* pages 137, 153, 171; *Relations with the environment* page 180.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-13 Membership of associations (the reporting should include memberships maintained at the organizational level in associations or organizations in which it holds a position on the governance body, participates in projects or committees, provides substantive funding beyond routine membership dues, or views its membership as strategic). *Relations with stakeholders* page 170.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	STRATEGY	
	102-14 Statement from senior decision-maker (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and its strategy for addressing sustainability. *Letter to stakeholders* pages 6-7; *Corporate identity* pages 34ff., 36ff., 40-63, 72f.	**Art. 3, paragraph 7:** The responsibility for ensuring that the report is [...] compliant rests with the directors
	102-15 Description of key impacts, risks, and opportunities. *Corporate identity pages* 26-29, 33f., 35f., 36f., 40-63, 66, 70f., 72f.; *Relations with stakeholders* pages 104, 169, 172; *Relations with the environment* page 193.	**Art. 3 paragraph 1, letter c):** the main risks, generated or incurred **Art. 3 paragraph 2, letter c):** the impact [...] on the environment and on health and safety
	ETHICS AND INTEGRITY	
	102-16 Description of the organization's values, principles, standards, and norms of behavior. *Corporate identity pages* 36ff., 64ff., 67, 69, 72f., 78 chart no. 16; *Relations with stakeholders* page 136.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-17 Mechanisms for advice and concerns about ethics (description of internal and external mechanisms for seeking advice about ethical and lawful behavior, and organizational integrity; reporting concerns about unethical or unlawful behavior, and organizational integrity etc.). *Corporate identity* pages 64, 70.	**Art. 3, paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 2, letter e):** respect for human rights, the measures taken to prevent their violations, as well as actions taken to prevent attitudes and actions that are in any case discriminatory
	GOVERNANCE	
	102-18 Governance structure of the organization, including committees of the highest governance body. Committees responsible for decision-making on economic, environmental, and social topics. *Corporate identity* pages 64ff.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-19 Process for delegating authority for economic, environmental, and social topics from the highest governance body to senior executives and other employees. The Board of Directors confers management delegations to the Chief Executive Officer, who, in the framework of the corporate macro-structure resolved by the Board itself, confers powers and delegations to the management, in compliance with the missions and responsibilities of the various structures. Normally, the process for any type of delegation (and therefore also for economic, environmental and social aspects) occurs through the analysis of the need/ requirement for a power to be attributed.	**Art. 3 paragraph 1, letter a)**: the corporate management and organisation model

GRI 102: General Disclosures 2016	**102-20 Executive-level responsibility for economic, environmental, and social topics (whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental, and social topics; whether post holders report directly to the highest governance body).** In Acea SpA, the Risk & Compliance Function, which reports hierarchically to the Chairman and is functional to the Chief Executive Officer, among other things coordinates and develops issues relating to social and environmental sustainability, supporting Group companies in planning the actions necessary to achieve the objectives, reporting annually on the effects through the Sustainability Report. This function includes the Sustainability Unit, whose manager is the Group CSR manager.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-21 Processes for consultation between stakeholders and the highest governance body on economic, environmental, and social topics. If consultation is delegated, describe to whom it is delegated and how the resulting feedback is provided to the highest governance body. During the year, management was invited to participate in meetings of the governing bodies, providing specific information and knowledge during the meetings. It is also worth mentioning the activity carried out by the Sustainability Advisory Board on the supervision of the progress of the Sustainability Plan, the results of which are communicated to Top Management. *Corporate identity* pages 36ff., 64ff.; *Relations with stakeholders* page 166.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-22 Composition of the highest governance body and its committees (executive or non-executive, independence, gender, competencies relating to economic, environmental, and social topics etc.). *Corporate identity* pages 64f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-23 Chair of the highest governance body (the organization shall report whether the Chair is also an executive officer in the organization, his or her function within the organization's management and the reasons for this arrangement). *Corporate identity* pages 64f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-24 Nomination and selection processes for the highest governance body and its committees (criteria used for nominating and selecting highest governance body members, including whether and how diversity, independence, expertise and experience relating to economic, environmental, and social topics are considered, stakeholders, including shareholders, are involved). In the composition of its corporate bodies, Acea ensures a balanced representation of gender, provided under law no. 120/2011, transposed into its articles of association in the same way as it guarantees the presence of independents, governed under such articles of association and the law in force. Diversity of gender in the governing body and Committees constitutes a particularly important element in relation to both mitigation of the "single mode of thought" and the different way in which men and women exercise their leadership. Shareholders are involved in these selection processes and in compliance with the recommendations of the Self-Governance Code, they are steered in the choice of candidates to put forward in the lists of orientation drawn up by the Board of Directors of Acea, subject to the opinion of the Appointments Committee and considering the outcomes of self-assessment and the dimension and composition of the governing body. *Corporate identity* pages 64f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-25 Processes for the highest governance body to ensure conflicts of interest are avoided and managed. The risk of conflict of interest in Acea is monitored thanks to internal corporate governance systems and procedures (Management, organisation and control model, Code of Ethics, Related Parties Transactions procedure, independent Directors). These tools are used to intervene in the various frameworks within which a conflict of interest may arise: in relations between controlling and minority stakeholders, between Acea and Related Parties and between Acea and Public Administrations. *Corporate identity* pages 64ff.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-26 Highest governance body's and senior executives' roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental, and social topics. *Disclosing sustainability: methodological note* page 12; *Corporate identity* pages 36ff., 40-63, 64ff., 72f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

GRI 102: General Disclosures 2016	**102-27 Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental, and social topics.** *Disclosing sustainability: methodological note* page 12; *Corporate identity* pages 36f., 38, 64f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-28 Processes for evaluating the highest governance body's performance with respect to governance of economic, environmental, and social topics. The non-executive directors receive a fixed remuneration, determined by the Shareholders' Meeting, commensurate to the commitment required of them. *Corporate identity* pages 64, 66, 74; *Relations with stakeholders* page 162.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-29 Highest governance body's role in identifying and managing economic, environmental, and social topics and their impacts, risks, and opportunities – including its role in the implementation of due diligence processes. *Disclosing sustainability: methodological note* page 12; *Corporate identity* pages 38, 40f., 64ff., 67ff., 72f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-30 Highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental, and social topics. *Disclosing sustainability: methodological note* page 12, *Corporate identity* pages 40f., 64ff., 67ff.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-31 Frequency of the highest governance body's review of economic, environmental, and social topics and their impacts, risks, and opportunities. *Disclosing sustainability: methodological note* page 12, *Corporate identity* pages 40f., 64, 72f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-32 The highest committee or position that formally reviews and approves the organization's sustainability report and ensures that all material topics are covered. *Disclosing sustainability: methodological note* page 12; *Corporate identity* page 66.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-33 Process for communicating critical concerns to the highest governance body. The Board of Directors (BoD) receives constant information on potentially critical situations, primarily through the work carried out by the Control and Risk Committee, to which the manager of the Audit Function periodically reports, who interacts freely with the Board of Directors. The activities carried out and the findings of the Supervisory Boards (pursuant to Legislative Decree no. 231/01) which could lead to the emergence of a risk of responsibility for the company are the subject of flows of information to the BoD. The CEO, also in his role as Director in charge of the Internal Control and Risk Management System, constantly provides information to the Board of Directors concerning operating performance and the effective existence of potentially critical situations. *Corporate identity* pages 66, 68, 70f., 74.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-34 Nature and total number of critical concerns that were communicated to the highest governance body; mechanism(s) used to address and resolve critical concerns. *Corporate identity* pages 69f., 70f., 74.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-35 Remuneration policies for the highest governance body and senior executives (fixed pay and variable pay, sign-on bonuses or recruitment incentive payments, termination payments etc.). How performance criteria in the remuneration policies relate to the highest governance body's and senior executives' objectives for economic, environmental, and social topics. We point out that in Acea, for the Top Management, Managers having strategic responsibility and managerial roles with greater impact on Group business, the clawback clause is applied - a right to ask the return of variable components in remuneration, in the short and long term if such components were paid on the basis of conduct of gross negligence or wilful misconduct. No agreements are in place which provide fixed indemnities or clauses aimed at safeguarding Group Directors if the working relationship is terminating, for this mater reference is made to the institutions under the Collective Labour Agreement for Directors of Service Companies of Public Utility. Within the Catalogue of Group Objectives, which provides a set of indicators for assigning to Management performance targets, the contexts in which to retrace the identified objectives are defined amongst which those associated to the treatment/ remedy of non-conformities for Quality the Environment Safety and Energy. *Corporate identity* pages 64ff.; *Relations with stakeholders* page 162.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

GRI 102: General Disclosures 2016	**102-36 Process for determining remuneration; whether remuneration consultants are involved in determining remuneration and whether they are independent of management.** No external subjects to the company were involved in determining the remuneration Policy. *Corporate identity* pages 64ff.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-37 Stakeholders' involvement in remuneration. *Corporate identity* page 66.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-38 Ratio of the annual total compensation for the organization's highest-paid individual in each country of significant operations to the median annual total compensation for all employees (excluding the highest-paid individual) in the same Country. The ratio between remuneration for the highest-paid individual and average employee for 2018 is given by retributive multiple 7.46, which is compared to a mean value of 14.82 of peer companies. See also the 2018 Remuneration Report available on the Acea Group website (www.gruppo.acea.it). *Corporate identity* page 66.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-39 Ratio of the percentage increase in annual total compensation for the organization's highest-paid individual in each Country of significant operations to the median percentage increase in annual total compensation for all employees (excluding the highest-paid individual) in the same Country. The company chose to only provide the datum concerning the ratio between the remuneration of the highest-paid individual and the median remuneration of the employees, in line with the Glass Lewis European guidelines, one of the main proxy advisors.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	STAKEHOLDER ENGAGEMENT	
	102-40 List of stakeholder groups engaged by the organization. *Disclosing sustainability: methodological note* pages 13ff.; *Corporate identity* pages 74-77; *Relations with stakeholders* pages 85-90, 98, 99, 100, 103f., 106, 107f., 109f., 121, 122, 124, 126, 129ff., 132ff., 141ff., 152ff., 156ff., 158f., 161ff., 166, 167, 169ff.; *Relations with the environment* page 188.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-41 Percentage of total employees covered by collective bargaining agreements. *Relations with stakeholders* page 152.	**Art. 3, paragraph 2, letter d):** social aspects and aspects relating to staff management
	102-42 Basis for identifying and selecting stakeholders with whom to engage. *Disclosing sustainability: methodological note* pages 13ff.; *Corporate identity* pages 74-77; *Relations with stakeholders* pages 85-90, 99, 100, 103, 106, 107f., 109f., 121, 122, 124, 126, 129ff., 132ff., 141ff., 152ff., 156ff., 158f., 161ff., 164, 166, 167, 171.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-43 Approach to stakeholder engagement (including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process). *Disclosing sustainability: methodological note* pages 13ff.; *Corporate identity* pages 74-77; *Relations with stakeholders* pages 85-90, 98, 99, 100, 103, 106, 107f., 109f., 121, 122, 124, 126, 129ff., 132ff., 141ff., 152ff., 156ff., 158f., 161ff., 164f., 166f., 169ff.; *Relations with the environment* page 182, 188.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	102-44 Key topics and concerns that have been raised through stakeholder engagement (including how the organization has responded to those key topics and concerns, including through its reporting, and the stakeholder groups etc.). *Disclosing sustainability: methodological note* pages 13ff.; *Corporate identity* pages 74-77; *Relations with stakeholders* pages 85-90, 89-90 table no. 12, 99, 100, 103, 106, 107f., 109f., 121, 122, 124, 126, 129ff., 132ff., 141ff., 152ff., 156ff., 158f., 161, 167, 169, 171f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model
	REPORTING PRACTICE	
	102-45 List of all entities included in the organization's consolidated financial statements. Specify whether any entity included in the organization's consolidated financial statements is not covered by the report. The indicator is also shown in the report each time the reference boundary of the disclosure changes. Such shift in some cases is simply to be correlated to the various business sectors (and related pertaining companies) accounted for, in others it must be related to the centralised management of some data which, by virtue of the activities managed under service, does not include the whole accounting scope. *Disclosing sustainability: methodological note*, pages 16 and table no. 2, 17 note 13; *Relations with stakeholders* pages 82, 138; *Relations with the environment* pages 183, 187, 190; *Sustainability Report* page 256.	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries

GRI 102: General Disclosures 2016	**102-46 Process for defining the report content and the topic Boundaries (including an explanation of how the organization has implemented the Reporting Principles for defining report content).** *Disclosing sustainability: methodological note* pages 13ff. and note 7, 15f., 18; *Corporate identity* pages 26-29, 35f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	102-47 List of the material topics identified in the process for defining report content. *Disclosing sustainability: methodological note*, pages 13ff., 15, table no. 1; GRI *Standards Content Index* pages 230ff.	**Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	102-48 Effect of any restatements of information given in previous reports, and the reasons for such restatements (mergers or acquisitions, change of base years or periods, nature of business, measurement methods). Any recalculations or aggregations implying changes respect to that published in 2017 are adequately marked and grounded in the report. *Disclosing sustainability: methodological note*, page 16; *Relations with stakeholders* pages 140 table no. 33, 141 table no. 34, 144 note 95; *Relations with the environment* page 203, 205 table no. 67.	**Art. 3 paragraph 3:** the information [...] is provided with a comparison in relation to those provided in previous years
	102-49 Significant changes from previous reporting periods in the list of material topics and topic Boundaries. No significant changes during the year.	**Art. 3 paragraph 3:** the information [...] is provided with a comparison in relation to those provided in previous years
	102-50 Reporting period for the information provided (for example, the fiscal or calendar year). *Disclosing sustainability: methodological note* page 12 and note 4.	**Art. 2, paragraph 1:** public interest entities draw up a declaration for each financial year **Art. 3 paragraph 3:** the information [...] is provided with a comparison in relation to those provided in previous years
	102-51 Date of the most recent previous report. *Disclosing sustainability: methodological note* page 12.	**n/a**
	102-52 Reporting cycle (for example, annual or biennial). *Disclosing sustainability: methodological note* page 12	**Art. 2, paragraph 1:** public interest entities draw up a declaration for each financial year
	102-53 Contact point for questions regarding the report or its contents. *Disclosing sustainability: methodological note* page 18.	**n/a**
	102-54 Claims of reporting in accordance with the GRI Standards (either: i. "This report has been prepared in accordance with the GRI Standards: Core option", ii. "This report has been prepared in accordance with the GRI Standards: Comprehensive option"). *Disclosing sustainability: methodological note* page 12; *GRI Standard Content Index Standard* pages 230ff.	**Art. 3 paragraph 3:** reporting standard used
	102-55 GRI content index, which specifies each of the GRI Standards used and lists all disclosures included in the report (for each disclosure, the content index shall include: the number of the disclosure, the page number(s) or URL(s) where the information can be found, if applicable, and where permitted, the reason(s) for omission when a required disclosure cannot be made, etc); include any additional material topics reported on which are not covered by the GRI Standards. *GRI Standard Content Index Standard* pages 230ff.	**Art. 3 paragraph 3:** reporting standard used
	102-56 External assurance (the reporting organization shall report a description of the organization's policy and current practice with regard to seeking external assurance for the report; a reference to the external assurance report; the relationship between the organization and the assurance provider; whether and how the highest governance body or senior executives are involved in seeking external assurance for the organization's sustainability report). *Disclosing sustainability: methodological note* page 12; *Opinion Letter* page 287.	**Art. 3 paragraph 10:** verification [...] of the report of a non-financial nature

MATERIAL TOPIC-SPECIFIC STANDARDS		
GRI 200: ECONOMIC TOPICS 2016		
TOPIC	ECONOMIC PERFORMANCE	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 33ff., 35. **Topic Boundary: Acea Group**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 33ff., 35.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 33ff., 35.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 201: Economic Performance 2016	**201-1 Direct economic value generated and distributed (including revenues, operating costs, employee wages and benefits, payments to providers of capital, payments to government and community investments, economic value retained).** *Corporate identity* pages 34, table no. 7, 74-77, 78f.; *Relations with stakeholders* pages 150, 166, 168.	**Art. 3 paragraph 1, letter d):** social aspects and aspects relating to staff management
	201-2 Financial implications and other risks and opportunities due to climate change. *Corporate identity* pages 26-29, 34, 40-63, 71; *Relations with the environment* pages 180, 198.	**Art. 3 paragraph 1, letter c):** the impact [...] on the environment
	201-3 Defined benefit plan obligations and other retirement plans. *Relations with stakeholders* pages 150, 151, table no. 39.	**Art. 3 paragraph 1, letter d):** social aspects and aspects relating to staff management
	201-4 Financial assistance received from government. *Corporate identity* page 78 note 23.	**n/a**
TOPIC	INDIRECT ECONOMIC IMPACTS	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 74-77; *Relations with stakeholders* pages 91ff., 132ff., 137. **Topic Boundary: main Group companies; local community; suppliers.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 74-77; *Relations with stakeholders* pages 91ff., 132ff., 137.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 74-77; *Relations with stakeholders* pages 91ff., 137.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 203: Indirect Economic Impacts 2016	**203-1 Infrastructure investments and services supported (the organization shall report: the extent of development of significant infrastructure investments; current or expected impacts on communities, including positive and negative impacts where relevant; whether these investments and services are commercial, in-kind, or pro bono engagements, etc.).** *Corporate identity* pages 74-77ff.; *Relations with stakeholders* pages 91ff., 98, 99, 100, 101f., 103f., 105f., 107f., 110, 132ff., 172 chart no. 41.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment as well as on health and safety
	203-2 Significant indirect economic impacts (examples of significant identified indirect economic impacts of the organization, including positive and negative impacts, etc.). *Corporate identity* pages 74-77ff.; *Relations with stakeholders* pages 83, 91ff., 99, 100, 101f., 105f., 132ff., 136ff., 138f., 140 tables nos. 33 and 34; *Relations with the environment* page 198.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment as well as on health and safety

TOPIC	PROCUREMENT PRACTICES	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 72f.; *Relations with stakeholders* pages 136ff. **Topic Boundary: main Group companies; suppliers.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 136ff., 143.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 136ff.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 204: Procurement Practices 2016	**204-1 Proportion of spending on local suppliers.** No specific preferential strategy is foreseen for local suppliers, even though, particularly for provisioning works, the prevalence of local suppliers comes about naturally. *Relations with stakeholders* pages 137, 139, 140 table no. 34	**Art. 3 paragraph 1, letter b):** non-financial key performance indicators
TOPIC	ANTI-CORRUPTION	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 69f., 72f.; *Relations with stakeholders* pages 158f. **Topic Boundary: Acea Group**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 69f., 72f.; *Relations with stakeholders* pages 158f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 69f., 72f.; *Relations with stakeholders* pages 158f.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 205: Anti-corruption 2016	**205-1 Total number and percentage of operations assessed for risks related to corruption. Significant risks related to corruption identified through the risk assessment.** *Corporate identity* pages 69f.	**Art. 3, paragraph 1, letter c):** the main risks, generated or incurred **Art. 3, paragraph 2, letter f):** fight against both active and passive corruption
	205-2 Communication and training about anti-corruption policies and procedures (total number and percentage of employees that the organization's anti-corruption policies and procedures have been communicated to, etc.). *Relations with stakeholders* pages 158f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 2, letter f):** Fight against active and passive corruption
	205-3 Confirmed incidents of corruption and actions taken (total number and nature of confirmed incidents of corruption, etc.). No episodes of corruption were recorded.	**Art. 3, paragraph 2, letter f):** Fight against active and passive corruption
TOPIC	ANTI-COMPETITIVE BEHAVIOR	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 67f., 69; *Relations with stakeholders* pages 137, 158f., 168. **Topic Boundary: Acea Group**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced

GRI 103: Management approach 2016 (follow)	**103-2 The management approach and its components.** *Corporate identity* pages 67f., 69; *Relations with stakeholders* pages 137, 158f., 168.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 67f., 69; *Relations with stakeholders* pages 137, 158f., 168.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 206: Anti-competitive Behavior 2016	**206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices (Number of legal actions pending or completed including any decisions or judgments).** *Relations with stakeholders* page 168.	**Art. 3 paragraph 1, letter b):** non-financial key performance indicators
GRI 300: ENVIRONMENTAL TOPICS 2016		
TOPIC	MATERIALS	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 71, 72f.; *Environmental accounts* page 256 **Topic Boundary: main Group companies**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 71, 72f.; *Environmental accounts* page 256	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 71, 72f.; *Environmental accounts* page 256	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 301: Materials 2016	**301-1 Materials used by weight or volume (materials that are used to produce and package the organization's primary products and services, by non-renewable and renewable materials used).** *Relations with the environment* page 200 and table no. 63; *Environmental accounts* pages 256, 263f., 265.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
	301-2 Percentage of recycled input materials used to manufacture the organization's primary products and services. **Non material**: in light of the materials used (301-1), which are mainly chemical, the indicator is not material.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
	301-3 Percentage of reclaimed products and their packaging materials for each product category. Not applicable.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
TOPIC	ENERGY	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 26-29, 35, 72f.; *Relations with stakeholders* page 158; *Relations with the environment* pages 178, 183. **Topic Boundary: main Group companies; suppliers.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 26-29, 35, 72f.; *Relations with stakeholders* page 158; *Relations with the environment* pages 178, 183.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 26-29, 35, 72f.; *Relations with stakeholders* page 158; *Relations with the environment* pages 178, 183.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them

GRI 302: Energy 2016	**302-1 Energy consumption within the organization.** *Relations with stakeholders* page 126; *Relations with the environment* page 197.	**Art. 3, paragraph 2, letter a):** the use of energy resources
	302-2 Energy consumption outside of the organization. *Relations with the environment* page 198.	**Art. 3, paragraph 2, letter a):** the use of energy resources
	302-3 Energy intensity. *Relations with the environment* pages 197, 198.	**Art. 3, paragraph 2, letter a):** the use of energy resources
	302-4 Reduction of energy consumption. *Relations with stakeholders* page 126; *Relations with the environment* pages 198, 199.	**Art. 3, paragraph 2, letter a):** the use of energy resources
	302-5 Reductions in energy requirements of products and services. **Non material**: The Group does not sell products or services for which the indicator could be considered as materials.	**Art. 3, paragraph 2, letter a):** the use of energy resources
TOPIC	WATER	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 26-29, 35, 71, 72f., *Relations with the environment* pages 178, 182, 191, 193, 200f. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 26-29, 35, 72f., *Relations with the environment* pages 178, 182, 191, 193, 200f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity pages* 26-29, 35, 72f., *Relations with the environment* pages 178, 182, 191, 200f.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 303: Water 2016	**303-1 Total volume of water withdrawn, with a breakdown by source.** The water consumed is all fresh water. *Relations with the environment* page 200 table no. 63; *Environmental accounts* pages 260, 260ff.	**Art. 3 paragraph 2, letter a):** the use of water resources
	303-2 Water sources significantly affected by withdrawal of water. *Relations with the environment* page 181.	**Art. 3 paragraph 2, letter a):** the use of water resources
	303-3 Percentage and total volume of water recycled and reused. *Relations with the environment* page 200 e table no. 63.	**Art. 3 paragraph 2, letter a):** the use of water resources
TOPIC	BIODIVERSITY	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 71, 72f.; *Relations with the environment* page 180f. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 72f.; *Relations with the environment* pages 180f., 194.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f.; *Relations with the environment* pages 180f.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 304: Biodiversity 2016	**304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.** *Relations with the environment* pages 180f.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
	304-2 Significant impacts of activities, products, and services on biodiversity. *Relations with the environment* pages 180f., 182, 187.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment

GRI 304: Biodiversity 2016 (follow)	**304-3 Habitats protected or restored.** *Relations with the environment* pages 180f., 182.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk. *Relations with the environment* pages 180f.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
TOPIC	EMISSIONS	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 26-29, 71, 72f., *Relations with the environment* pages 178, 179f., 202. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 26-29, 72f., *Relations with the environment* pages 178, 179f., 202	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 26-29, 72f., *Relations with the environment* pages 178, 179f., 202.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 305: Emissions 2016	**305-1 Direct (Scope 1) GHG emissions.** The CO2 biogenic was calculated for the Environment area and in 2018 it was equal to 368,089 tonnes. *Relations with the environment* pages 203, 204 table no. 67; *Environmental accounts* pages 266f., 268.	**Art. 3 paragraph 2, letter b):** greenhouse gas emissions
	305-2 Energy indirect (Scope 2) GHG emissions. *Relations with the environment* pages 203, 204 table no. 67; *Environmental accounts* pages 266f.	**Art. 3 paragraph 2, letter b):** greenhouse gas emissions
	305-3 Other indirect (Scope 3) GHG emissions. *Relations with the environment* pages 203, 204 table no. 67.	**Art. 3 paragraph 2, letter b):** greenhouse gas emissions
	305-4 GHG emissions intensity. *Relations with the environment* pages 203, 204 table no. 67.	**Art. 3 paragraph 2, letter b):** greenhouse gas emissions
	305-5 Reduction of GHG emissions as a direct result of reduction initiatives. *Relations with the environment* pages 187, 198, 199, 200 table no. 62, 204 table no. 67.	**Art. 3 paragraph 2, letter b):** greenhouse gas emissions
	305-6 Emissions of ozone-depleting substances (ODS). *Relations with the environment* page 204; *Environmental accounts* page 263.	**Art. 3 paragraph 2, letter b):** greenhouse gas emissions
	305-7 Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions. *Relations with the environment* page 204 table no. 66; *Environmental accounts* pages 266f.	**Art. 3 paragraph 2, letter b):** pollutant emissions into the atmosphere
TOPIC	EFFLUENTS AND WASTE	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 71, 72f.; *Relations with the environment* page 194; *Environmental accounts* page 256. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 72f, *Relations with the environment* page 194; *Environmental accounts* page 256.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f, *Relations with the environment* page 194; *Environmental accounts* page 256.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them

GRI 306: Effluents and Waste 2016	**306-1 Water discharge by quality and destination.** The water used by Acea structures for "civil/hot water" undergoes the same standard purification process to which all town waste water is submitted. The environmental impact produced on the receiving body of water from the discharge of purified water from all the plants is not significant. *Environmental accounts* page 262.	**Art. 3 paragraph 2, letter a):** the use of water resources
	306-2 Waste by type and disposal method. The total hazardous waste products is equal to 86,505.5 t; the total non-hazardous waste products is equal to 220,605.9 t (of which 159,478 is sludge, sand and gratings). The percentage of hazardous and non-hazardous waste sent for recovery is 42%. Differentiated collection obtained about 842 tonnes of paper in 2018 (-22% compared to 2017) and 485 tonnes of plastic (-24% compared 2017). There is no detailed information at this time regarding the type of disposal inasmuch as code R13 of the normative in force on waste (most used by disposal operators) does not permit the identification thereof. *Relations with the environment* page 190, *Environmental accounts* pages 266f., 267, 268.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
	306-3 Total number and total volume of recorded significant spills. In 2018, there were no significant released into the environment of polluting substances such as mineral oil, fuels or chemical products.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
	306-4 Transport of hazardous waste. This disclosure covers waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII. Total weight for each of the following: hazardous waste transported, imported, exported, treated, and percentage of hazardous waste shipped internationally. **Non-material**: the Aquaser company transports and delivers non-hazardous waste.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
	306-5 Water bodies affected by water discharges and/or runoff, including information on the size of the water body and related habitat; whether the water body and related habitat is designated as a nationally or internationally protected area; the biodiversity value etc. No drain to report that significantly affects the habitats and biodiversity.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment
TOPIC	ENVIRONMENTAL COMPLIANCE	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 72f.; *Relations with stakeholders* page 158; *Relations with the environment* page 182. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity pages* 72f.; *Relations with stakeholders* page 158; *Relations with the environment* page 182.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f.; *Relations with stakeholders* page 158; *Relations with the environment* page 182.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 307: Environmental Compliance 2016	**307-1 Non-compliance with environmental laws and regulations. Total monetary value of significant fines; total number of non-monetary sanctions, etc.** *Relations with stakeholders* page 168; *Relations with the environment* page 182.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
TOPIC	SUPPLIER ENVIRONMENTAL ASSESSMENT	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 26-29, 72f.; *Relations with stakeholders* page 137. *Relations with the environment* pages 180, 198, 203. **Topic Boundary: main Group companies; suppliers.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced

GRI 103: Management approach 2016 (follow)	**103-2 The management approach and its components.** *Corporate identity* pages 26-29, 72f.; *Relations with stakeholders* page 141ff.; *Relations with the environment* pages 180, 198, 203.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 26-29, 72f.; *Relations with stakeholders* page 136f., 141ff.; *Relations with the environment* pages 180, 198, 203.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 308: Supplier Environmental Assessment 2016	**308-1 Percentage of new suppliers that were screened using environmental criteria.** *Relations with stakeholders* 137, 141ff.; *Relations with the environment* pages 180, 198.	**Art. 3 paragraph 1, letter c):** The main risks generated or suffered [...] deriving from the business, its products, services or commercial relations, including, where relevant, the supply and subcontracting chains
	308-2 Actual and potential negative environmental impacts in the supply chain and actions taken. *Relations with stakeholders* pages 141ff.; *Relations with the environment* pages 180, 198, 203.	**Art. 3 paragraph 1, letter c):** The main risks generated or suffered [...] deriving from the business, its products, services or commercial relations, including, where relevant, the supply and subcontracting chains **Art. 3 paragraph 2, letter c):** the impact [...] on the environment
GRI 400: SOCIAL TOPICS 2016		
TOPIC	EMPLOYMENT	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 72f.; *Relations with stakeholders* pages 144f., 157. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 144f., 157.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 144f., 157.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 401: Employment 2016	**401-1 New employee hires and employee turnover. Total number and rate, by age group, gender and region.** *Relations with stakeholders* pages 144f., 147 table no. 36, 148 table no. 37.	**Art. 3 paragraph 2, letter d):** aspects relating to staff management
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees. *Relations with stakeholders* page 162.	**Art. 3 paragraph 2, letter d):** aspects relating to staff management
	401-3 Parental leave. Total number of employees that were entitled to parental leave, that took parental leave, that returned to work after parental leave ended, by gender, etc. Acea operates in compliance with the Consolidated Act on the protection and support of maternity and paternity (Italian Legislative Decree no. 151/2001 as subsequently amended and supplemented), which regulates leave, rest, permits and economic support to workers connected with the maternity and paternity of natural, adopted and fostered children. The legislation bans any discrimination for reasons based on gender, with specific regards to any less favourable treatment due to being pregnant, a mother or a father; it establishes compulsory maternity for a period running from two months before and three months after delivery and guarantees that the job will be kept during that period, laying down a ban on dismissal; it also establishes that the resource will be returned to the duties carried out prior to the leave or equivalent duties, envisaging sanctions for any employers breaching this law. Therefore, 100% of employees using this type of leave, maintain their job and return to work. 392 employees in 2018 made use of **parental leav**e, of whom 143 were men and 249 were women. At the end of the leave period, **everyone returned to work and are still active**.	**Art. 3 paragraph 2, letter d):** aspects relating to staff management **Art. 3, paragraph 2, letter e):** actions taken to prevent attitudes and conduct that are in any case discriminatory

TOPIC	LABOR/MANAGEMENT RELATIONS	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Relations with stakeholders* pages 152f. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Relations with stakeholders* pages 152f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Relations with stakeholders* pages 152f.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 402: Labor/Management Relations 2016	**402-1 Minimum notice periods regarding operational changes. Report whether the notice period and provisions for consultation and negotiation are specified in collective agreements.** *Relations with stakeholders* pages 152ff.	**Art. 3, paragraph 2, letter d):** method by which dialogue is carried out with the corporate parties
TOPIC	Occupational Health and Safety	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 26-29, 72f.; *Relations with stakeholders* pages 153, 155f., 158. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 26-29, 72f.; *Relations with stakeholders* pages 153, 155f., 158.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 26-29, 72f.; *Relations with stakeholders* pages 153, 155f., 158.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 403: Occupational Health and Safety 2016	**403-1 Workers representation in formal joint management–worker health and safety committees.** In Acea, the provisions are respected of Italian Legislative Decree no. 81/2008 on health and safety at work. 100% of workers are represented in formal health and safety commissions (made up of representatives of management and workers) through appointed figures. *Relations with stakeholders* pages 152, 154.	**Art. 3 paragraph 2, letter c):** the impact [...] on health and safety **Art. 3 paragraph 2, letter d):** aspects relating to staff management
	403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities, by gender and region. In 2018, the absenteeism rate is 3.8% (4.35% male absenteeism rate and 3.62% female absenteeism rate). *Relations with stakeholders* pages 143, 153, 154 chart no. 38, 155 table no. 40	**Art. 3 paragraph 2, letter c):** the impact [...] on health and safety **Art. 3 paragraph 2, letter d):** aspects relating to staff management
	403-3 Workers with high incidence or high risk of diseases related to their occupation. *Relations with stakeholders* page 156.	**Art. 3 paragraph 2, letter c):** the impact [...] on health and safety **Art. 3 paragraph 2, letter d):** aspects relating to staff management
	403-4 Health and safety topics covered in formal agreements with trade unions. *Relations with stakeholders* page 154.	**Art. 3 paragraph 2, letter c):** the impact [...] on health and safety **Art. 3 paragraph 2, letter d):** aspects relating to staff management [...] method by which dialogue is entertained with the corporate parties

TOPIC	TRAINING AND EDUCATION	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 72f.; *Relations with stakeholders* pages 156ff., 162. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 156ff., 162.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 156ff., 162.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 404: Training and Education 2016	**404-1 Average hours of training per year per employee; by gender and employee category.** *Relations with stakeholders* pages 159 chart no. 39, 160 table no. 41.	**Art. 3 paragraph 2, letter d):** aspects relating to staff management
	404-2 Programs for upgrading employee skills and transition assistance programs. *Relations with stakeholders* page 156ff.	**Art. 3 paragraph 2, letter d):** aspects relating to staff management
	404-3 Percentage of employees receiving regular performance and career development reviews. In 2018, under the scope of the current Staff Management System, all staff of the Group companies in the reporting period were assessed (100%). *Relations with stakeholders* pages 162f.	**Art. 3 paragraph 2, letter d):** aspects relating to staff management
TOPIC	DIVERSITY AND EQUAL OPPORTUNITY	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Relations with stakeholders* pages 150, 162, 164. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Relations with stakeholders* pages 150, 162, 164.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Relations with stakeholders* pages 150, 162, 164.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 405: Diversity and Equal Opportunity 2016	**405-1 Diversity of governance bodies and employees. Percentage of individuals within the organization's governance bodies, by gender, age group and other indicators of diversity. Percentage of employees per employee category, by gender, age group and other indicators of diversity.** The figure, relative to the governing bodies of all companies in the scope of the consolidated non-financial Statement, is presented in the Report, divided up by gender; data on age and other diversity indicators is not available. *Corporate identity* pages 64f.; *Relations with stakeholders* pages 147 and chart no. 35 and table no. 36, 149f. and table no. 38, 164f.	**Art. 3 paragraph 2, letter d):** social aspects and aspects relating to staff management
	405-2 Ratio of basic salary and remuneration of women to men for each employee category, by significant locations of operation. The collective national employment contract applied in Acea envisages equal remuneration for men and women of equal classification. *Relations with stakeholders* page 150 and chart no. 37.	**Art. 3 paragraph 2, letter d):** social aspects and aspects relating to staff management

TOPIC	LOCAL COMMUNITIES	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 72f., 74-77; *Relations with stakeholders* pages 85-90, 91ff., 99, 103, 106, 107f., 109f., 129, 167f., 169f. **Topic Boundary: main Group companies and various stakeholders.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 72f., 74-77; *Relations with stakeholders* pages 85-90, 91ff., 99, 103f., 106, 107f., 109f., 129, 167f., 169f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f., 74-77; *Relations with stakeholders* pages 85-90, 91ff., 99, 103f., 129, 167f., 169f.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 413: Local Communities 2016	**413-1 Operations with local community engagement, impact assessments, and development programs.** 100% of the main Group companies implement initiatives to involve stakeholders. *Disclosing sustainability: methodological note* pages 13ff.; *Corporate identity* pages 72f. and table no. 8, 74-77; *Relations with stakeholders* pages 85-90, 98, 99, 103f., 106, 107f., 109f., 126, 129ff., 132ff., 136ff., 141ff., 172; *Relations with the environment* pages 182, 188.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment and on health and safety
	413-2 Operations with significant actual and potential negative impacts on local communities. *Corporate identity* pages 74-77; *Relations with stakeholders* page 169; *Relations with the environment* page 183.	**Art. 3 paragraph 2, letter c):** the impact [...] on the environment and on health and safety
TOPIC	SUPPLIER SOCIAL ASSESSMENT	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 26-29, 72f. **Topic Boundary: main Group companies; suppliers.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 26-29, 72f.; *Relations with stakeholders* pages 141ff.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 26-29, 72f.; *Relations with stakeholders* pages 136f., 141ff.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 414: Supplier Social Assessment 2016	**414-1 Percentage of new suppliers that were screened using social criteria.** *Relations with stakeholders* pages 137, 141ff.	**Art. 3, paragraph 1, letter c)** The main risks generated or suffered [...] deriving from the business, its products, services or commercial relations, including, where relevant, the supply and subcontracting chains **Art. 3 paragraph 2, letter c):** t he impact [...] on health and safety
	414-2 Negative social impacts in the supply chain and actions taken. *Relations with stakeholders* pages 141ff.	**Art. 3 paragraph 2, letter c):** the impact [...] on health and safety

TOPIC	PUBLIC POLICY	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Relations with stakeholders* pages 167f. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Relations with stakeholders* pages 167f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Relations with stakeholders* pages 167f.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 415: Public Policy 2016	**415-1 Political contributions. Total monetary value of financial and in-kind political contributions made directly and indirectly by the organization by Country and recipient/beneficiary.** *Relations with stakeholders* page 168.	**Art. 3, paragraph 2, letter f):** fight against active and passive corruption
TOPIC	CUSTOMER HEALTH AND SAFETY	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 72f.; *Relations with stakeholders* pages 106, 107, 109ff., 169; *Relations with the environment* pages 187, 191. **Topic Boundary: main Group companies; customers; community.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 106, 107, 109ff., 169; *Relations with the environment* pages 187, 191.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 106, 107, 109ff., 169; *Relations with the environment* pages 187, 191.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 416: Customer Health and Safety 2016	**416-1 Assessment of the health and safety impacts of product and service categories.** *Corporate identity* pages 72f. and table no. 8; *Relations with stakeholders* pages 105f., 107f., 109ff.; *Relations with the environment* pages 187, 191.	**Art. 3 paragraph 2, letter c):** the impact [...] on health and safety
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services. *Relations with the environment* pages 172, 182.	**Art. 3 paragraph 2, letter c):** the impact [...] on health and safety
TOPIC	MARKETING AND LABELING	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Relations with stakeholders* pages 85-90, 91ff, 94ff., 100, 103, 121, 123f., 125, 126, 143, 168. **Topic Boundary: main Group companies; customers.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Relations with stakeholders* pages 91ff. 94ff, 95 table 13, 97 table 14, 100, 103, 111ff., 121, 122, 123f., 125, 126, 143, 168.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Relations with stakeholders* pages 91ff. 94ff., 100, 103, 121, 123f., 125, 126, 143, 168.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them

GRI 417: Marketing and Labeling 2016	**417-1 Requirements for product and service information and labeling.** The international indicator GRI, by virtue of the reference made to "services" as well as to products, is reported, adjusting it to the national context and the operations of a multiutility, both in respect of parameters relating to the quality of water distributed and in respect of the quality performance of the services managed (commercial, contractual and technical - of continuity), in the water area and energy area, subject to regulation by the sector authority, monitored by corporate procedures and communicated. *Relations with stakeholders* pages 91ff., 94ff., 95 table no. 13, 97 table nos. 14 and 15, 100 and table no. 19, 103, 105, 106 table no. 21, 109ff., 109 and table no. 24, 112f, and table no. 28, 115 table no. 29, 117 table no. 30, 120, 125, 126, 127 table no. 32; *Relations with the environment* page 191.	**Art. 3 paragraph 1, letter b):** non-financial key performance indicators
	417-2 Total number of incidents of non-compliance with regulations and/or voluntary codes concerning product and service information and labeling. *Relations with stakeholders* pages 91ff., 94ff., 95 table no. 13, 97 table nos. 14,and 15, 100 and table no. 19, 109ff., 112f. and table no. 28, 115 table no. 29, 117 table no. 30, 121, 125, 126, 127 table no. 32, 168.	**Art. 3 paragraph 1, letter b):** non-financial key performance indicators
	417-3 Total number of incidents of non-compliance with regulations and/or voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship. *Relations with stakeholders* pages 143, 168.	**Art. 3 paragraph 1, letter b):** non-financial key performance indicators
TOPIC	CUSTOMER PRIVACY	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 67f., 69, 72f.; *Relations with stakeholders* pages 123, 158f. **Topic Boundary: main Group companies; customers.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 67f., 69, 72f.; *Relations with stakeholders* pages 123, 158f.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 67f., 69, 72f.; *Relations with stakeholders* pages 123, 158f.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them
GRI 418: Customer Privacy 2016	**418-1 Substantiated complaints (received from outside parties and/or received from regulatory bodies) concerning breaches of customer privacy and losses of customer.** Since the entry into force of Regulation EU 679/2016 on the protection of personal data, 39 relevant requests (requests for updating, cancellation, modification, refusal of consent, etc.) have been received through the dedicated channel for the exercise of data subjects' rights. Three of these have led to the initiation of investigations by the Privacy Authority. To date, 2 out of 3 have been closed.	**Art. 3 paragraph 1, letter b):** non-financial key performance indicators
TOPIC	SOCIO ECONOMIC COMPLIANCE	
GRI 103: Management approach 2016	**103-1 Explanation of the material topic and its Boundary.** *Corporate identity* pages 72f.; *Relations with stakeholders* pages 94ff., 100, 111ff., 168. **Topic Boundary: main Group companies.**	**Art. 4, paragraph 1:** the consolidated statements include the data of the parent company and its fully consolidated subsidiaries **Art. 4 paragraph 1:** measure necessary to ensure the understanding of the group business, its performance, results and the impact it produced
	103-2 The management approach and its components. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 94ff., 100, 111ff., 121, 122, 126, 131, 168. *Relations with the environment* page 182.	**Art. 3 paragraph 1, letter a):** the corporate management and organisation model **Art. 3, paragraph 1, letter b):** the policies applied by the company
	103-3 Evaluation of the management approach. *Corporate identity* pages 72f.; *Relations with stakeholders* pages 94ff., 100, 126, 111ff., 126, 168.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them

GRI 419: Socio Economic Compliance 2016	**419-1 Non-compliance with laws and regulations in the social and economic area (total monetary value of significant fines; total number of non-monetary sanctions etc.).** *Relations with stakeholders* pages 100 note 50, 122, 168; *Relations with the environment* page 182.	**Art. 3, paragraph 1, letter b):** the policies applied by the company [...] and the results achieved through them

INDEX OF CHARTS AND TABLES

CHARTS

TABLES

ENVIRONMENTAL ACCOUNTS

ENVIRONMENTAL ACCOUNTS

REFERENCE BOUNDARY

The perimeter of the *Environmental Account* is consistent with the reporting perimeter of the *Sustainability Report* (pursuant to Italian Legislative Decree 254/2016), as defined in the *Methodological Note*.
The water companies in which Acea has an investment: Acque, Acquedotto del Fiora, Publiacqua and Umbra Acque – consolidated in the Financial Statements with the equity method – are marginally included in the Environmental Accounts and only relative to the aspects which are specifically signalled in the text. Please see the chapter *Water Company data sheets and overseas activities* (outside the perimeter of the *Consolidated Non-Financial Statement*). The company Gori, which joined the scope of consolidation on a line-by-line basis in November 2018, has not been included within the scope of the consolidated non-financial statement for this reporting cycle, but is considered to be the same as the other water companies in which it has an interest.

The *Environmental Accounts*, integral part of the *Sustainability Report*, combines and presents systematically the information and environmental performance data of the principal companies of the Group.
The data is divided into "product systems" pertaining to the energy, "environment" and water fields, according to the Life Cycle Assessment approach (standard ISO Series 14040), which assesses the entire life cycle of the systems.
The report comprises **about 400 items and parameters monitored** which quantify the physical flows generated by the activities and some performance indicators.

The substances used by the Group – whether natural, like water, or not natural, like chemicals – the "products" and the emissions, the effluents and waste related to the activities managed, are reported for the three-year period, since they are significant in terms of **producing and distributing energy, collecting and distributing drinking water**, the **purification** processes and for all the processes connected to **waste management**, including **waste-to-energy**. Every use is reduced to a minimum in terms of quantity and every substance is selected carefully in terms of quality, safety and environmental sustainability.

The resources, both the **renewable and non-renewable** ones, used are explained in the three areas. In particular, among the renewable resources listed we highlight the consumption of water and the biomasses used for the production of compost. The energy produced from renewable sources (photovoltaic and biogas) is used where possible in the closest factories or installations (see *Relations with the environment*).

In the *Explanatory Notes* we provide additional information regarding the **quality of the data presented**, in particular whether it was **measured, estimated** or **calculated**, and the principal items of the *Environmental Accounts*, indicated in the tables and in the text by a number in brackets, including a brief description.

PRODUCT SYSTEMS

ENERGY SEGMENT

- ENERGY GENERATION (THERMOELECTRIC + HYDROELECTRIC + PHOTOVOLTAIC + ELECTRICITY FROM WASTE AND BIOGAS)
- DISTRIBUTION OF ELECTRICITY
- PRODUCTION AND DISTRIBUTION OF HEAT
- PUBLIC LIGHTING
- CONTROLS AND MEASUREMENTS

ENVIRONMENT SEGMENT

- SOLID URBAN WASTE DISPOSED
- PRODUCTION OF COMPOST
- ANALYSIS AND MEASUREMENTS

WATER SEGMENT

- DRINKING WATER SUPPLY
- NON-DRINKING WATER SUPPLY
- WATER DISTRIBUTION
- ADDUCTION/PURIFICATION WASTEWATER
- ANALYSIS AND MEASUREMENTS

The data are provided for the 2016-2018 three-year period and aggregated in three homogeneous categories:
- **the product supplied,**
- **the resources used,**
- **the waste produced.**

The service indicators and the principal environmental performance indicators are explained below for every area.

THE PRODUCTS - ENERGY SEGMENT

The financial statement data relative to the generation of electricity refer to Acea Produzione and Acea Ambiente - Waste-to-Energy.

ELECTRICITY - GENERATION (*)	u. m.	2016	2017	2018	Δ% 2018/2017
Summary data					
Total gross electricity produced (1) = (3+11+14+19)	**GWh**	**755.17**	**837,90**	**968.38**	**15.6**
Total net electricity produced (2) = (10+13+18+21)	**GWh**	**696.89**	**773.32**	**900.19**	**16.4**
From fossil fuels (thermoelectric) (5 + 0.49x 15$_{San\ Vittore}$ +0.58x 16 $_{Terni}$)	*GWh*	*166.29 22.0% of (1)*	*229.45 27.4% of (1)*	*272.88 28.2% of (1)*	*18.9*
From renewable sources (Hydroelectric, solar, biodegradable waste fraction) (4+0.51x15$_{San\ Vittore}$ +0.42 x 16$_{Terni}$ +11+19)	*GWh*	*571.19 78.0% of (1)*	*608.45 72.6% di (1)*	*695.51 71.8% di (1)*	*14.3*
Acea Production - hydroelectric and thermoelectric					
Total gross electricity produced (3) = (4+5)	**GWh**	**399.73**	**420.18**	**549.84**	**30.9**
Total gross hydroelectric energy (4)	**GWh**	**389.68**	**380.48**	**476.52**	**25.2**
A. Volta Castel Madama	*GWh*	*0.00*	*6.92*	*31.64*	*357.4*
G. Ferraris Mandela	*GWh*	*10.71*	*3.27*	*0.00*	*-100.0*
G. Marconi Orte	*GWh*	*62.69*	*56.32*	*73.01*	*29.6*
Sant'Angelo	*GWh*	*132.62*	*128.42*	*188.68*	*46.9*
Salisano	*GWh*	*181.26*	*182.82*	*180.49*	*-1.3*
Other minor	*GWh*	*2.40*	*2.73*	*2.70*	*-0.8*
Total gross thermoelectric energy (5)	**GWh**	**10.05**	**39.70**	**73.32**	**84.7**
From diesel *Montemartini power plant* (**)	GWh	1.18	2.15	0.56	-74.1
From natural gas	GWh	8.88	37.55	72.76	93.8%
Tor di Valle cogeneration	*GWh*	*8.88*	*8.22*	*0.00*	*-100.0%*
Tor di Valle CAR module	*GWh*	*-*	*29.33*	*72.76*	*148.1%*
Total losses of electricity (6) = (7+8+9)	**GWh**	**10.90**	**10.12**	**12.32**	**21.7**
Self consumption hydro plants (7)	*GWh*	*2.09*	*1.98*	*2.00*	*1.0*
Self consumption thermo plants (Tor di Valle, Montemartini) (8)	*GWh*	*4.17*	*3.63*	*5.39*	*48.2*
First processing losses (9)	*GWh*	*4.63*	*4.51*	*4.93*	*9.3*
Total net electricity produced by Acea Produzione (10) = (3-6)	**GWh**	**388.84**	**410.06**	**537.52**	**31.1**
Production Area - Photovoltaic					
Gross photovoltaic electrical energy (11)	**GWh**	**10.99**	**11.60**	**10.20**	**-12.0**
Total electricity losses including own consumption (12)	GWh	1.95	1.98	2.18	10.3
Net photovoltaic energy (13) = (11-12)	**GWh**	**9.04**	**9.62**	**8.02**	**-16.6**
Acea Ambiente - Waste-to-energy					
Total gross electricity produced (14) = (15)+(16)	**GWh**	**326.75**	**384.25**	**389.71**	**1.4**
San Vittore del Lazio plant (15)	*GWh*	*243.68*	*301.15*	*307.30*	*2.0*
Terni plant (16)	*GWh*	*83.07*	*83.10*	*82.41*	*-0.8*
Self consumption + losses from first processing (17)	**GWh**	**44.34**	**51.30**	**52.73**	**2.8**
San Vittore del Lazio plant	*GWh*	*35.68*	*42.78*	*44.35*	*3.7*
Terni plant	*GWh*	*8.66*	*8.52*	*8.38*	*-1.7*
Total net electricity produced (18) = (14-17)	**GWh**	**282.41**	**332.95**	**336.98**	**1.2**
Acea Ambiente - Biogas					
Total gross electricity produced from biogas (19)	**GWh**	**17.69**	**21.87**	**18.63**	**-14.8**
Orvieto plant	*GWh*	*17.69*	*21.87*	*18.63*	*-14.8*
Self consumption (20)	*GWh*	*1.10*	*1.17*	*0.97*	*-17.2*
Total electricity transferred in network (21) = (19-20)	**GWh**	**16.60**	**20.69**	**17.66**	**-14.7**

(*) Some data of the two-year period preceding the year of publication have been adjusted since they were estimated.
(**) The Montemartini power plant is maintained operational but in reserve mode.

THERMAL ENERGY - GENERATION	u. m.	2016	2017	2018	Δ% 2018/2017
Acea Produzione					
Gross thermal energy produced Tor di Valle power plant (22)	**GWh_t**	**90.03**	**96.19**	**98.38**	**2.3**
Total losses of thermal energy (23)	GWh_t	23.95	20.14	25.29	25.5
Distribution losses	*GWh_t*	*17.83*	*14.06*	*14.81*	*5.3*
Production losses	*GWh_t*	*6.11*	*6.08*	*10.48*	*72.4*
Net thermal energy sold (24) = (22-23)	**GWh_t**	**66.08**	**76.04**	**73.09**	**-3.9**

ELECTRICITY - TRANSPORT AND SALE	u. m.	2016	2017	2018	Δ% 2018/2017
In Rome and Formello - summary data					
Supply from Acea Group (25)	GWh	3.00	3.21	2.62	-18.4
Electricity from the market (26)	GWh	10,798.59	10,832.86	10,610.06	-2.1
from Single Buyer	*GWh*	*2,675.92*	*2,620.42*	*2,321.83*	*-11.4*
From importation	*GWh*	*390.20*	*389.13*	*389.14*	*0.0*
From wholesalers + other producers	*GWh*	*7,732.47*	*7,823.31*	*7,899.09*	*1.0*
electricity requested on the grid (27) = (25+26) = (28+29+30+31+32)	**GWh**	**10,801.59**	**10,836.07**	**10,612.68**	**-2.1**
Distribution, transport and commercial losses (28)	*GWh*	*699.58 6.48% of (27)*	*747.40 6.90% of (27)*	*763.74 7.20% of (27)*	*2,2*
Uses for own transmission and distribution (29)	*GWh*	*32.45*	*40.39*	*39.63*	*-1.9*
Net electricity transferred to third parties (30)	*GWh*	*2.52*	*2.59*	*2.59*	*-*
Net electricity conveyed from Acea to clients of the open market (31)	**GWh**	**7,309.73**	**7,393.80**	**7,463.10**	**0.9**
Net electricity sold by Acea Energia to clients of the open market on distribution company grid (Areti)	*GWh*	*5,673.51*	*5,847.37*	*6,041.16*	*3.3*
Net electricity sold by other sellers to clients of the open market on distribution company grid (Areti)	*GWh*	*1,636.22*	*1,546.43*	*1,421.94*	*-8.1*
Net electricity sold to managed clients (32)	**GWh**	**2,757.30**	**2,651.90**	**2,343.60**	**-11.6**
Sale in Italy - summary data					
Net electricity sold by Acea on the open market - including sale on Rome (33)	**GWh**	**5,558.84**	**4,190.94**	**3,684.54**	**-12.1**
Acea Energia	*GWh*	*5,163.44*	*3,852.12*	*3,322.62*	*-13.7*
other Associated companies	*GWh*	*395.40*	*338.82*	*361.92*	*6.8*
Net electricity sold by Acea in Italy (open market + managed) (32+33)	**GWh**	**8,316.14**	**6,842.84**	**6,028.14**	**-11.9**

PUBLIC LIGHTING	u. m.	2016	2017	2018	Δ% 2018/2017
Luminous flux to Rome (34)	**Mlumen**	**2,750**	**1,991**	**2,010**	**1.0**

CONTROLS AND MEASUREMENTS	u. m.	2016	2017	2018	Δ% 2018/2017
measurement and control activity (35)	**no.**	**410**	**371**	**526**	**41.8**
Electro-magnetic field measurements	*no.*	*23*	*25*	*27*	*8.0*
Noise measurements	*no.*	*18*	*27*	*17*	*-37.0*
PCB chemical analyses	*no.*	*76*	*43*	*59*	*37.2*
Waste classification	*no.*	*43*	*28*	*130*	*-*
Transformer diagnostics	*no.*	*217*	*216*	*261*	*20.8*
other	*no.*	*33*	*32*	*32*	*0.0*

THE PRODUCTS - ENVIRONMENT SEGMENT

The data refers to the three composting plants (the one located in Aprilia and the two located, respectively, in Monterotondo Marittimo and Sabaudia) and the waste management plant of Orvieto, all from December 2016 in Acea Ambiente and 100% Acea SpA. The Sabaudia plant, in order to permit the implementation of ordinary and extraordinary maintenance operations, suspended conferments in September 2016, was inactive throughout 2017 and resumed deliveries on 16 August 2018 for composting only, while the liquid waste treatment section is still inactive[1]. In order to start work on the new anaerobic digestion section, the Monterotondo Marittimo plant suspended deliveries as early as the end of 2017 and was only operational to process the material that had arrived on site until April 2018. The Aprilia plant – placed by the Latina Public Prosecutor's Office under preventive seizure in 2017 for aspects related to odorous emissions – despite the validity of the provisions of the Public Prosecutor's Office was able to restart practically full operations in April, Acea having responded to the notices of compliance prescribed by the relevant authorities (Arpa, Lazio Region, NOE). The percentage changes are not calculated for this plant since they are not very significant considering the various operating times of the plant.

NON-HAZARDOUS WASTE DISPOSED AND RECOVERED - ORVIETO PLANT	u. m.	2016	2017	2018	Δ% 2018/2017
Total incoming waste (36) = (37)+(38)	**t**	**96,541**	**88,273**	**91,142**	**3.3**
Waste sent for treatment (37)	**t**	**55,328**	**58,297**	**58,343.00**	**0.1**
Of which: waste sent to the anaerobic digester and aerobic treatment	*t*	*29,846*	*42,506*	*43,420*	*2.2*
Of which: sent for aerobic treatment or just shredding		*n.a.*	*15,791*	*14,923*	*-5.5*
Waste sent directly to landfill (38)	**t**	**40,894**	**29,976**	**32,799**	**9.4**
Waste sent to landfill after treatment (39)	**t**	**29,886**	**13,625**	**18,469**	**35.6**
Waste recovered (40)	**t**	**3,887**	**336**	**45**	**-86.6**
High quality compost (41)	**t**	**1,339**	**4,578**	**5,009**	**9.4**
Reduction for stabilisation (42) = (36) – (38+39+40+41)	**t**	**20,535**	**39,758**	**34,820**	**-12.4**

PRODUCTION OF COMPOST	u. m.	2016	2017	2018	Δ% 2018/2017
Total incoming organic waste (43) = (44+45+46)	**t**	**45,051.07**	**56,474.33**	**28,714.78**	**-49.2**
Incoming sludge (44)	**t**	**16,999.50**	**10,593.60**	**3,385.4**	**-68.8**
Aprilia plant	*t*	*6,393.94*	*5,464.54*	*1,286,60*	-
Monterotondo Marittimo plant	*t*	*4,867.80*	*5,129.06*	*0.00*	-
Sabaudia plant	*t*	*5,737.76*	*0.00*	*2,098.8*	-
Incoming green (45)	**t**	**12,596.45**	**11,220.33**	**3,679.95**	**-67.2**
Aprilia plant	*t*	*5,705.00*	*8,585.21*	*2,626.81*	-
Monterotondo Marittimo plant	*t*	*2,202.43*	*2,635.12*	*0.00*	-
Sabaudia plant	*t*	*4,689.02*	*0.00*	*1,053.14*	-
Organic fraction from separate incoming collection and other agrifood waste (46)	**t**	**15,467.18**	**34,660.40**	**21,649.43**	**-37.5**
Aprilia plant	*t*	*15,439.40*	*33,141.62*	*21,649.43*	*-34.7*
Monterotondo Marittimo plant	*t*	*27.78*	*1,518.78*	*0.00*	-
High quality compost (47)	**t**	**12,654.00**	**12,538.00**	**9,259.64**	**-26.1**
Aprilia plant	*t*	*5,000.0*	*10,238.0 (*)*	*7,200*	-
Monterotondo Marittimo plant	*t*	*2,100.0*	*2,300.0*	*777.0*	*-66.2*
Sabaudia plant	*t*	*5,554.0*	*0.0*	*1,282.6*	-
Non-compostable material for disposal (48)	**t**	**3,364.08**	**9,361.97**	**3,565.50**	**-61.9**
Aprilia plant	*t*	*3,364.08*	*9,163.36*	*2,799.28*	-
Monterotondo Marittimo and Sabaudia plants	*t*	*0.00*	*198.61*	**766.22**	-
Reduction through stabilisation (49) = (44+45-47-48)	**t**	**29,045.1**	**34,574.4**	**15,889.6**	**-54.0**

[1] The reactivation of the liquid waste treatment section is linked to the conclusion of the ongoing AIA review process.

LIQUIDS TO PURIFICATION	u. m.	2016	2017	2018	Δ% 2018/2017
Liquids to purification (50)					
Liquids to purification - Sabaudia plant	*t*	*10,489*	*0*	*0*	*-*

ANALYTICAL DETERMINATIONS ON WASTE AND ON QUALITY COMPOST	u. m.	2016	2017	2018	Δ% 2018/2017
total analytical determinations (51)	**no.**	**95**	**104**	**60**	**-42.3**
Analytical determinations on compost - Orvieto plant	*no.*	*0*	*12*	*12*	*-*
Analytical determinations on compost - Aprilia, Monterotondo Marittimo and Sabaudia plants	*no.*	*35*	*30*	*17*	*-43.3*
Analytical determinations on waste - Orvieto plant	*no.*	*60*	*62*	*31*	*-50.0*

(*) Adjusted compared to the figure published in the 2017 Sustainability Report as it was in part estimated.

THE PRODUCTS - WATER SEGMENT

The water data **summarised at the national level** include all the principal water companies of the Acea Group: Acea Ato 2, Acea Ato 5 (Lazio), Gesesa (Campania), Gori (Campania), Umbra Acque (Umbria), Acque, Publiacqua and Acquedotto del Fiora (Tuscany).

The details of the water balances are only presented for the companies operating in the reporting perimeter of the *Sustainability Report*: Acea Ato 2, Acea Ato 5 and Gesesa. Please see the chapter *Water Company data sheets and overseas activities* for the water balance sheets of the other companies of the Group[2].

SUMMARISED WATER DATA OF THE GROUP IN ITALY (*)	u. m.	2016	2017	2018	Δ% 2018/2017
Total drinking water collected from the environment or from other systems (52)	**Mm³**	**1,458.6**	**1,425.0**	**1,384.8**	**-2.8**
Total drinking water released into network (53)	**Mm³**	**1,312.5**	**1,286.4**	**1,258.6**	**-2.2**
Total drinking water supplied (54)	**Mm³**	**680.6**	**671.3**	**654.6**	**-2.5**

(*) The 2016 data has been adjusted after consolidation of certain items by the water companies of the Group. Some 2018 items were estimated and will be consolidated in the months following publication.

SUMMARY WATER DATA OF THE OPERATING COMPANIES IN THE DNF PERIMETER: ACEA ATO 2, ACEA ATO 5 AND GESESA(*)	u. m.	2016	2017	2018	Δ% 2018/2017
Total drinking water collected from the environment or from other systems (55)	**Mm³**	**890.6**	**858.4**	**826.9**	**-3.7**
Total drinking water released into network (56)	**Mm³**	**763.2**	**734.6**	**720.8**	**-1.9**
Total drinking water supplied (57)	**Mm³**	**404.3**	**397.4**	**382.3**	**-3.8**

(*) Some items for the two-year period 2016-2017 have been adjusted after their consolidation.

WATER BALANCES OF THE OPERATING COMPANIES IN THE DNF PERIMETER	u. m.	2016	2017	2018	Δ% 2018/2017
Acea Ato 2 for historic network of Rome (*)					
Drinking water collected from the environment (58)	**Mm³**	**635.9**	**612.3**	**569.5**	**-7.0**
Purified from Lake Bracciano	*Mm³*	*32.0*	*22.8*	*0.0*	*-*
From wells	*Mm³*	*20.5*	*33.1*	*8.7*	*-73.7*
From springs	*Mm³*	*583.5*	*556.4*	*560.8*	*0.8*
Drinking water transferred to Municipalities located along the route of the aqueducts (59)	Mm³	69.1	70.7	71.2	0.7
Drinking water released into non-potable network (60)	Mm³	11.2	8.8	11.9	35.7
Drinking water returned to the environment / technical operating amounts (61)	Mm³	45.6	55.2	48.4	-12.3
Drinking water released into the historic network of Rome (62) = (58) - (59+60+61)	**Mm³**	**510.1**	**477.6**	**437**	**-8.3**
Drinking water supplied through the historic network of Rome (63)	**Mm³**	**271.1**	**270.2**	**262.2**	**-3.0**
Assessment of the losses according to Ministerial Decree no. 99/97 and in conformity with the ARERA requirements					
Overall losses (quantity A17 Ministerial Decree 99/97) (64)	Mm³	237.7	206.1	174.4	-15.4

[2] Gori was added to the scope of consolidation on a full basis in November 2018. Therefore, for the present reporting cycle it has not been considered within the scope of the Consolidated Non-Financial Declaration.

	u. m.	2016	2017	2018	Δ% 2018/2017
Actual losses (quantities A13+A15 as per Ministerial Decree 97/99) (65)	Mm^3	229.5 45.0% of (62)	198.2 41.5% of (62)	166.6 38.0% of (62)	-13.6
Water balance non-potable network of Rome					
Non-potable water collected from the environment (66)	**Mm^3**	**24.6**	**23.2**	**23.0**	**-0.9**
From the Tiber River treated (Grottarossa Plant)	*Mm^3*	*9.2*	*10.7*	*5.4*	*-49.3*
From springs	*Mm^3*	*4.2*	*3.8*	*5.7*	*51.2*
Drinking water released into non-potable network	*Mm^3*	*11.2*	*8.8*	*11.9*	*35.2*
Non-potable water supplied to the Municipality of Rome (67)	**Mm^3**	**12.0**	**12.1**	**12.5**	**3.3**
Non-potable water supplied to other Municipalities (68)	**Mm^3**	**0.01**	**0.01**	**0.02**	**-**
Acea Ato 2 for Ato 2 - Central Lazio (Rome + municipalities acquired as at 31.12.2018) (*)					
Drinking water collected from the environment and from other systems (69)	**Mm^3**	**761.7**	**737.2**	**700.0**	**-5.0**
Purified from Lake Bracciano	*Mm^3*	*32.0*	*22.8*	*0.00*	*-100.0*
From wells	*Mm^3*	*99.9*	*115.7*	*90.10*	*-22.1*
From springs	*Mm^3*	*624.6*	*593.0*	*604.60*	*2.0*
From other aqueduct systems	*Mm^3*	*5.2*	*5.7*	*5.3*	*-7.0*
Drinking water transferred to other aqueduct systems (70)	Mm^3	36.8	29.5	28.40	-3.7
Drinking water released into non-potable network (71)	Mm^3	11.2	8.8	11.90	35.2
Drinking water returned to the environment / technical operating amounts (72)	Mm^3	60.2	69.1	61.80	-10.6
Drinking water released into the Ato 2 network (73) = (69) - (70+71+72)	**Mm^3**	**653.5**	**629.8**	**597.8**	**-5.1**
Total drinking water released into the Ato 2 network (74)	**Mm^3**	**364.7**	**360.5**	**346.00**	**-4.0**
Assessment of the losses according to Ministerial Decree no. 99/97 and in conformity with the ARERA requirements					
Overall losses (quantity A17 Ministerial Decree 99/97) (75)	Mm^3	324.1	297.4	273.7	-8.0
Actual losses (quantities A13+A15) (76)	Mm^3	314.1 (48.1% of 73)	287.8 (45.7% of 73)	264.2 (44.2% of 73)	-8.2
Acea Ato 5 for Ato5 - Southern Lazio - Frosinone (85 municipalities)					
Drinking water collected from the environment and from other systems (77)	**Mm^3**	**107.4**	**97.4**	**110.7**	**13.7**
From wells	*Mm^3*	*73.0*	*65.9*	*59.4*	*-9.9*
From springs	*Mm^3*	*34.4*	*31.5*	*51.3*	*62.9*
From other aqueduct systems	*Mm^3*	*8.3*	*8.4*	*13.9*	*65.5*
Drinking water released into network (78)	**Mm^3**	**96.5**	**89.6**	**106.7**	**19.1**
Drinking water supplied (79)	**Mm^3**	**27.0**	**23.1**	**20.7**	**-10.4**
Assessment of the losses according to Ministerial Decree no. 99/97 and in conformity with the ARERA requirements					
Overall losses (quantity A17 Ministerial Decree 99/97) (80)	Mm^3	72.8	64.9	85.1	31.1
Actual losses (quantity A15 Ministerial Decree 99/97) (81)	Mm^3	64.4 (66.8% of 78)	58.1 (64,8% of 78)	77.7 (72.8% of 78)	33.7
Gesesa - Ato Calore Irpino - Benevento (21 municipalities)					
Drinking water collected from the environment and from other systems (82)	**Mm^3**	**13.2**	**15.4**	**16.2**	**4.8**
From wells	*Mm^3*	*4.9*	*6.6*	*7.1*	*7.8*
From springs	*Mm^3*	*1.0*	*1.5*	*1.6*	*8.0*
Drinking water collected from other aqueduct systems	*Mm^3*	*7.3*	*7.4*	*7.5*	*1.6*
Drinking water released into network (83)	**Mm^3**	**13.2**	**15.2**	**16.2**	**6.8**
Drinking water supplied (84)	**Mm^3**	**12.6**	**13.8**	**15.6**	**12.9**
Assessment of the losses according to Ministerial Decree no. 99/97 and in conformity with the ARERA requirements					
Overall losses (quantity A17 Ministerial Decree 99/97) (85)	Mm^3	5.53	6.79	6.11	-10.0
Actual losses (quantity A13+A15 Ministerial Decree 99/97) (86)	Mm^3	5.50 (41.7% of input)	6.75 (44.4% of input)	6.07 (37.5% of input)	-10.1

(*) The 2017 data of the water balance for the historical Rome network and the Acea Ato 2 network have been adjusted to update certain items. In particular, the calculation of overall losses and real losses was carried out using the calculation criteria provided by ARERA (Resolution 5/2016 former AEEGSI) also taking into account the updates on the volumes measured according to ARERA Resolution 917/2017 for the years 2017 and 2018.

TOTAL WASTE WATER TREATED BY THE COMPANIES OF THE GROUP IN ITALY - SUMMARY DATA	u. m.	2016	2017	2018	Δ% 2018/2017
Waste water treated in the principal treatment plants of the companies of the Group in Italy (87)	Mm^3	872.7	810.2 (*)	859.2	6.1

(*) Some Group company data for 2017 have been adjusted/consolidated.

TOTAL WASTE WATER TREATED BY THE COMPANIES OPERATING IN THE DNF PERIMETER (ACEA ATO 2, ACEA ATO 5 AND GESESA - SUMMARY DATA)	u. m.	2016	2017	2018	Δ% 2018/2017
Waste water treated in the principal treatment plants of Acea Ato 2, Acea Ato 5 and Gesesa (88) (*)	Mm^3	621.9	574.7	603.9	5.1

(*) The Gesesa company does not currently have flow meters at the entrance of the purification plants.

WASTE WATER TREATED BY ACEA ATO 2	u. m.	2016	2017	2018	Δ% 2018/2017
Waste water treated in the principal treatment plants (89)	Mm^3	514.3	467.1	490.1	4.9
Rome South	*Mm^3*	*288.1*	*276.9*	*279.1*	*0.8*
Rome North	*Mm^3*	*95.7*	*75.2*	*85.9*	*14.2*
Rome East	*Mm^3*	*94.8*	*83.0*	*83.5*	*0.6*
Rome Ostia	*Mm^3*	*24.9*	*20.9*	*25.7*	*23.0*
CoBIS	*Mm^3*	*6.7*	*7.0*	*7.1*	*1.4*
Fregene	*Mm^3*	*4.1*	*4.1*	*8.8*	*114.6*
Other - Municipality of Rome	Mm^3	14.8	14.0	11.6	-17.1
Other - outside the Municipality of Rome	Mm^3	66.1	72.5	81.0	11.7
Total waste water treated by Acea Ato 2 (90)	Mm^3	595.2	553.6	582.7	5.3

WASTE WATER TREATED BY ACEA ATO 5	u. m.	2016	2017	2018	Δ% 2018/2017
Waste water treated in the principal treatment plants (91)	Mm^3	26.7	21.1	21.2	0.5

ANALYTICAL DETERMINATIONS ON DRINKING WATER AND WASTE WATER IN THE GROUP IN ITALY - SUMMARY DATA (*)	u. m.	2016	2017	2018	Δ% 2018/2017
Analytical determinations on Group total drinking water (92)	no.	1,197,567	1,159,833	1,328,950	14.6
Analytical determinations on Group total waste water (93)	no.	451,659	472,779	432,468	-8.5

(*) The number includes both the determinations performed independently by each company, and those carried out by the in-house company, Acea Elabori. Some data of the preceding two-year period have been adjusted.

ANALYTICAL DETERMINATIONS ON DRINKING WATER AND ON WASTE WATER OF THE OPERATING COMPANIES IN THE DNF PERIMETER: ACEA ATO 2, ACEA ATO 5 AND GESESA - SUMMARY DATA	u. m.	2016	2017	2018	Δ% 2018/2017
Analytical determinations on drinking water of Acea Ato 2, Acea Ato 5 and Gesesa (94)	no.	462,320	409,375	480,937	17.5
Analytical determinations on waste water of Acea Ato 2, Acea Ato 5 and Gesesa (95)	no.	186,754	211,890	167,144	-21.1

ANALYTICAL DETERMINATIONS ACEA ATO 2	u. m.	2016	2017	2018	Δ% 2018/2017
Analytical determinations on Acea Ato 2 drinking water (96)	no.	370,720	311,929	359,491	15.2
Analytical determinations on Acea Ato 2 wastewater (97)	no.	151,446	184,201	127,378	-30.8

ANALYTICAL DETERMINATIONS ACEA ATO 5	u. m.	2016	2017	2018	Δ% 2018/2017
Analytical determinations on Acea Ato 5 drinking water (98)	no.	85,500	91,157	115,345	26.5
Analytical determinations on Acea Ato 5 wastewater (99)	no.	31,258	21,421	35,064	49.7

GESESA ANALYTICAL DETERMINATIONS	u. m.	2016	2017	2018	Δ% 2018/2017
Analytical determinations on Gesesa drinking water (100)	no.	6,100	6,289	6,101	-3.0
Analytical determinations on Gesesa wastewater (101)	no.	4,050	4,268	4,702	10.2

THE RESOURCES USED - ENERGY SEGMENT

The data on the resources used refer to Acea Produzione, Acea Ambiente - Waste-to-energy and Areti.

GENERATION, TRANSPORT AND SALE OF ELECTRICITY AND HEAT, PUBLIC LIGHTING	u. m.	2016	2017	2018	Δ% 2018/2017
Natural gas					
Electricity and heat generation (102) = (103+104)	Nm^3 x 1,000	14,849	18,351	23,760	29.5
Thermoelectric and AP heat production (103)	Nm^3 x 1,000	11,314	15,134	20,305	34.2
Tor di Valle auxiliary boilers - for district heating	*Nm^3 x 1,000*	*7,958*	*4,334*	*0.00*	*-*
Tor di Valle cogeneration	*Nm^3 x 1,000*	*3,357*	*2,942*	*0.00*	*-*
Tor di Valle CAR module	*Nm^3 x 1,000*	*-*	*7,857*	*20,305*	*158.4*
Waste-to-energy (104)	Nm^3 x 1,000	3,535	3,217	3,455	7.4
San Vittore del Lazio waste-to-energy plant	*Nm^3 x 1,000*	*2,816*	*2,719*	*3,126*	*15.0*
Terni waste-to-energy plant	*Nm^3 x 1,000*	*719*	*498*	*329*	*-33.8*
Diesel for thermoelectric generation					
Thermoelectric production and Terni plant (105)	l x 1,000	564	924	287	-69.0
Montemartini power plant	*l x 1,000*	*492*	*865*	*230*	*-73.4*
Terni plant	*l x 1,000*	*72*	*60*	*56*	*-6.0*
CSS (Secondary Solid Fuel from waste) processed					
San Vittore del Lazio waste-to-energy plant (106)	t x 1,000	281.917	345.639	357.174	3.3
Waste-to-energy paper mill pulper					
Terni waste-to-energy plant (107)	t x 1,000	99.768	99.970	99.971	-
Biogas for the production of electricity					
Orvieto plant (108)	Nm^3x 1,000	10,459	12,695	10,766	-15.2
Water					
Derivation from hydroelectric production (109)	Mm^3	3,176.99	3,234.29	4,221.71	30.5
Process water (110)	Mm^3	0.1395	0.1607	0.2696	67.8
Water for civilian/sanitary uses (111)	Mm^3	0.3078	0.2687	0.2697	0.4
Miscellaneous materials					
Dielectric mineral oil in operation (112)	t	9,871	9,979	9,957	-0.2
Dielectric mineral oil - reintegrations	t	3.96	1.56	1.89	20.9
SF_6 in operation (113)	t	29.75	29.80	21.70	-27.2
SF_6 - reintegrations	t	0.7	0.6	0.5	-16.7
Cooling fluids (HCFC type) in operation (114)	t	1.33	1.33	1.56	16.9
Cooling fluids (HCFC type) - reintegrations	t	0.000	0.000	0.015	-
various chemicals (115)	kg	8,604,027	10,359,390	10,026,359	-3.2
Sodium chloride	*kg*	*93,000*	*79,500*	*8,000*	*-89.9*
Sodium hydroxide (caustic soda)	*kg*	*106,938*	*190,330*	*38,800*	*-79.6*
Sodium bicarbonate	*kg*	*7,007,300*	*8,035,000*	*7,795,510*	*-3.0*

GENERATION, TRANSPORT AND SALE OF ELECTRICITY AND HEAT, PUBLIC LIGHTING (follow)	u. m.	2016	2017	2018	Δ% 2018/2017
Hydrochloric acid	*kg*	*111,760*	*198,770*	*84,910*	*-57.3*
Ammonia solution	*kg*	*725,340*	*793,090*	*636,630*	*-19.7*
Activated carbon	*kg*	*307,000*	*398,000*	*404,400*	*1.6*
Carbamine	*kg*	*231,430*	*664,700*	*866,810*	*30.4*
Miscellaneous oils and greases/lubricants	**kg**	**1,098**	**3,851**	**46,887 (*)**	**-**
electricity					
Consumption for electrical distribution (117)= (28)	*GWh*	*699.58*	*747.40*	*763.74*	*2.2*
Consumption for electricity production (118)= (1)-(2)	*GWh*	*58.28*	*64.58*	*68.20*	*5.6*
Consumption for offices (50% of the electricity consumed by the Parent Company) (119)	*GWh*	*4.96*	*5.01*	*4.83*	*-3.6*
Other consumption (120)	*GWh*	*-*	*1.16*	*1.20*	*3.2*
Other personal uses (121)	*GWh*	*32.45*	*40.39*	*39.63*	*-1.9*
total (122) = (117+118+119+120+121)	**GWh**	**795.27**	**858.54**	**877.61**	**2.2**
public lighting					
Consumption for public lighting (123)	**GWh**	**167.85**	**115.64**	**83.98**	**-27.4**

(*) The increase is due to the operation of the new CAR plant in Tor di Valle for all of 2018.

THE RESOURCES USED - ENVIRONMENT SEGMENT

The data on the resources refers to the three composting plants of Acea Ambiente (all 100% Acea SpA): the one located in Aprilia and the two located, respectively, in Monterotondo Marittimo and Sabaudia, and the waste management plant of Orvieto. In 2018 some data from Aquaser will be entered for the first time.

WASTE MANAGEMENT - ORVIETO PLANT	u. m.	2016	2017	2018	Δ% 2018/2017
Process water (124)	**m^3**	**3,425**	**6,251**	**9,663**	**54.6**
Miscellaneous chemicals (125)	**t**	**7.3**	**0.2**	**20.0**	**-**
Electricity (126)	**GWh**	**3.557**	**3.959**	**4.513**	**14.0**
Diesel (127)	**l**	**249,422**	**257,953**	**240,022**	**-7.0**
Water for civilian/sanitary uses (128)	**m^3**	**4,227**	**1,330**	**1,261**	**-5.2**

PRODUCTION OF COMPOST	u. m.	2016	2017	2018	Δ% 2018/2017
Process water (composting plants of Aprilia, Monterotondo Marittimo and Sabaudia) (129)	**m^3**	**3,946**	**13,193 (*)**	**17,762**	**34.6**
Miscellaneous chemicals (posting plants of Aprilia, Monterotondo Marittimo and Sabaudia) (130)	**t**	**70.83**	**101.50**	**31.48**	**-69.0**
Electricity (composting plants of Aprilia, Monterotondo Marittimo and Sabaudia) (131)	**GWh**	**1.924**	**3.691**	**3.392**	**-8.1**
Diesel (composting plants of Aprilia, Monterotondo Marittimo and Sabaudia) (132)	**l x 1.000**	**127.50**	**138.02**	**95.28**	**-31.0**
Water for civilian use (composting plants of Aprilia, Monterotondo Marittimo and Sabaudia) (132 B)	**m^3**	**183.00**	**705.00**	**629.00**	**-10.8**

(*) The 2017 figure for the Aprilia plant has been adjusted. Includes 4,800 m^3 of recycled water from Aprilia and 45 m^3 from Sabaudia.

THE RESOURCES USED - WATER SEGMENT

The data refers to the water companies of the Group included in the perimeter of the *Sustainability Report*: Acea Ato 2, Acea Ato 5 and Gesesa.

COLLECTION, SUPPLY AND DISTRIBUTION DRINKING AND NON-POTABLE WATER	u. m.	2016	2017	2018	Δ% 2018/2017
Miscellaneous materials and natural resources					
Reagents for purification and disinfection (133)	**t**	**2,922.00**	**2,996.35**	**2,661.84**	**-11.2**
Reagents for chemical analyses (134)	**t**	**1.40**	**1.50**	**1.50**	**-**
Gas for chemical analyses (135)	**MNm³**	**5.26**	**5.52**	**5.82**	**5.3**
Cooling fluids (HCFC type) in operation (136) = (114)	**t**	**1.33**	**1.33**	**1.56**	**16.9**
Cooling fluids (HCFC type) - reintegrations	t	0.000	0.000	0.015	-
electricity					
Water pumping plants (137)	*GWh*	*242.18*	*275.13*	*244.70*	*-11.1*
Offices/personal uses (50% energy consumed by the Parent Company) (138) = (119)	*GWh*	*4.96*	*5.01*	*4.83*	*-3.6*
Chemical laboratory (139)	*GWh*	*1.12*	*1.12*	*1.19*	*6.7*
Total electricity consumed (140) = (137+138+139)	**GWh**	**248.27**	**281.26**	**250.73**	**-10.9**
Drinking water					
Civilian/sanitary uses (141)	*Mm³*	*1.63*	*1.00*	*1.28*	*27.6*
Process uses	*Mm³*	*n.a.*	*0.83*	*n.a.*	*-*
Offices (50% of the drinking water consumed by the Parent Company) (142)	*Mm³*	*0.19*	*0.16*	*0.16*	*-*
Total drinking water consumed (143)	**Mm³**	**1.81**	**1.99**	**1.44**	**-27.7**

WASTEWATER PURIFICATION	u. m.	2016	2017	2018	Δ% 2018/2017
Miscellaneous materials and natural resources					
Reagents for purification waste water (144)	**t**	**6,495**	**7,329**	**7,684**	**4.8**
Polyelectrolyte for sludge dehydration	*t*	*1,680*	*1,879*	*1,329*	*-29*
Sodium hypochlorite for final disinfection	*t*	*2,575*	*2,693*	*2,346*	*-13*
Ferric chloride for sludge dehydration	*t*	*86*	*9*	*0*	*-*
Peracetic acid	*t*	*1,969*	*2,332*	*2,855*	*22*
Other (anti-foaming, etc.)	*t*	*186*	*417*	*1,154*	*177*
Reagent kit for on-site controls (144 B)	**no.**	**77,620**	**49,497**	**57,271**	**16**
Oil and fat (145)	**t**	**5.3**	**5.7**	**12.0**	**110.1**
Electricity					
Sewerage and purification (146)	**GWh**	**189.4**	**184.0**	**194.3**	**5.6**
Fuels					
Methane for dryers and power generators (147)	**Nm³x 1,000**	**-**	**982.5**	**1,639.5**	**66.9**
Biogas produced and consumed on site (148)	**Nm³x 1,000**	**-**	**1,006.0**	**1,343.8**	**33.6**

FUELS USED BY THE COMPANIES OF THE GROUP FOR TRANSPORT AND HEATING

The figures refer to all the companies in the reporting scope.

TYPE OF FUEL	u. m.	2016	2017	2018	Δ% 2018/2017
Transport (Group car fleet)					
Petrol (149)	**l x 1,000**	**157.1**	**95.4**	**110.3**	**15.6**
Diesel (150) (*)	**l x 1,000**	**1,711.4**	**3,602.1**	**3,458.3**	**-4.0**
Heating					
Diesel (151)	**l x 1,000**	**4.5**	**2.7**	**0.0**	**-**
Methane (152)	**Nm^3 x 1,000**	**463.0**	**461.0**	**361.5**	**-21.6**
LPG (153)	**l x 1,000**	**32.8**	**32.2**	**10.0**	**-69.1**

(*) The figure for 2017 has been adjusted and includes the fuel for heavy vehicles owned by Aquaser.

EMISSIONS AND WASTE - ENERGY SEGMENT

The data on the emissions and waste refer to Acea Produzione, to the waste-to-energy plants of Acea Ambiente and Areti.

ATMOSPHERIC EMISSIONS	u. m.	2016	2017	2018	Δ% 2018/2017
CO_2 (154) = (155+156+157) (*)	**t**	**272,295**	**369,546**	**360,969**	**-14.6**
Acea Produzione (155)	*t*	*24,610*	*33,507*	*42,553*	*27*
Areas - SF_6 reintegrations (156)	*t*	*14,820*	*14,100*	*11,233*	*-20.3*
HCFC reintegrations (156B)	*t*	*-*	*-*	*23*	*-*
Waste-to-energy (157)	*t*	*338,552*	*375,159*	*307,160*	*-18.1*
NO_x (158)= (159+160)	**t**	**171.13**	**198.20**	**189.40**	**-4.4**
Acea Produzione (159)	*t*	*46.88*	*53.53*	*13.69*	*-74.4*
Waste-to-energy (160)	*t*	*124.25*	*144.67*	*175.71*	*21.5*
CO (161) = (162+163)	**t**	**6.28**	**6.82**	**6.38**	**-6.4**
Acea Produzione (162)	*t*	*3.56*	*2.19*	*2.02*	*-7.8*
Waste-to-energy (163)	*t*	*2.72*	*4.63*	*4.36*	*-5.8*
SO_2 (164)= (165+166)	**t**	**0.28**	**0.42**	**0.16**	**-62.4**
Acea Produzione (165)	*t*	*0.02*	*0.03*	*0.01*	*-66.7*
Waste-to-energy (166)	*t*	*0.26*	*0.39*	*0.15*	*-62.1*
Particles (167) = (168+169)	**t**	**0.55**	**0.55**	**0.50**	**-8.4**
Acea Produzione (168)	*t*	*0.03*	*0.05*	*0.01*	*-80.0*
Waste-to-energy (169)	*t*	*0.52*	*0.50*	*0.49*	*-1.1*
HCl (170)	**t**	**3.00**	**2.98**	**3.56**	**19.4**
HF (171)	**t**	**0.09**	**0.12**	**0.12**	**-**
Organic Carbon (172)	**t**	**1.40**	**1.88**	**1.75**	**-7.3**

OTHER EMISSIONS AND WASTE	u. m.	2016	2017	2018	Δ% 2018/2017
Wastewater treated (173)	Mm^3	0.0002	0.0010	0.0166	-
Electrical fields at 50 Hz	kV	**monitored** Commitment to maintain the value below the legal limit			
Magnetic fields at 50 Hz	μT	**monitored** Commitment to maintain the value below the legal limit			
Noise	dB	**monitored** Commitment to maintain the value below the legal limit			
Luminous flux dissipated	Mlumen	Commitment to design the plants in order to limit to the utmost the emission value dissipated upwards			

WASTE (LEGISLATIVE DECREE no. 152/06)	u. m.	2016	2017	2018	Δ% 2018/2017
Hazardous waste - excluding waste-to-energy area (174)	t	324.17	409.26	673.07	64.5
Production energy own area (*)	*t*	*323.58*	*406.42*	*671.61*	*65.3*
Proportion for the activities performed by the parent company (**)	*t*	*0.59*	*2.84*	*1.46*	*-48.6*
Hazardous waste from waste-to-energy (175)	t	73,035.04	80,031.71	85,757.73	7.2
Non-hazardous waste - excluding waste-to-energy area (176)	t	947.23	1,497.71	800.55	-46.5
Production energy own area (*)	*t*	*902.71*	*1,354.56*	*739.89*	*-45.4*
Proportion for the activities performed by the parent company (**)	*t*	*44.52*	*143.15*	*60.66*	*-57.6*
Non-hazardous waste from waste-to-energy (177)	t	7,381.94	16,640.18	14,577.97	-12.4

(*) The 2018 data of Acea Produzione and the Terni waste-to-energy plant are estimated; the 2018 data of San Vittore are measured at the chimney; the San Vittore data of the previous two years have been corrected.
(**) 50% of the waste produced by the parent company.

EMISSIONS AND WASTE - ENVIRONMENT SEGMENT

The data refer to the three composting plants of Acea Ambiente: the one located in Aprilia and the two located, respectively, in Monterotondo Marittimo and Sabaudia, and the waste management plant of Orvieto.

WASTE (LEGISLATIVE DECREE no. 152/06)	u. m.	2016	2017	2018	Δ% 2018/2017
Hazardous waste - composting plants of Aprilia, Monterotondo Marittimo and Sabaudia including leachate (178)	t	562.12	33.95	4.73	-86.1
Non- hazardous waste - composting plants of Aprilia, Monterotondo Marittimo and Sabaudia including leachate (179)	t	16,448.62	18,070.23	13,418.72	-25.7
Hazardous waste Orvieto Plant (180)	t	9.7	14.9	16.2	8.8
Non-hazardous waste Orvieto Plant including leachate (181)	t	20,193.2	16,500.2	24,355.0	47.6

ATMOSPHERIC EMISSIONS	u. m.	2016	2017	2018	Δ% 2018/2017
CO_2 - Orvieto plant and composting plants (182)	t	-	932	927	-0.5
Particles (183)	t	0.68	<0.012	<0.02	-
Total organic compounds (COT) (184)	t	0.28	<0.30	<1.04	-
Ammonia (185)	t	0.80	<0.10	<0.13	-
Volatile inorganic compounds (SIV) (186)	t	2.42	<1.64	<1.98	-

EMISSIONS AND WASTE - WATER SEGMENT

The data refers to the Acea Ato 2, Acea Ato 5 and Gesesa water companies.

WASTE PRODUCED	u. m.	2016	2017	2018	Δ% 2018/2017
Specific waste from treatment of wastewater					
Total purification sludge (187)	**t**	**136,502**	**118,915**	**152,992**	**28.7**
Acea Ato 2 purification sludge (188)	*t*	*122,947*	*107,205*	*64,716*	*-39.6*
Liquid sludge disposed of by third parties (188 B)(*)		*-*	*-*	*71,666*	*-*
Acea Ato 5 purification sludge (189)	*t*	*13,098*	*10,580*	*15,987*	*51.1*
Gesesa purification sludge (190)	*t*	*457*	*1,130*	*623*	*-44.9*
Total sand and slabs from purification (191)	**t**	**10,955**	**16,826**	**6,486**	**-61.5**
Acea Ato 2 sand and slabs (192)	*t*	*10,813*	*16,733*	*6,340*	*-62.1*
Acea Ato 5 sand and slabs (193)	*t*	*120*	*81*	*80*	*-1.5*
Gesesa sand and slabs (194)	*t*	*22*	*12*	*66*	*-*
Waste (pursuant to Italian Legislative Decree no. 152/06)					
Total hazardous waste (195) = (196+197+198)	**t**	**114.0**	**86.5**	**53.7**	**-37.9**
Acea Ato 2 and Acea Elabori production (196)	*t*	*113.4*	*75.7*	*52.0*	*-31.3*
Acea Ato 5 production (197)	*t*	*0.02*	*8.0*	*0.3*	*-96.5*
Proportion for the activities performed by the parent company (198) (**)	*t*	*0.6*	*2.8*	*1.5*	*-47.9*
Total non-hazardous waste (199) = (200+201+202+203)	**t**	**19,131**	**8,274**	**7,976**	**-3.6**
Acea Ato 2 and Acea Elabori production (200)	*t*	*565.0*	*524.9*	*1,272.3*	*142.4*
Acea Ato 5 production (201)	*t*	*18,492.0*	*7,571.0*	*6,635.40*	*-12.4*
Gesesa production (201)		*28.7*	*34.6*	*8.06*	*-76.7*
Proportion for the activities performed by the parent company (202) (**)	*t*	*44.5*	*143.2*	*60.7*	*-57.6*
Other emissions and waste					
CO_2 from methane for dryers (204)	**t**	**-**	**2,026**	**3,381**	**66.9**
CO_2 HCFC reintegrations (204 B)	**t**	**-**	**-**	**23**	**.**
noise	**dB**	**monitored** Commitment to maintain the value below the legal limit			
odours		**monitored** Commitment to maintain the value below the limit of perception and in the areas adjacent to the treatment plants			

(*) Sludge disposed of to third parties due to both regulations and the weather in 2018. See Box in Relations with the Environment for more details.
(**) 50% of the waste produced by the parent company.

THE EMISSIONS OF CARBON DIOXIDE FROM TRANSPORT AND PACKAGING

COMPANIES OF THE GROUP	u. m.	2016	2017	2018	Δ% 2018/2017
Transport					
CO_2 (205)(*)	**t**	**4,890.6**	**9,753.0**	**9,406.6**	**-3.6**
Heating					
CO_2 (206)	**t**	**1,018**	**1,008**	**751**	**-25.5**

(*) The figure for 2017 has been adjusted to include fuel emissions from the heavy vehicles owned by Aquaser.

KEY ENVIRONMENTAL PERFORMANCE INDICATORS (KPI) - ENERGY SEGMENT

Environmental Key Performance Indicators

INDICATOR	u. m.	2016	2017	2018
Energy used for the processes				
A consumption in distribution of electricity	TJoules (GWh)	1,283.8 (356.6)	1,244.9 (345.8)	1,204.6 (334.6)
B consumption in the production of electricity (118)		209.8 (58.3)	232.5 (64.6)	245.5 (68.2)
C heat lost in the district heating network (23)		86.2 (23.9)	72.5 (20.1)	91.0 (25.3)
D Consumption for public lighting (123)		604.3 (167.9)	416.3 (115.6)	302.3 (84.0)
E Environment Segment consumption (126+131)		19.7 (5.5)	27.5 (7.7)	28.5 (7.9)
F water distribution (140-138)		875.9 (243.3)	994.5 (276.2)	885.2 (245.9)
G water purification (146)		681.7 (189.4)	662.4 (184.0)	699.6 (194.3)
H electricity for offices (Item 119+138)		35.7 (9.9)	36.1 (10,.0)	34.8 (9.7)
I consumption for heating offices		18.1 (5.0)	17.9 (5.0)	13.5 (3.8)
II water area dryer consumption		-	36.3 (10.1)	60.6 (16.8)
L mobility (149+150)		66.5 (18.5)	132.6 (36.8)	127.9 (35.5)
Indirect consumption + consumption through mobility + heating		**3,881.8 (1,078.3)**	**3,873.5 (1,076.0)**	**3,693.5 (1,026.0)**
M loss of energy in the conversion from primary source to electricity		5,394.4 (1,498.4)	6,358.5 (1,766.3)	7,116.0 (1,976.7)
Total energy consumption (sum A: M)		**9,276.2 (2,576.7)**	**10,232.0 (2,842.2)**	**10,809.5 (3,002.6)**

EMISSIONS, EFFLUENTS AND WASTE				
Greenhouse gas (CO_2) emissions (154+182+204+205+206)	**t**	**383,891**	**436,485**	**375,435**
Emissions of SO_2 , NO_x and other significant gases by type				
NO_x (158)	**t**	**171.13**	**198.20**	**189.40**
CO (161)	**t**	**6.28**	**6.82**	**6.38**
SO_2 (164)	**t**	**0.28**	**0.42**	**0.16**
Emission indicators/Acea Produzione (Acea Produzione and Acea Ambiente - Waste-to-energy)				
NO_x /thermoelectric production	**g/kWh**	**0.51**	**0.47**	**0.41**
CO_2/thermoelectric production	**g/kWh**	**1,078**	**964**	**755.3**
CO_2/gross total production	**g/kWh**	**480.9**	**487.7**	**361.1**
SO_2/thermoelectric production	**g/kWh**	**0.0**	**0.0**	**0.0**

INDICATOR	u. m.	2016	2017	2018
PRODUCTS AND SERVICES: ELECTRICITY				
Performance of the electrical production process of Acea Produzione				
Gross average performance thermoelectric production (calculation 1)	%	**25.0**	**37.3**	**41.1**
Tor di Valle power plant (electrical performance cogeneration only)		25.2	38.3	41.3
Tor di Valle power plant - CAR module		-	46.0	45.8
Montemartini power plant		24.2	25.7	24.9
Gross average thermoelectric production out included thermal energy recovered (calculation 2)		**73.3**	**86.6**	**71.9** (*)
Gross average performance hydroelectric production (calculation 3)		**81.9**	**82.4**	**78.7**
Gross average performance overall production (calculation 4)		**80.4**	**78.1**	**73.6**
Gross average total production performance including thermal energy recovered (calculation 5)		**81.1**	**83.2**	**77.5** (*)
Performance of the electrical production process - waste-to-energy plants				
San Vittore del Lazio				
CSS produced/gross energy produced - San Vittore	kt/GWh	1.157	1.148	1.164
Gross performance CSS conversion into electricity (calculation 6)	**kWh /kg CSS**	**0.86**	**0.87**	**0.86**
Electrical performance (calculation 7)	**%**	**19.6**	**19.4**	**19.5**
Total waste produced/hours worked	**t/h**	**3.57**	**3.32**	**3.47**
Terni				
Gross performance Pulper conversion into electricity (calculation 8)	**kWh /kg pulper**	**0.83**	**0.83**	**0.82**
Electrical performance (calculation 9)	**%**	**16.5**	**17.1**	**14.7**
Total waste produced/hours worked	**t/h**	**2.0**	**2.0**	**1.8**
Performance of the electrical production process - photovoltaic				
Average efficiency photovoltaic modules	**%**	**14.0**	**14.0**	**14.0**
Other indicators (territory, public lighting, controls, losses)				
Protection of the land (Total length HV lines in cable / length HV overhead + cable lines) x 100	**%**	**43.1**	**43.9**	**46.3**
Public lighting illumination efficiency (Item 34 / Item 123)	**Lumen/kWh**	**16.4**	**17.2**	**23.9**
Average performance lamps installed (Item 34 / electrical power)	**Lumen/W**	**84.3** (32,641 kW)	**101.8** (19,556 kW)	**112.7** (17,830 kW)
Specific consumption per lamp (item 123/no. lamps)	**kWh/ no. lamps**	**761.31** (220,474)	**515.15** (224,480)	**372.22** (225,619)
Percentage of roads illuminated (**)	**% (km of roads illuminated/ total km of roads)**	**86.7** (6,165/7,110)	**88.3** (6,281/7,110)	**88.6** (6,297/7,110)
No. operating and laboratory checks /GWh net electricity sold (35) / (32)	**no./GWh**	**0.15**	**0.14**	**0.22**
Reintegrations of SF_6/km electricity distribution network	**kg/km**	**0.0211**	**0.0194**	**0.0161**
Total losses of electricity (28) / (27) (***)	**% energy requested**	**6.5**	**6.9**	**7.2**

(*) The 2018 global yields are not comparable with the yields of the previous two years because before the new CAR plant came on stream (September 2017) thermal energy was produced almost exclusively by boilers and not in cogeneration mode.
(**) It is an estimate.
(***) The total losses of electricity include: transformation losses, transport losses and commercial losses, these last due to fraud and incorrect readings.

KEY ENVIRONMENTAL PERFORMANCE INDICATORS (KPI) - WATER SEGMENT

Environmental Key Performance Indicators

INDICATOR	u. m.	2016	2017	2018
Carbon footprint				
WATER SERVICE				
total CO_2/m³ of water supplied (integrated water service) (*)	$kgCO_2/m^3$	0.38	0.42	0.41
CO_2/m³ of water supplied (water distribution process)	$kgCO_2/m^3$	0.22	0.25	0.23
CO_2/m³ of water treated (purification process)	$kgCO_2/m^3$	0.11	0.11	0.12
SERVICE: DRINKING WATER				
Assessment parameters according to Ministerial Decree no. 99/97 and in conformity with the ARERA requirements				
Acea Ato 2 network				
Primary performance (R1): (74) / (73)	%	55.8	57.2	57.9
performance at consumption (R2): (74 + A 11) / (73) A 11 =26.18 Mm³ for 2018	%	58.2	62.2	62.2
net performance (R3): (74 + A 11 + A 12) / (73) A 12 = 1.48 Mm³ for 2018	%	58.4	62.4	62.5
PRODUCT: DRINKING WATER				
Acea Ato 2 network				
Linear index of the total losses during distribution (according to Ministerial Decree no. 99/97: A 17 / km network) (75) / (km network from GIS, excluding waterworks and branches to Rome and Fiumicino)	Mm³x1,000/km	33.8 (9,583 km)	28.7 (10,365 km)	26.0 (10,515 km)
Linear index of the actual losses during distribution (according to Ministerial Decree no. 99/97 and ARERA provisions): (A15) / km network) (item 76) / (km network from GIS, excluding waterworks and branches to Rome and Fiumicino)	Mm³x1,000/km	32.8 (9,583 km)	27.8 (10,365 km)	25.1 (10,515 km)
specific electricity consumption per water network (energy consumption of Acea Ato 2's network) / (73)	kWh/m³	0.264	0.314	0.290
Intensity of the checks on drinking water distributed (94) / (73)	no./Mm³	567	495	601
Index of drinking water additive (133 - Acea Ato 2 network) / (73)	g/m³	4.0	4.3	3.8
Acea Ato 5 network				
Linear index of the total losses during distribution (according to Ministerial Decree no. 99/97: A 17 / km network)	Mm³x1,000/km	-	15.0 (4,330 km)	16.4 (5,200 km)
Linear index of the actual losses during distribution (according to Ministerial Decree no. 99/97 and ARERA provisions): (A15+A13) / km network)	Mm³x1,000/km	-	13.4 (4,330 km)	14.9 (5,200 km)
specific consumption of electricity per water network (Acea Ato 5 network energy consumption) / input (78)	kWh/m³	0.630	0.750	0.567
Intensity of the checks on drinking water distributed (98) / (78)	no./Mm³	886	1,017	1,081
Index of drinking water additive (133 - Acea Ato 5 network) / (78)	g/m³	2.7	2.9	2.9
Gesesa network				
Linear index of the total losses during distribution (according to Ministerial Decree no. 99/97: A 17 / km network)	Mm³x1,000/km	4.5 (1,220 km)	5.3 (1,270 km)	4.4 (1,375 km)
Linear index of the actual losses during distribution (according to Ministerial Decree no. 99/97 and ARERA provisions): (A15+A13) / km network)	Mm³x1,000/km	4.5 (1,220 km)	5.3 (1,270 km)	4.4 (1,375 km)
Specific electricity consumption per water network (energy consumption) / (input 83)	kWh/m³	0.623	0.625	0.639

INDICATOR (follow)	u. m.	2016	2017	2018
Intensity of the checks on drinking water distributed (100) / (input 83)	no./Mm³	462	415	377
Drinking water additive index (133 Gesesa network) / (input 83)	g/m³	3.41	3.96	6.03
SERVICE: WASTEWATER PURIFICATION				
Acea Ato 2				
Sludge disposed (188)	t	122,947	107,205	64,716
Liquid sludge disposed of to third parties	t	-	-	71,666
Sand and slabs removed (192)	t	10,813	16,733	6,340
COD input	t	198,946	203,889	221,357
COD removed	t	180,755	181,639	209,180
Efficiency of COD removal	%	91	89	93
SST input	t	121,876	137,117	135,698
SST removed	t	113,284	127,695	126,330
Efficiency of SST removal	%	93	93	93
Efficiency of BOD removal	%	90	89	89
Total N input (such as NH_4+NO_2+NO_3+ organic matter)	t	22,870	18,871	20,276
Total N removed	t	17,365	13,076	14,133
Efficiency of N removal	%	72	70	70
Acea Ato 2 additivation index	g/m³	9.8	12.2	12.0
Acea Ato 2 specific consumption of electricity by purification process	kWh/m³	0.288	0.300	0.299
Acea Ato 5				
Sludge disposed (189)	t	13,098	10,580	15,987
Sand and slabs removed (193)	t	120	81	80
COD input	t	9,012	9,772	8,884
COD removed	t	7,000	7,842	7,709
Efficiency of COD removal	%	78	84	87
Total N input	t	1,172	1,167	779
Total N removed	t	1,013	1,003	600
Efficiency of N removal (NH_4^+)	%	89	91	89
SST input	t	-	7,876	8,365
SST removed	t	-	7,096	7,872
Efficiency of SST removal	%	82	95	96
Acea Ato 5 additivation index	g/m³	24.3	27.8	31.4
Acea Ato 5 specific consumption of electricity by purification process	kWh/m³	0.620	0.787	0.817
Gesesa (**)				
Disposed of sludge (190)	t	457	1,130	623
Sand and slabs removed (194)	t	22	12	66

(*) Emissions defined "Scope 2", in other words resulting from the consumption of electricity by the water companies in question.
(**) Gesesa has an investment plan scheduled that includes the installation of input flow meters at the purification plants during 2019.

KEY ENVIRONMENTAL PERFORMANCE INDICATORS (KPI) - ENVIRONMENT SEGMENT

Environmental Key Performance Indicators.

INDICATOR	u. m.	2016	2017	2018
Non-hazardous waste disposed in landfill/total incoming waste (38+39)/(36)	t/t	0.73	0.49	0.56
Waste disposed in landfill/energy consumer net of photovoltaic energy (38+39)/(126)	t/kWh	0.02	0.01	0.00
Compost produced/incoming waste (41+47)/(36+43)	t/t	0.10	0.12	0.12
Compost produced/electricity consumed (41+47)/(126+131)	kg/kWh	2.55	2.24	1.81

ENVIRONMENTAL COMPLIANCE

INDICATOR	u. m.	2016	2017	2018
GROUP COMPLIANCE				
Penalties paid for non-conformities relative to rules/agreements of an environmental nature (*)	Euros	414,491	326,166	139,938

(*) Penalties paid in 2018 by Acea Ato 2, Acea Ato 5, Gesesa and Acea Ambiente for the Terni waste-to-energy plant and the Aprilia and Monterotondo composting plants.

DESCRIPTION OF THE CALCULATIONS USED TO DETERMINE THE ELECTRICAL GENERATION EFFICIENCY

calculation 1

$$Efficiecy_{(thermoelectric)} = \frac{Energy_{thermoelectric}\,(kWh)}{Energy_{diesel}\,(kWh) + Energy_{methane}\,(kWh)}$$

Where:

$Energy_{thermoelectric}$ = gross electrical energy produced by the thermoelectric cycle

$$Energy_{diesel}\,(kWh) = \frac{diesel\,(l) \times 0.835 \times PCI_g\,(kcal/kg)}{860\,(kcal/kWh)}$$

Energy equivalent to diesel consumed (105)

$$Energy_{methane}\,(kWh) = \frac{methane\,(Nm^3) \times PCI_m\,(kcal/Nm^3)}{860\,(kcal/kWh)}$$

Energy equivalent to methane consumed (103)

PCI_g = 10,000 kcal/kg (lower heating value of diesel fuel)

PCI_m = 8,500 kcal/Nm^3 (lower heating value of methane)

860 = energy conversion factor from kcal to kWh

0.835 = specific gravity of diesel fuel (kg/l)

NB *The calorific values used for Acea Production are the real values derived from measurements made by gas and diesel suppliers.*

calculation 2

$$\text{Efficiecy}_{(thermoelectric)} = \frac{\text{Energy}_{thermoelectric}\,(kWh) + \text{Energy}_{thermal}\,(kWh)}{\text{Energy}_{diesel}\,(kWh) + \text{Energy}_{methane}\,(kWh)}$$

$\text{Energy}_{thermal}$ = Gross thermal energy produced

$\text{Energy}_{thermoelectric}$ = Gross thermoelectric energy produced

$$\text{Energy}_{diesel}\,(kWh) = \frac{\text{diesel (l)} \times 0.835 \times \text{PCI}_g\,(kcal/kg)}{860\,(kcal/kWh)}$$

Energy equivalent to diesel consumed: (105)

$$\text{Energy}_{methane}\,(kWh) = \frac{\text{methane } (Nm^3) \times \text{PCI}_m\,(kcal/Nm^3)}{860\,(kcal/kWh)}$$

Energy equivalent to methane consumed (103)

PCI_g = 10,000 kcal/kg (lower heating value of diesel fuel)

PCI_m = 8,500 kcal/Nm^3 (lower heating value of methane)

860 = energy conversion factor from kcal to kWh

0.835 = specific gravity of diesel fuel (kg/l)

NB *The calorific values used for Acea Production are the real values derived from measurements made by gas and diesel suppliers.*

calculation 3

$$\text{efficiency (hydroelectric)} = \frac{\text{Hydroelectric energy (MWh)} \times 3{,}6 \times 10^9}{[m(kg) \times 9.8\,(m/s^2) \times h(m)]\,(Joule)}$$

where:

3.6×10^9 = conversion factor of hydropower from joules to MWh

m = derived water for hydroelectric production

9.8 = acceleration of gravity at sea level

h = height of water fall (exposed surface - turbine)

$\text{Energy}_{hydroelectric}$ = energy produced by the hydroelectric cycle

calculation 4

$$\text{efficiency (average)} = \frac{E_i}{(E_i + E_t)} \times \eta_i + \frac{E_t}{(E_i + E_t)} \times \eta_t$$

Where:

E_i = total hydroelectric energy produced

E_t = total thermoelectric energy produced

η_i= hydroelectric efficiency

η_t = thermoelectric efficiency

efficiency (average) = average production efficiency

calculation 5

$$\text{efficiency (average)} = \frac{E_i}{(E_i + E_T)} \times \eta_i + \frac{E_T}{(E_i + E_T)} \times \eta_T$$

Where:

E_i = total hydroelectric energy produced

E_T = sum of the total energy produced (thermoelectric and thermal)

η_i = hydroelectric efficiency

η_T = efficiency (thermoelectric + thermal)

efficiency (average) = average production efficiency

calculation 6

$$\text{recovery efficiency (kWh/kg)} = \frac{\text{Gross electricity produced (kWh)}}{\text{CDR (kg)}}$$

$\text{Energy}_{\text{gross electricity produced}}$ (kWh) = gross electrical energy produced in San Vittore = (item 15)

calculation 7

$$\text{electricity efficiency} = \frac{\text{Electricity produced (kWh)}}{\text{Internal CSS energy (kWh)+Internal methane energy (kWh)}}$$

Where:

Electricity produced = electricity produced in San Vittore = (item 15)

$$\text{Internal methane energy} = \frac{CH_4\,(Sm^3) \times PCI_m\,(kcal/\,Sm^3)}{860\ (kcal/kWh)}$$

PCI_m = PCI methane = approx. 8,500 kcal/Sm^3

860 = energy conversion factor from kcal to kWh

$$\text{Internal CSS energy (kWh)} = \frac{CSS\ (kg) \times PCI_{css}\,(kcal/kg)}{860\ (kcal/kWh)}$$

PCI_{css} = 3,583 kcal/kg (15,000 kJ/kg) - lower average calorific value of the CSS

860 = energy conversion factor from kcal to kWh

calculation 8

$$\text{recovery efficiency (kWh/kg)} = \frac{\text{Gross electricity produced (kWh)}}{\text{pulper (kg)}}$$

Gross electricity produced (kWh) = electricity produced in Terni = (item 16)

calculation 9

$$\text{efficiency} = \frac{\text{Electricity produced (kWh)}}{\text{Internal pulper energy (kWh)+Internal methane energy (kWh)}}$$

Where:

Electricity produced = Electricity produced in Terni = (item 16)

$$\text{Internal methane energy (kWh)} = \frac{CH_4\,(Sm^3) \times PCI_m\,(kcal/\,Sm^3)}{860\ (kcal/kWh)}$$

PCI_m = PCI methane = approx. 8,500 kcal/Sm^3

860 = energy conversion factor from kcal to kWh

$$\text{Internal pulper energy (kWh)} = \frac{\text{pulper (kg)} \times PCI_p\,(kcal/kg)}{860\ (kcal/kWh)}$$

PCI_p = PCI pulper = 3,635 kcal/kg (15,216 kJ/kg) - lower average calorific value of the pulper

860 = energy conversion factor from kcal to kWh

EXPLANATORY NOTES TO THE ENVIRONMENTAL ACCOUNTS

The numerical data presented in the *Environmental Accounts* is produced and certified by the competent Departments.
The responsibility for the correct preparation of the data pertains to the individual production units, pending the implementation of a standardised Environmental Management System, capable of coding the procedures in order to obtain a regular flow of numerical information.
Before their final acceptance, however, the official data underwent a validation process that anticipated four control steps:

- Comparison with historical data to highlight and justify possible large deviations;
- At least two repetitions of the acquisition process;
- Feedback to the Departments responsible for the final validation of the data;
- Random check carried out by auditing firm.

The numerical data have been divided into the three categories:

- Estimated;
- Calculated;
- Measured.

In the event of data resulting from estimates, the utmost attention was paid to the verification of the reasonableness of the basic criteria used, with the objective of resorting as little as possible, in the future, to this type of measurement of the sizes of environmental significance.
When data was achieved through calculation, the algorithm used was briefly explained to permit full understanding of the mathematical result.
Lastly, when the data was measured, an uncertainty estimate to be associated with the number was provided.

ADDITIONAL INFORMATION ON THE NUMERICAL DATA PROVIDED IN THE ENVIRONMENTAL ACCOUNTS

THE PRODUCTS - ENERGY SEGMENT

item no.	explanation - comment
1	Gross total energy produced by Acea Ambiente and Acea Produzione. The figure is calculated.
2	Electricity produced net of the losses due to just the production phase. The figure is calculated.
3=4+5	Total electricity produced, inclusive of the losses, by the Acea Produzione power plants. Includes thermoelectric and hydroelectric energy. The figure is measured with an uncertainty of less than ± 0.5%.
6=7+8+9	Losses of electricity attributable to just the production phase of the Acea Produzione power plants. Includes: the self-consumption (thermal and hydro) and the losses of initial transformation. The figure is measured with an uncertainty of less than ± 0.5%.
10	Electricity produced by the Acea Produzione power plants net of the losses. The figure is calculated.
11	Gross energy produced by photovoltaic installations. Note that the FV of Parco della Mistica is not reported because it is outside the perimeter. The figures for the previous two years have been adjusted and include the plants at Orvieto (Acea Ambiente) and Acea Ato 2. The figure is measured with an uncertainty of less than ± 0.5%.
12	Total losses during photovoltaic generating phase, due in particular to joule effect (dissipation during heating) in the equipment. Estimated figure.
13	Net photovoltaic electricity made available by the generating installations. The figure is calculated.
14=15+16	Electricity produced by the Waste-to-Energy installations: waste-to-energy of San Vittore del Lazio and waste-to-energy of Terni of Acea Ambiente. We wish to specify that the fuel used in the two installations (CSS - secondary solid fuel - for San Vittore del Lazio and paper mill pulp for the Terni plant) is composed of both biodegradable organic material, therefore neutral on the balance of the CO_2, and by non-biodegradable organic substance (plastic, resins, etc.). In 2018, the renewable quota for San Vittore was equal to around 51%, the Terni quota was approx. 42%.
17	Self-consumption of the two waste-to-energy plants of San Vittore del Lazio and Terni + initial transformation losses at San Vittore. The figure is measured with an uncertainty of less than ± 0.5%.
18	Electricity produced by the two waste-to-energy plants of San Vittore del Lazio and Terni, net of the self-consumption and initial transformation losses at San Vittore. The figure is calculated.
19	Electricity produced from biogas by the waste management plant of Orvieto (Acea Ambiente). The figure is calculated.
20	Self-consumption, including small dissipations. The figure is measured with an uncertainty of less than ± 5%.
21	Net electricity produced from biogas and transferred to network. The figure is measured with an uncertainty of less than ± 5%.
22	Thermal energy produced in the cogeneration plant of Tor di Valle including losses. The figure is measured with an uncertainty of ± 2% near the delivery piping of the generators. The thermal energy is produced by Galleri boilers and the cogeneration plant, composed of a gas turbine and a regenerative heated water generator supplied by hot discharge fumes of the gas turbine.
23	Losses of thermal energy of the district heating systems, due to: thermal dissipation, losses on the network, technical releases for maintenance operations, thermal reintegrations of the heat accumulation systems. The figure is calculated as the difference between the thermal energy produced and that actually supplied to the clients (invoiced).
24	Net thermal energy supplied to the final clients. The figure, calculated, is obtained from the consumption invoiced.
25	Electricity supplied to Acea Produzione to Acea Energy with inter-Group exchange. The figure is marginal as a result of the choice made by the Acea Group to sell the electricity produced by the generating companies on Borsa (Stock Exchange) or through bilateral agreements.
26	Net electricity acquired on the market by: • Single Buyer of 2,321.8 GWh • Import of 389.1 GWh • Market of 7,899.1 GWh The figure is measured with an uncertainty of ± 0.5%.
27	Energy requested on the electrical distribution network of Rome and Formello by all the clients connected (open market + managed). The figure is estimated.
28	Losses of electricity that occur during the distribution and transmission phase. They are attributable to: losses of transformation and transport, fraud and incorrect measurements. The figure is estimated.
29	Personal use of electricity for the implementation of the distribution activities. The figure is estimated.
30	Electricity transferred to third parties. These are exchanges of energy between distribution companies. The figure is measured with an uncertainty of ± 0.5%.

THE PRODUCTS - ENERGY SEGMENT

item no.	explanation - comment
31	Total net electricity conveyed to final clients of the open market connected to the electrical distribution network of Rome and Formello. Includes both the quota of electricity sold by Acea Energy, and that sold by other operators active on the open market. The figure is measured with an uncertainty of ± 5% according to Standard CEI 13-4.
32	Net electricity transferred to managed final clients. The decrease is the result of the progressive passage of managed clients to the open market. In other words, it is a direct consequence of the deregulation process of the electricity market in effect in Italy since 1999 (Italian Legislative Decree no. 79/99). The figure is estimated based on the consumption invoiced.
33	Net electricity sold by Acea on the open market nationally in Italy. Includes the electricity sold in Rome and Formello (figure 28). The total sale on the open market and managed market is obtained by adding the figures (29) and (30). The figure is estimated.
34	Luminous flux supplied by the public lighting system in Rome. The figure, calculated, is the product of the number of lamps installed and the relative value of "rated" luminous flux.
35	Total number of measurements/controls performed in favour of the energy area. The figure is calculated as the sum of the individual determinations carried out by the competent laboratories.

THE PRODUCTS - ENVIRONMENT SEGMENT

item no.	explanation - comment
36	Total incoming waste. They are the quantities arriving at the Orvieto plant which include: unsorted urban solid waste, organic fraction, green, non-hazardous industrial waste. The figure is calculated.
37	Waste partly sent for shredding only, partly just for aerobic treatment, partly both to the anaerobic digester and the aerobic treatment. The figure is calculated.
38	Waste disposed directly in landfill. The figure is measured with an uncertainty of ± 1 %.
39	Waste disposed of in landfill after treatment. The figure is measured with an uncertainty of ± 1 %.
40	Waste recovered and not sent to landfill. It is glass, paper and cardboard, iron and plastic. In 2017, only iron was recovered. The figure is calculated.
41	Compost produced at the Orvieto plant. Passing only through the aerobic process to the combination, in 2016, of the anaerobic process with the aerobic one, an optimization of the product was achieved, now High Quality Compost. The figure is measured with an uncertainty of ± 1 %.
42	Reduction due to stabilization. This represents the loss of mass due to the natural transformations of the material and the loss of water through evaporation. The figure is calculated.
43	Total incoming organic waste. They are the amounts arriving at the plants of Aprilia, Monterotondo Marittimo and Sabaudia, which include: sludge, green and organic fraction. At the end of 2017, the Monterotondo Marittimo plant started work on the construction of a new anaerobic digestion section, suspending deliveries to the plant by 2018. The Aprilia plant – placed by the Latina Public Prosecutor's Office under preventive seizure in 2017 for aspects related to odorous emissions – despite the validity of the provisions of the Public Prosecutor's Office was able to restart practically full operations in April (Acea having responded to the notices of compliance prescribed by the relevant authorities), thus working less than in a normal situation. The figure is calculated.
44	Incoming sludge. It is the quantity of sludge entering the composting plants of Aprilia (LT), Monterotondo Marittimo (GR) and Sabaudia (LT). The sharp decrease in 2018 is due to the suspension of contributions to Monterotondo Marittimo. The figure is measured with an uncertainty of ± 1 %.
45	Incoming green. It is the quantity of green matter coming from the parks, woods or other areas arriving at the plants of Aprilia, Monterotondo Marittimo and Sabaudia. The figure is measured with an uncertainty of ± 1 %.
46	Organic fraction of sorted collection (FORSU) entering the composting plant of Aprilia and FORSU and other agrifood waste arriving at the Monterotondo Marittimo plant. The figure is calculated.
47	High Quality Compost. It is the quantity of high quality compost produced at the Aprilia, Monterotondo Marittimo and Sabaudia plants. The data represents the quantities produced during the three-year period (not the amount sold). The production of compost is estimated based on the quantities transported daily to maturation. During that phase, process losses occur so that at the time of the sale the compost will be approx. 20-25% less. At the end of 2017, the Monterotondo Marittimo plant started work on the construction of a new anaerobic digestion section, suspending deliveries to the plant by 2018. The plant was operational only to process material that had previously entered the site. The figure is measured with an uncertainty of ± 1 %.
48	Non-compostable material for disposal. It is the non-biodegradable material (for example plastics) which is separated from the compostable material sent for disposal. The figure is measured with an uncertainty of ± 1 %.
49	Reduction due to stabilization. This represents the loss of mass due to the natural transformations of the material and the loss of water through evaporation. The figure is calculated.

THE PRODUCTS - ENERGY SEGMENT

item no.	explanation - comment
50	Liquids entering the Sabaudia plant and sent to purification. Sabaudia's liquid waste treatment section – which has been revamped – is still inactive pending the conclusion of the AIA review process. The figure for 2016 is calculated.
51	Total analytical determinations. They are the total of the analytical determinations performed at the following plants: Orvieto, Aprilia, Monterotondo Marittimo and Sabaudia. The figure is calculated.

PRODUCTS - WATER SEGMENT

item no.	explanation - comment
52	Total drinking water collected from the environment or from other systems. It is the sum of the water collected by the companies of the Group: Acea Ato 2 (Rome), Acea Ato 5 (Frosinone); Gesesa (Benevento), Gori (Sarnese Vesuviano); Acque (Pisa); Publiacqua (Florence); Acquedotto del Fiora (Grosseto); Umbra Acque (Umbria). The figure is calculated.
53	Total drinking water transported to the distribution networks of the companies listed at number 52, without the losses due to the supply phase at the sources. The figure is estimated.
54	Total drinking water supplied to the respective clients by the companies listed in number 52. The figure is estimated.
55	Total drinking water collected from the environment or from other systems. This is the sum of the water taken from the companies Acea Ato 2 (Rome), Acea Ato 5 (Frosinone) and Gesesa (Benevento). The figure is calculated.
56	Total drinking water transported to the distribution networks of the companies listed at number 55, without the losses due to the supply phase at the sources. The figure is estimated.
57	Total drinking water supplied to the respective clients by the companies listed in number 55. The figure is estimated.
58	Total drinking water collected at the sources, without the high discharges, by the Acea Ato 2 company and released into the aqueduct system of the "historic" network of Rome and Fiumicino. It includes the water collected from Lake Bracciano, purified. The figure is measured with an uncertainty of ± 3%, except for the smaller sources - 2017, for which it is estimated.
59	Total drinking water transferred to Municipalities located along the route of the aqueducts. The 2017 figure is estimated and may undergo consolidation after publication.
60	Drinking water released into non-potable network. These are events that occur at the time of extraordinary maintenance or interventions which make the dedicated non-potable resource insufficient. The figure is estimated.
61	Drinking water returned to the environment / technical operating amounts with reference to the "historic" distribution network of Rome and Fiumicino. The figure is calculated.
62	Drinking water released (Quantity A09 of Ministerial Decree 99/07). This is the total drinking water transported to the "historic" distribution network of Rome and Fiumicino less the losses due to the supply phase at the sources. The figure is estimated.
63	Total drinking water supplied in the "historic" network of Rome and Fiumicino. The figure includes consumption due to the Acea Ato 2 users, the water fountains, the water houses, etc.
64	Total distribution losses - "historic" network of Rome and Fiumicino. It is the A17 size of Ministerial Decree no. 99/97 defined as the quantity of water lost during distribution: • A17 = A09-(A10+A11+A12), overall distribution losses where, for the data starting in 2016, the following applies: • Quantity A09 of Ministerial Decree 99/97 - total volume of water released into network; • Quantity A10 of Ministerial Decree 99/97 - measured amount of water delivered to the user; • Quantity A12 of Ministerial Decree 99/97 - amount of water consumer, invoiced, but not measured; • Quantity A12 of Ministerial Decree 99/97 - As per provisions of ARERA (formerly AEEGSI), the Item is identified with the "amount of the water consumed (authorised) not measured and not invoiced", estimated as 0.005*A10; • Quantity A14 of Ministerial Decree 99/97 - amount of water apparently lost due to unauthorised consumption • and therefore not invoiced (fraud), estimated by the ARERA as 0.002*A10; • Quantity A16 of Ministerial Decree 99/97 - amount of water apparently lost due to measurement errors attributable to the meters installed on the utilities, estimated by the ARERA as 0.03*A10 (Resolution 5/2016). The figure is estimated.
65	Actual distribution losses - amount defined by the ARERA as A13+A15=A09-A10-A11-A12-A14-A16. The figure is estimated.
66	Total non-potable water derived from the environment including losses. The figure is estimated.
67	Total non-potable water supplied to Rome and Fiumicino. The figure, calculated, corresponds to the total amount of water invoiced.
68	Total non-potable water supplied to Municipalities other than Rome and Fiumicino. It is a small estimated quantity.
69	Total drinking water collected at the sources, without the high discharges, by the Acea Ato 2 company and released into the aqueduct system of the Ambito Territoriale Ottimale 2 of Central Lazio ("historic" network of Rome and Fiumicino + Municipalities acquired). The figure is measured with an uncertainty of ± 3%, except for the smaller sources, for which it is estimated.

PRODUCTS - WATER SEGMENT

item no.	explanation - comment
70	Total drinking water transferred to other aqueduct systems. The 2018 figure is estimated and may undergo consolidation after publication.
71	Drinking water released into non-potable network. These are events that occur at the time of extraordinary maintenance or interventions which make the dedicated non-potable resource insufficient. The figure is estimated.
72	Drinking water returned to the environment / technical operating amounts with reference to the Acea Ato 2 distribution network (Rome and Fiumicino + municipalities acquired at 31.12.18). The figure is calculated.
73	Total of the drinking water transported to the Acea Ato 2 distribution network (Rome and Fiumicino + municipalities acquired at 31.12.18). The figure is calculated.
74	Total drinking water supplied (in other words measured at the meters, where present) to the clients connects to the Acea Ato 2 network (Rome and Fiumicino + municipalities acquired at 31.12.18). The figure represents the estimated consumption due to the entire territory served. Since 2014, the amount supplied includes the "other aqueduct systems", as per provisions of the ARERA.
75	Total distribution losses - Acea Ato 2 network (Rome and Fiumicino + municipalities acquired at 31.12.18). It is the A17 quantity of Ministerial Decree no. 99/97 defined as the quantity of water lost during distribution.
76	Real distribution losses – Acea Ato 2 network (Rome and Fiumicino + municipalities acquired at 31.12.18) – volume defined by ARERA as A13+A15=A09-A10-A11-A12-A14-A16. The figure is estimated.
77, 78, 79	Respectively: quantity of water collected from the environment, released into the distribution network and supplied to their clients by Acea Ato 5 (Frosinone).
80	Overall distribution losses of Acea Ato 5 (Frosinone). It is the A17 quantity of Ministerial Decree no. 99/97 defined as the quantity of water lost during distribution.
81	Actual distribution losses of Acea Ato 5 (Frosinone) – amount defined by the ARERA as A13+A15=A09-A10-A11-A12-A14-A16. The figure is estimated.
82, 83,84	Respectively: quantity of water collected from the environment, released into the distribution network and supplied to their clients by Gesesa (Benevento).
85	Global losses of distribution of Gesesa (Benevento). It is the A17 quantity of Ministerial Decree no. 99/97 defined as the quantity of water lost during distribution.
86	Actual distribution losses of Gesesa (Benevento) - amount defined by the ARERA as A13+A15=A09-A10-A11-A12-A14-A16. The figure is estimated.
87	Total waste water treated in the principal treatment plants of the Group's water companies: Acea Ato 2, Acea Ato 5, Gesesa, Gori, Umbra Acque, Publiacqua, Acque, Acquedotto del Fiora. The figure is calculated.
88	Total waste water treated in the principal treatment plants of the Group's water companies: Acea Ato 2, Acea Ato 5. At the moment, Gesesa does not have any flow meters at the entrance of the treatment plant.
89	Total waste water sent to the principal treatment plants of Acea Ato 2 and treated. The total figure is calculated.
90	Total waste water send to the treatment plants and treated by Acea Ato 2, including the quantities treated in the small plants of the municipalities of Rome and in those outside the municipalities of Rome. The total figure is calculated.
91	Total waste water sent to the treatment plants and treated by Acea Ato 5. The figure is calculated.
92	Number of analytical determinations conducted overall on the drinking water by the Acea Group. The figure includes the analyses performed by Acea Elabori and the analyses performed independently by the companies. The figure is calculated.
93	Number of analytical determinations conducted overall on the waste water by the Acea Group. The figure includes the analyses performed by Acea Elabori and the analyses performed independently by the companies. The figure is calculated.
94	Number of analytical determinations conducted overall on the drinking water by Acea Ato 2, Acea Ato 5, Gesesa.
95	Number of analytical determinations conducted overall on the waste water by Acea Ato 2, Acea Ato 5, Gesesa.
96	Number of analytical determinations conducted overall on the drinking water by Acea Ato 2. The figure from 2018 also includes analyses of recently acquired aqueducts (Civitavecchia and others).
97	Number of analytical determinations conducted overall on the waste water by Acea Ato 2.
98	Number of analytical determinations conducted overall on the drinking water by Acea Ato 5.
99	Number of analytical determinations conducted overall on the waste water by Acea Ato 5.
100	Number of analytical determinations conducted overall on the drinking water by Gesesa.
101	Number of analytical determinations conducted overall on the waste water by Gesesa.

RESOURCES USED - ENERGY SEGMENT

item no.	explanation - comment
102 = 103 + 104	Total quantity of natural gas used to generate the electricity and heat at the Acea Produzione plants and at the waste-to-energy plants of Acea Ambiente. The figures expressed in normal cubic metres (volume at 0° C and 1 Atm), is measured with an uncertainty of ± 0.5%. Estimated figure.
103	Total quantity of natural gas used in the Tor di Valle power plant (of Acea Production).
104	Total quantity of natural gas used by waste-to-energy plants. The figure is measured with an uncertainty of about 2%.
105	Total quantity of diesel used to generate electricity at the Montemartini power plant (turbogas) of Acea Produzione and for operations at the waste-to-energy plant of Terni. The consumption of the Montemartini power plant is significant during those years when the power plant produces more electricity in order to fulfil the normal scheduled periodic tests, and to conduct the inspection activities. The consumption pertaining to the waste-to-energy plant increased during 2016 due to the internalisation of the transport service of a sector of the plant. The figure is measured with an uncertainty of ± 2%.
106	Quantity of CSS (Secondary Solid Fuel from waste) sent to waste-to-energy in the San Vittore del Lazio plant. The figure is measured with an uncertainty of ± 1%.
107	Quantity of pulp sent to waste-to-energy in the Terni plant. The figure is measured with an uncertainty of ± 1%.
108	Quantity of biogas used to produce electricity. The figure is measured with an uncertainty of ± 1%.
109	Total water derived from surface resources and aqueducts (as in the case of the hydroelectric power plant of Salisano) for the production of hydroelectric energy. The figure is calculated.
110	Total quantity of water used in the industrial processes. The various contributions are due to: • reintegration of losses in the district heating network. It is aqueduct water; • various uses in the waste-to-energy plants of San Vittore del Lazio and Terni. It is aqueduct and well water. The figure is calculated.
111	Quantity of aqueduct water used by the companies included in the energy area, for civilian/sanitary uses. It is consumption of the Acea Produzione and Areti companies of the waste-to-energy plants and 50% of the consumption of the Holding Company. The figure, calculated, refers to the consumption invoiced.
112	It represents the total quantity of dielectric mineral oil present in the primary and secondary cabins. The figure also includes the quantity of oil present in the Petersen coils installed in certain primary cabins is also included: approx. 225 tons in 256 Petersen systems. The data relative to the reintegrations is estimated. The total quantity of new dielectric mineral oil released into the production circuit (transformers, capacitors, storage deposits etc.) includes both the Areti and the Acea Produzione figure. The figure is estimated.
113	It represents the total quantity of gaseous insulation (SF_6) in the Areti plants. The figure is estimated. The figure referred to the reintegrations represents the total quantity of SF_6 released ex-novo into the production circuit during the year. The figure is estimated.
114	It represents the total quantity of cooling fluids in operation. The reintegrations represent the quantity of cooling fluids used for the maintenance of the air-conditioning equipment, during which the gas in operation is recovered and replaced with the new one. The data necessarily refer to the previous year compared to the year of publication as they are based on ISPRA annual statements following the publication of the Sustainability Report. The slight increase in quantities and reintegrations in 2018 compared to the previous year is attributable to an expansion in data retrieval. Both figures are calculated by attributing all the gas supplied overall by the parent company in equal parts (50%) to the energy area and the water area.
115	Total chemical substances used in the electrical and thermal generating process in the Acea Produzione power plants and the waste-to-energy plants of Acea Ambiente. The figure is calculated.
116	Quantity of lubricating oils and fats used by Acea Produzione. In 2018 the sharp increase is due to the entry into operation of the new Tor di Valle CAR plant. The figure is measured with an uncertainty of ± 0.5%.
117	The figure matches Item 28.
118	Matches the difference between Items 1 and 2.
119	Electricity consumed by the processes not directly connected to the production phase (offices). The figure is calculated at 50% of the electricity consumed overall by the parent company. The remaining 50% is attributed as consumption to the water area.
120	Consumption of electricity at other sites and plants, including the consumption of the waste-to-energy plants (Terni and San Vittore). The figure is estimated.
121	Other uses of the electricity in the energy area. The figure is calculated.
122	Total electricity consumer by the product systems included in the energy area. The figure is calculated.
123	Total electricity consumed for public lighting in the municipality of Rome. The significant reduction in 2017 is the result of the replacement of tens of thousands of lamps with LED technology, starting at the end of 2016. The figure is calculated based on the consistencies of the installations in operation during the year.

RESOURCES USED - ENVIRONMENT SEGMENT

item no.	explanation - comment
ORVIETO PLANT	
124	Quantity of water consumed at the Orvieto plant. It is specified that this resource comes partly from roofs (rainwater) and partly from the riverbed (river water). The figure is estimated.
125	Total chemical substances used at the Orvieto plant. The 2015 figure is discontinuous (decreasing) because of the revamping of the site which ended in November of that year. The figure is calculated.
126	Electricity consumed in the Orvieto plant. The figure is measured with an uncertainty of ± 1%.
127	Total quantity of diesel consumed at the Orvieto plant. The figure is measured with an uncertainty of ± 2%.
128	Quantity of water used for civilian purposes in the plant region of Orvieto. It is supplied by tanker trucks since the plant is not connected to the aqueduct. The figure is estimated.
COMPOST PRODUCTION	
129	Quantity of water consumed at the Aprilia, Monterotondo Marittimo and Sabaudia plants. The quantities of water recycled are included. The figure is estimated.
130	Total chemical substances used at the Aprilia, Monterotondo Marittimo and Sabaudia plants. The figure is calculated.
131	Electricity consumed at the Aprilia, Monterotondo Marittimo and Sabaudia plants. The figure is measured with an uncertainty of ± 1%
132	Total quantity of diesel fuel consumed at the Aprilia, Monterotondo Marittimo and Sabaudia plants. The figure is measured with an uncertainty of ± 2%.
132 B	Quantity of water used for civil purposes in the composting plants of Aprilia, Monterotondo Marittimo and Sabaudia. The value is partially estimated.

RESOURCES USED - WATER SEGMENT

item no.	explanation - comment
133	The figure represents the sum of the consumption of reagents for the purification and disinfection of the water in the water companies: Acea Ato 2, Acea Ato 5 and Gesesa. In particular they are sodium hypochlorite - used as disinfectant at the request of the Health Authorities, aluminium polychloride, caustic soda and ozone. The figure is calculated.
134	Total quantity of chemical reagents used by the Acea Elabori company to carry out the official duties, namely the analytical checks for the companies of the Acea Group. The figure is measured.
135	Total volume of pure gases for analysis, used by the Acea Elabori company. The figure is measured.
136	It represents the total quantity of cooling fluids in operation. The reintegrations represent the quantity of cooling fluids used for the maintenance of the air-conditioning equipment, during which the gas in operation is recovered and replaced with the new one. The data necessarily refer to the previous year compared to the year of publication as they are based on ISPRA annual statements following the publication of the Sustainability Report. The slight increase in quantities and reintegrations in 2018 compared to the previous year is attributable to an expansion in data retrieval. Both figures are calculated by attributing all the gas supplied overall by the parent company in equal parts (50%) to the energy area and the water area.
137	Electricity used for the drinking water and non-potable water pumping stations. The figure is measured with an uncertainty of ± 1%.
138	Electricity consumed by the processes not directly connected to the production phase (offices). The figure is calculated at 50% of the electricity consumed overall by the parent company.
139	Electricity used by the Acea Elabori company. It includes all the energy relative to the various fields of activity Acea Elabori, not only the analytical laboratory activities. The figure is estimated.
140	Total energy consumed in the water area. The figure of the preceding year was modified for adjustments in measurements of the partial data. The figure is calculated.
141	Quantity of drinking water used by the companies: Acea Ato 2 for civilian/sanitary uses. The figure, calculated, refers to the consumption invoiced.
142	Quantity of water consumed for civilian/sanitary uses within facilities not directly tied to production phases (offices). The figure is calculated at 50% of the water consumed overall by the parent company. The figure is estimated.
143	This is the sum of the quantity of drinking water for civilian/domestic and process uses.
144	Total quantity of chemicals used in the purification process of the waste water. It is obtained from the sum of the consumption registered for the following substances: polyelectrolytes, hypochlorite of sodium, iron chloride, lime. The figure is calculated.

RESOURCES USED - WATER SEGMENT

item no.	explanation - comment
144 B	Total number of reagent kits purchased from the Acea Ato 2 wastewater treatment plants for additional controls beyond analytical testing. The use of the kits responds to the need of the laboratories connected to the treatment plants to be able to carry out complex analyses in a simple, fast manner. Acea Ato 2 uses photometers and rapid analysis systems for all the parameters of interest and to perform reliable monitoring of wastewater legal limits.
145	Total quantity of lubricating oil and fat used for the equipment of the water area (pumps, centrifuges, motors, etc.). The figure is calculated.
146	Electricity used to run the waste water purification plants and to operate the sewer network. The figure is measured with an uncertainty of ± 1%.
147	Quantity of methane used in the dryers and generators. The figure is measured.
148	Quantity of biogas produced and consumed on site. The figure is measured.

FUELS USED BY THE GROUP (TRANSPORT AND HEATING)

item no.	explanation - comment
149	Total quantity of petrol used for the vehicle fleet of the Acea Group. For the conversions from the unit of volume (litres) to that of mass (kg) a density value of 0.73 kg/l was used (source: Defra, conversion factors 2016).
150	Total quantity of diesel used for the vehicle fleet of the Acea Group. For the conversions from the unit of volume (litres) to that of mass (kg) a density value of 0.84 kg/l was used (source: Defra, conversion factors 2016). From 2017 the figure includes the fuel consumed by Aquaser's vehicles.
151	Total quantity of diesel used for heating work areas and for the supply of the generators. Only the consumption of Acea Ato 2 and Acea Ato 5 is included for the 2015-2016 two-year period. The figure is measured with an uncertainty of ± 0.5%.
152	Total quantity of natural gas used for heating the work spaces. The scope includes: Acea, Areti, Acea Produzione (offices of Via Aeronautica), Acea Ato 2, Acea Ato 5, Acea Ambiente, Acea Elabori, Acea Energia. The figure is measured with an uncertainty of ± 0.5%.
153	Total quantity of LPG (Liquefied Petroleum Gas) used to heat the work spaces. For the conversions from the unit of volume (litres) to that of mass (kg) a density value of 0.550 kg/l was used. The figure is measured with an uncertainty of ± 0.5%.

EMISSIONS AND WASTE - ENERGY SEGMENT

item no.	explanation - comment
154	Total quantity of carbon dioxide released into the atmosphere as a result of generating thermoelectric energy from fossil fuels and from the waste-to-energy process of CSS and pulper. Includes the equivalent CO_2 estimated on the basis of the reintegrations of SF_6. The figure is calculated as the sum of Items 155, 156 and 157. The 2017 increase is due mainly to Line 1 going into operation (starting September 2016). Estimated figure.
155	Quantity of carbon dioxide released into the atmosphere by the Acea Produzione power plants. The figure is calculated in accordance with current legislation.
156	Quantity of equivalent CO_2 estimated based on the reintegrations of SF_6, considering that the 1 t of this gas has a heating power 23,500 times the CO_2.
156 B	Quantity of CO_2 equivalent estimated on the basis of HCFC replenishments, considering that 1 t of gas has a heating capacity of about 1,300-2,500 times CO_2. The value depends on the specific type of gas (source: GHG protocol - 5 Assessment Report; for gas mixtures the factor is calculated on the primary source). Half of the emissions are included for the energy segment and half for the water segment, as is the case for the quantities of HCFCs. This figure corresponds to item 204 B.
157	Quantity of carbon dioxide released into the atmosphere by the Acea Ambiente waste-to-energy plants. The decrease in 2018 was mainly due to the use of a new method of determining CO_2 emissions at the San Vittore plant in Lazio: instead of calculating the value we now have the actual data from continuous monitoring of the chimney. At the Terni plant the item is measured.
158	Total quantity of nitrogen oxides ($NO + NO_2$) released into the atmosphere as a result of generating thermoelectric energy from fossil fuels and from the CSS and pulper waste-to-energy processes. Their presence in traces of the emissions is due to undesired secondary reactions which occur at high temperature between the nitrogen and the oxygen of the air. The figure is calculated.
159	Total quantity of nitrogen oxides ($NO + NO_2$) released into the atmosphere as a result of generating thermoelectric energy from fossil fuels in the Acea Produzione power plants. The figure is calculated.
160	Quantity of nitrogen oxides ($NO + NO_2$) released into the atmosphere by the Acea Ambiente waste-to-energy plants. The figure is calculated.

EMISSIONS AND WASTE - ENERGY SEGMENT

item no.	explanation - comment
161	Total quantity of carbon oxide (CO) released into the atmosphere as a result of generating thermoelectric energy from fossil fuels and the waste-to-energy process. The existence of the pollutant in the emissions is due to incomplete fuel reaction and represents a symptom of deterioration in the performance of the combustion reaction. The figure is calculated.
162	Total quantity of carbon oxide (CO) released into the atmosphere as a result of generating thermoelectric energy from fossil fuels in the Acea Produzione power plants. The figure is calculated.
163	Quantity of carbon oxide (CO) released into the atmosphere by the Acea Ambiente waste-to-energy plants. The figure is calculated.
164	Total quantity of sulphur dioxide (SO_2) released into the atmosphere as a result of generating thermoelectric energy from fossil fuels and from the CSS and pulper waste-to-energy processes. The use of methane and diesel with low sulphur content in the power plants enables this type of emission to be contained. The figure is calculated.
165	Quantity of sulphur oxide (SO_2) released into the atmosphere as a result of generating thermoelectric energy from fossil fuels in the Acea Produzione power plants. The figure is calculated.
166	Quantity of sulphur dioxide (SO_2) released into the atmosphere by the Acea Ambiente waste-to-energy plants. The figure is calculated.
167	Total quantity of powders (microscopic particles with average aerodynamic diameter equal or less than 10 thousand of a millimetre) released into the atmosphere as a result of generating thermoelectric energy from fossil fuels and from the CSS and pulper waste-to-energy processes. Basically, it is amorphous unburned carbon, with traces of other compounds of various composition, obtained as sub-product of the combustion when it achieved completely. The figure is calculated.
168	Quantity of powders released into the atmosphere as a result of generating thermoelectric energy from fossil fuels in the Acea Produzione power plants. The figure is calculated.
169	Quantity of powders released into the atmosphere by the Acea Ambiente waste-to-energy plants. The figure is calculated.
170	Quantity of hydrochloric acid (HCl) released into the atmosphere by the Acea Ambiente waste-to-energy plants. The figure is calculated.
171	Quantity of hydrofluoric acid (HF) released into the atmosphere by the Acea Ambiente waste-to-energy plants. The figure is calculated.
172	Quantity of organic carbon released into the atmosphere by the Acea Ambiente waste-to-energy plants. The figure is calculated.
173	Total quantity of waste water, treated, resulting from the thermoelectric energy production activities. During the decommissioning of the old power station in 2017 and the start-up of the new plant, it was not possible to report on the parameter. Since 2018 it has been included. The figure is measured with an uncertainty of ± 2%.
174	Total quantity of hazardous waste (pursuant to Italian Legislative Decree no. 152/06) disposed by the companies of the Acea Group excluding the waste-to-energy area. The figure is measured with an uncertainty of ± 2%.
175	Hazardous waste (Italian Legislative Decree no. 152/06) disposed by the waste-to-energy area. It is essentially light ashes and slag resulting from the incineration processes. The figure is measured with an uncertainty of ± 2%.
176	Total quantity of non-hazardous waste (Italian Legislative Decree no. 152/06) disposed by the companies of the Acea Group excluding the waste-to-energy area. The figure is measured with an uncertainty of ± 2%.
177	Non-hazardous waste (Italian Legislative Decree no. 152/06) disposed by the waste-to-energy area. It is essentially heavy ashes and slag resulting from the incineration processes. The increase in the 2017 figure is attributable to the different classification of the water disposed (as non-hazardous waste in 2017 and as hazardous waste in 2016) at San Vittore del Lazio. The figure is measured with an uncertainty of ± 2%.

EMISSIONS AND WASTE - ENVIRONMENT SEGMENT

item no.	explanation - comment
178	Hazardous waste (Italian Legislative Decree no. 152/06) disposed by the Aprilia, Monterotondo Marittimo and Sabaudia plants. The figure is calculated.
179	Non-hazardous waste (Italian Legislative Decree no. 152/06) disposed by the Aprilia, Monterotondo Marittimo and Sabaudia plants. The figure is calculated.
180	Hazardous waste (Italian Legislative Decree no. 152/06) disposed by the Orvieto plant. The figure is measured with an uncertainty of ± 2%.
181	Non-hazardous waste (Italian Legislative Decree no. 152/06) disposed by the Orvieto plant. The figure is measured with an uncertainty of ± 2%.
182	CO_2 emissions from the Orvieto plant and composting plants. Estimated figure.
183, 184, 185, 186	They are powders, Total Organic Compounds (COT), ammonia and volatile inorganic substances (SIV) issued at the Aprilia plant. The presence of the "≤" symbol identifies values of concentration equal or lower than the limits detectable by the instruments used in the laboratory, therefore it indicates only an upper limit. The data is calculated starting from the measurement of the concentrations.

EMISSIONS AND WASTE - WATER SEGMENT

item no.	explanation - comment
187	Total quantity of sewerage sludge disposed of by the companies Acea Ato 2, Acea Ato 5 and Gesesa. They are non-hazardous waste. The figure is measured with an uncertainty of ± 2%.
188	Total quantity of purification sludge disposed by the Acea Ato 2 company. The figure that dropped sharply in 2017 results mainly from the Rome East treatment plants where an anaerobic digester and a dryer are in operation. The figure is measured with an uncertainty of ± 2%.
189	Total quantity of purification sludge disposed by the Acea Ato 5 company. The figure is measured with an uncertainty of ± 2%.
190	Total quantity of purification sludge disposed by the Gesesa company. The figure is measured with an uncertainty of ± 2%.
191	Total quantity of sand and slabs disposed by the companies Acea Ato 2, Acea Ato 5 and Gesesa. The figure is measured with an uncertainty of ± 2%.
192	Total quantity of sand and slabs disposed by the Acea Ato 2 company. The 2017 figure increased compared to 2016 for maintenance activity on the treatment plant of Rome East. The figure is measured with an uncertainty of ± 2%.
193	Total quantity of sand and slabs disposed by the Acea Ato 5 company. The figure is measured with an uncertainty of ± 2%.
194	Total quantity of sand and slabs disposed by the Gesesa company. The figure is measured with an uncertainty of ± 2%.
195	Total quantity of hazardous waste (Italian Legislative Decree no. 152/06) disposed by Acea Ato 2, Acea Elabori and Acea Ato 5, to which was added an amount produced by the Parent Company and attributed in equal parts to the two Areas: Energy and Water. The figure is calculated.
196	Total quantity of hazardous waste (pursuant to Italian Legislative Decree no. 152/06) disposed by Acea Ato 2 and Acea Elabori. The figure is measured with an uncertainty of ± 2%.
197	Total quantity of hazardous waste (pursuant to Italian Legislative Decree no. 152/06) disposed by Acea Ato 5. The figure is measured with an uncertainty of ± 2%.
198	Proportion of hazardous waste (pursuant to Italian Legislative Decree no. 152/06) disposed by the parent company and attributed to the Water Segment. The same proportion was attributed to the Energy Segment. The quantity is much lower than the previous year because in 2017 the Valleranello site, one of Acea's historical logistics sites, was closed, with the consequent disposal of many different materials, some of them hazardous. In 2018 waste was still being produced by Valleranello, resulting from the demolition of the construction shacks in the area. From 2019 onwards lower quantities of waste will be produced, in line with production before 2017.
199	Total quantity of non-hazardous waste (Italian Legislative Decree no. 152/06) disposed by Acea Ato 2, Acea Elabori, Acea Ato 5 and Gesesa, to which was added an amount produced by the Parent Company and attributed in equal parts to the two main areas of business: energy and water. The figure is calculated.
200	Total quantity of non-hazardous waste (pursuant to Italian Legislative Decree no. 152/06) disposed by Acea Ato 2 and Acea Elabori. The increase in quantities in 2018 depends on waste from sewerage cleaning. The figure is calculated.
201	Total quantity of non-hazardous waste (pursuant to Italian Legislative Decree no. 152/06) disposed by Acea Ato 5. The figure is estimated.
202	Total quantity of non-hazardous waste (pursuant to Italian Legislative Decree no. 152/06) disposed by Gesesa. The figure is estimated.
203	Proportion of non-hazardous waste (pursuant to Italian Legislative Decree no. 152/06) disposed by the Parent Company and attributed to the Water Segment. The same proportion was attributed to the Energy Segment. The quantity is much lower than the previous year because in 2017 the Valleranello site, one of Acea's historical logistics sites, was closed, with the consequent disposal of many different materials, some of them non-hazardous. In 2018 waste was still being produced by Valleranello, resulting from the demolition of the construction shacks in the area. From 2019 onwards lower quantities of waste will be produced, in line with production before 2017.
204	Total amount of carbon dioxide emitted by Acea Ato 2 dryers, using methane as fuel. The 2018 figure is calculated using the consumption of fuel and the emission coefficients (ISPRA 2017).
204 B	Quantity of CO_2 equivalent estimated on the basis of HCFC replenishments, considering that 1 t of gas has a heating capacity of about 1,300-2,500 times CO_2. The value depends on the specific type of gas (source: GHG protocol - 5 Assessment Report; for gas mixtures the factor is calculated on the primary source). Half of the emissions are included for the energy segment and half for the water segment, as is the case for the quantities of HCFCs. This figure corresponds to item 156B.

CO_2 EMISSIONS FROM TRANSPORT AND HEATING

item no.	explanation - comment
205	Total quantity of carbon dioxide issued by the motor pool of the Acea Group. For the entire three-year period, it was calculated using the consumption of fuel and the emission coefficients (ISPRA 2017). The increase starting in 2017 depends first of all on both the WFM model which is now operational and determined an increase in the operating capacity against a larger number of vehicles on the road at the same time, and on the companies included in the year's parameter (Acea Ambient and Aquaser).
206	Total quantity of carbon dioxide emitted by the systems used to air-condition the work spaces. The 2018 figure, calculated using fuel consumption and emission coefficients (ISPRA 2017), does not include the share of methane heating consumption in the Terni plant as it is already consolidated within the value reported for the purposes of the ETS.

ACEA SPA

RELAZIONE DELLA SOCIETÀ DI REVISIONE INDIPENDENTE SULLA DICHIARAZIONE CONSOLIDATA DI CARATTERE NON FINANZIARIO AI SENSI DELL'ARTICOLO 3, C. 10, D.LGS. 254/2016 E DELL'ARTICOLO 5 REGOLAMENTO CONSOB N. 20267 DEL GENNAIO 2018

ESERCIZIO CHIUSO AL 31 DICEMBRE 2018

Relazione della società di revisione indipendente sulla dichiarazione consolidata di carattere non finanziario

ai sensi dell'art. 3, c. 10, D.Lgs. 254/2016 e dell'art. 5 Regolamento CONSOB adottato con delibera n. 20267 del gennaio 2018

Al Consiglio di Amministrazione di Acea SpA

Ai sensi dell'articolo 3, comma 10, del Decreto Legislativo 30 dicembre 2016, n. 254 (di seguito "Decreto") e dell'articolo 5 del Regolamento CONSOB n. 20267/2018, siamo stati incaricati di effettuare l'esame limitato ("*limited assurance engagement*") della dichiarazione consolidata di carattere non finanziario di Acea SpA e sue controllate (di seguito il "Gruppo") relativa all'esercizio chiuso al 31 dicembre 2018 predisposta *ex* art. 4 del Decreto e approvata dal Consiglio di Amministrazione in data 6 marzo 2019 (di seguito "DNF").

Responsabilità degli Amministratori e del Collegio Sindacale per la DNF

Gli Amministratori sono responsabili per la redazione della DNF in conformità a quanto richiesto dagli articoli 3 e 4 del Decreto e dai "GRI-Sustainability Reporting Standards" definiti nel 2016 (di seguito "GRI Standards"), da essi individuati come standard di rendicontazione.

Gli Amministratori sono altresì responsabili, nei termini previsti dalla legge, per quella parte del controllo interno da essi ritenuta necessaria al fine di consentire la redazione di una DNF che non contenga errori significativi dovuti a frodi o a comportamenti o eventi non intenzionali.

Gli Amministratori sono responsabili inoltre per l'individuazione del contenuto della DNF, nell'ambito dei temi menzionati nell'articolo 3, comma 1, del Decreto, tenuto conto delle attività e delle caratteristiche del Gruppo e nella misura necessaria ad assicurare la comprensione dell'attività del Gruppo, del suo andamento, dei suoi risultati e dell'impatto dallo stesso prodotti.

Gli Amministratori sono infine responsabili per la definizione del modello aziendale di gestione e organizzazione dell'attività del Gruppo, nonché, con riferimento ai temi individuati e riportati nella DNF, per le politiche praticate dal Gruppo e per l'individuazione e la gestione dei rischi generati o subiti dallo stesso.

Il Collegio Sindacale ha la responsabilità della vigilanza, nei termini previsti dalla legge, sull'osservanza delle disposizioni stabilite nel Decreto.

PricewaterhouseCoopers SpA

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Indipendenza della società di revisione e controllo della qualità

Siamo indipendenti in conformità ai principi in materia di etica e di indipendenza del *Code of Ethics for Professional Accountants* emesso dall'International *Ethics Standards Board for Accountants*, basato su principi fondamentali di integrità, obiettività, competenza e diligenza professionale, riservatezza e comportamento professionale. La nostra società di revisione applica l'*International Standard on Quality Control 1 (ISQC Italia 1)* e, di conseguenza, mantiene un sistema di controllo qualità che include direttive e procedure documentate sulla conformità ai principi etici, ai principi professionali e alle disposizioni di legge e dei regolamenti applicabili.

Responsabilità della società di revisione

È nostra la responsabilità di esprimere, sulla base delle procedure svolte, una conclusione circa la conformità della DNF rispetto a quanto richiesto dal Decreto e dai GRI Standards. Il nostro lavoro è stato svolto secondo quanto previsto dal principio "*International Standard on Assurance Engagements ISAE 3000 (Revised) - Assurance Engagements Other than Audits or Reviews of Historical Financial Information*" (di seguito "*ISAE 3000 Revised*"), emanato dall'*International Auditing and Assurance Standards Board* (IAASB) per gli incarichi *limited assurance*. Tale principio richiede la pianificazione e lo svolgimento di procedure al fine di acquisire un livello di sicurezza limitato che la DNF non contenga errori significativi. Pertanto, il nostro esame ha comportato un'estensione di lavoro inferiore a quella necessaria per lo svolgimento di un esame completo secondo l'ISAE 3000 Revised ("*reasonable assurance engagement*") e, conseguentemente, non ci consente di avere la sicurezza di essere venuti a conoscenza di tutti i fatti e le circostanze significativi che potrebbero essere identificati con lo svolgimento di tale esame.
Le procedure svolte sulla DNF si sono basate sul nostro giudizio professionale e hanno compreso colloqui, prevalentemente con il personale della società responsabile per la predisposizione delle informazioni presentate nella DNF, nonché analisi di documenti, ricalcoli ed altre procedure volte all'acquisizione di evidenze ritenute utili.

In particolare, abbiamo svolto le seguenti procedure:

1. analisi dei temi rilevanti in relazione alle attività ed alle caratteristiche del Gruppo rendicontati nella DNF, al fine di valutare la ragionevolezza del processo di selezione seguito alla luce di quanto previsto dall'art. 3 del Decreto e tenendo presente lo standard di rendicontazione utilizzato;
2. analisi e valutazione dei criteri di identificazione del perimetro di consolidamento, al fine di riscontrarne la conformità a quanto previsto dal Decreto;
3. comparazione tra i dati e le informazioni di carattere economico-finanziario incluse nella DNF ed i dati e le informazioni inclusi nel Bilancio Consolidato del Gruppo Acea;
4. comprensione dei seguenti aspetti:
   - modello aziendale di gestione e organizzazione dell'attività del Gruppo, con riferimento alla gestione dei temi indicati nell'art. 3 del Decreto;
   - politiche praticate dall'impresa connesse ai temi indicati nell'art. 3 del Decreto, risultati conseguiti e relativi indicatori fondamentali di prestazione;
   - principali rischi, generati o subiti connessi ai temi indicati nell'art. 3 del Decreto.

   Relativamente a tali aspetti sono stati effettuati inoltre i riscontri con le informazioni contenute nella DNF e effettuate le verifiche descritte nel successivo punto 5, lett. a);

5. comprensione dei processi che sottendono alla generazione, rilevazione e gestione delle informazioni qualitative e quantitative significative incluse nella DNF. In particolare, abbiamo svolto interviste e discussioni con il personale della Direzione di Acea SpA e con il personale di Acea Produzione SpA, Acea Ambiente SpA e Acea ATO 2 SpA e abbiamo svolto limitate verifiche documentali, al fine di raccogliere informazioni circa i processi e le procedure che supportano la raccolta, l'aggregazione, l'elaborazione e la trasmissione dei dati e delle informazioni di carattere non finanziario alla funzione responsabile della predisposizione della DNF.

   Inoltre, per le informazioni significative, tenuto conto delle attività e delle caratteristiche del Gruppo:

   – a livello di capogruppo
     a) con riferimento alle informazioni qualitative contenute nella DNF, e in particolare al modello aziendale, politiche praticate e principali rischi, abbiamo effettuato interviste e acquisito documentazione di supporto per verificarne la coerenza con le evidenze disponibili;
     b) con riferimento alle informazioni quantitative, abbiamo svolto sia procedure analitiche che limitate verifiche per accertare su base campionaria la corretta aggregazione dei dati.
   – per Acea SpA, Acea Produzione SpA, Acea Ambiente SpA, Acea ATO 2 SpA e per l'impianto di termovalorizzazione di San Vittore del Lazio (Acea Ambiente SpA) che abbiamo selezionato sulla base delle loro attività, del loro contributo agli indicatori di prestazione a livello consolidato e della loro ubicazione, abbiamo effettuato visite in loco nel corso delle quali ci siamo confrontati con i responsabili e abbiamo acquisito riscontri documentali circa la corretta applicazione delle procedure e dei metodi di calcolo utilizzati per gli indicatori.

Conclusioni

Sulla base del lavoro svolto, non sono pervenuti alla nostra attenzione elementi che ci facciano ritenere che la DNF del Gruppo Acea relativa all'esercizio chiuso al 31 dicembre 2018 non sia stata redatta, in tutti gli aspetti significativi, in conformità a quanto richiesto dagli articoli 3 e 4 del Decreto e dai GRI Standards.

Milano, 26 marzo 2019

PricewaterhouseCoopers SpA

Massimo Rota
(Revisore legale)

Paolo Bersani
(Procuratore)

2018
SUSTAINABILITY REPORT

ACEA GROUP

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