

2016 SUSTAINABILITY REPORT

ACEA GROUP

The logo for ACEA Group, featuring the word "aceea" in a lowercase, rounded, sans-serif font. The letters are filled with a gradient from light green to dark green. The logo is centered within a large white circle that is partially obscured by a larger, semi-transparent green circle above it. The background of the entire page is a dark green color with a large, semi-transparent green circle on the left side.

2016 SUSTAINABILITY REPORT

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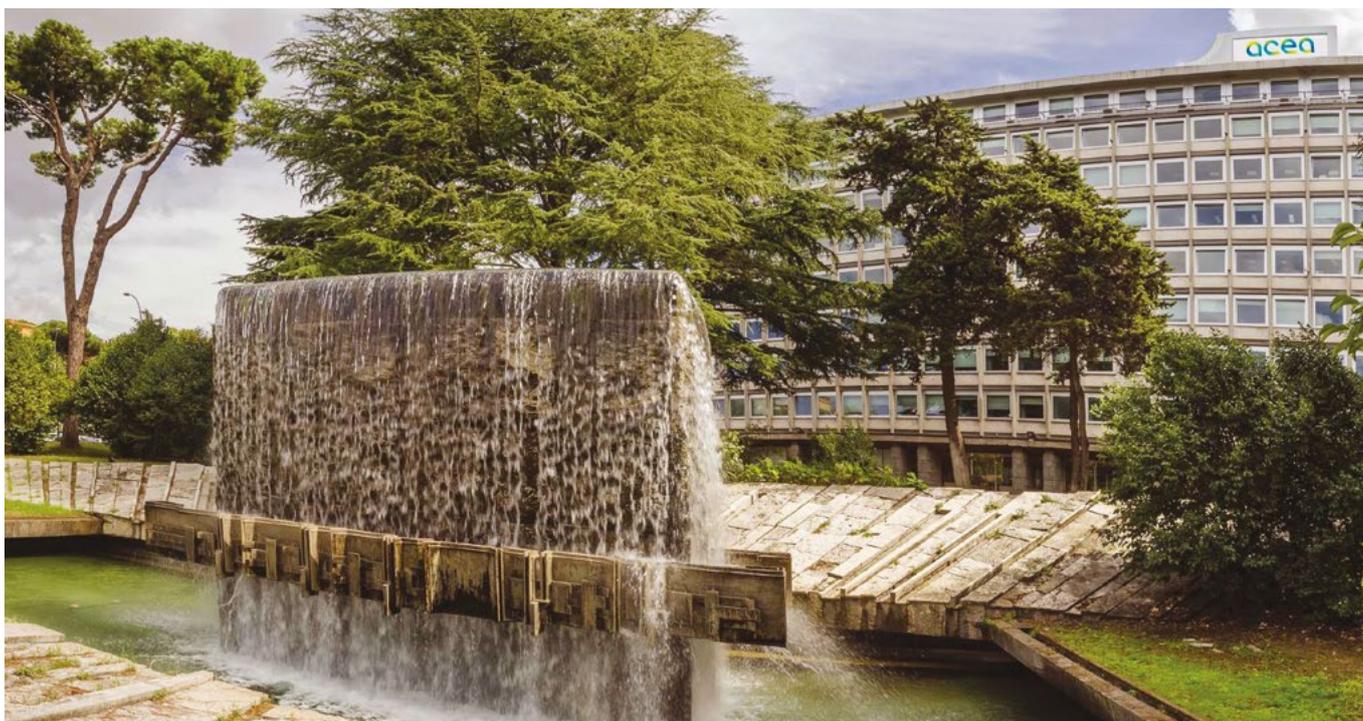
The logo for ACEA Group, featuring the word "aceea" in a lowercase, rounded, sans-serif font. The letters are filled with a gradient of light green and yellow, and have a subtle drop shadow effect. The logo is centered within a large white circle that is set against a background of overlapping light green and yellow curved shapes.

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LETTER TO THE STAKEHOLDERS



With the recent entry into force of Legislative Decree 254/2016 concerning the disclosure of information of a non-financial nature and on diversity, in implementation of EU Directive 95/2014, the obligation has arisen for listed companies such as Acea to include specific references to sustainability themes in the *Report on operations*, or refer to a separate document, starting from next year. Companies must describe their own corporate model, policies, assessment procedures, risks, performance indicators and results in the various sectors of business sustainability in said document; these parts broadly correspond to the *Sustainability Report*. The lawmakers have thus aimed to give full value to the elements which, beyond and supplementing the economic dimension, contribute towards the creation of business value, as they are considered functional to the proper understanding by the stakeholders of the Group's performance, results and the impact generated by business activities.

This should be remembered, because we can proudly claim that our Company is fully prepared for the challenges of this fundamental passage. This edition of the *Sustainability Report* is the nineteenth and for the last six years, the Financial Statements and the Sustainability Report are approved by the Board of Directors in the same meeting and published simultaneously. Therefore, up to now, reporting on sustainability has been on a purely voluntary basis, but no less formalised; the document has always been prepared according to the highest level of compliance with

internationally recognised guidelines (now GRI-G4) and subjected right from the start to verification and review by a specialist external company, with the specific aim of giving maximum validity to the information contained in it.

This choice, which was made some time ago, and is confirmed on an annual basis through regular reporting, is not random. We have always been clearly aware that the role of a multiutility company that has been operating for more than a century and has strong territorial roots, where its presence is vital and proactive, implies all round responsibility, also including social and environmental aspects in terms of its development outlook.

These are exactly the guidelines in terms of value that we have for years included in the Group's Code of Ethics, and are confirmed by Acea's membership of the Global Compact Network Italia, in respect of the principles of the "Global compact", which have enabled the company to identify in the framework of its business operations, described in the *Sustainability Report*, the advanced elements of *Communication on Progress*. In addition to fulfilling the function of reporting to the stakeholders, the Sustainability Report has for some time played a support role in terms of internally promoting a developed business model.

We have done more. This year, we decided to define the forthcoming commitments in terms of sustainability, submitting them for approval by the Board of Directors for the first time in our history. For this reason, rather than

focusing on illustrating the results and performance for the year, which are described and quantified in detail in this document, we also want to share with you the prospects described in the 2016-2020 Sustainability Plan.

To define this, we have implemented an innovative procedure, which directly and jointly involves the company top management, in order to facilitate a common and shared view capable of focusing on key objectives, also with a clear awareness of the international sustainability developments indicated in the *Sustainable Development Goals* (SDGs) approved by the United Nations, on the basis of which the Sustainable Development Strategy of our country is about to be approved.

The five sustainability macro objectives identified and included in the Plan – *promoting customer centrality; valorising individuals in change; qualifying the territorial presence and protecting the environment; promoting health and safety throughout the value chain; investing in innovation for sustainability* – which are present and described in 26 operating frameworks and about 90 targets to 2020 in the Sustainability Report, and are an indication of the extent to which Acea is now part of this development path. What has emerged is a company involved in the transformation and

improvement of customer relations, with challenging service quality targets, which believes in the involvement of its own people, has a strong sense of responsible territorial presence, intended as a hosting context, natural environment and the community, capable of expanding its responsibilities throughout the value chain, which is providing a profound and challenging push towards modernisation and innovation and which understands the close links between innovation and sustainable growth.

Lastly, together with some of the corporate departments, we have identified and included in the Sustainability Plan some “governance level” goals, aimed at better integrating sustainability themes in the governance of business activities, in the conviction that we are not dealing with a target that has been achieved but a developing path which will not allow us to lower our attention threshold. However, we would underline that the operating goals of the Sustainability Plan and the guidelines of the Industrial Plan currently in force already have obvious intersection points, given that both of them interpret the transformation ongoing within the Group and contribute in different ways to the same outlook and sustainable development strategy.

Chief Executive Officer
Alberto Irace



Chairman
Catia Tomasetti



HIGHLIGHTS

RELATIONS WITH STAKEHOLDERS



CUSTOMERS AND THE COMMUNITY

18,600
PEOPLE

QUESTIONED IN CUSTOMER
SATISFACTION SURVEYS

70,220
LED

INSTALLED IN ROME IN 2016
INCLUDING NEW LIGHTING
AND TRANSFORMATIONS

46
WATER HOUSES

ACTIVE IN 2016
19 IN ROME AND 27 IN PROVINCE
12.2 MILLION LITRES SUPPLIED
250 t OF PLASTIC / YEAR SAVED
450 t OF CO₂ NOT EMITTED INTO THE AIR



SUPPLIERS

510
MILLION EUROS

2016 CONTRACTS VALUE

ABOUT **2,000**
CONTRACTS STIPULATED

WITH **1,000 SUPPLIERS**

5,500 SAFETY INSPECTIONS
ON WORKSITES

PERFORMED BY THE "SAFETY TEAM"
FOR "SINGLE TENDERS"



SHAREHOLDERS AND INVESTORS

132
MILLION EUROS

IN DIVIDENDS

210
INVESTORS

MET BY INVESTOR
RELATIONS

128.8
MILLION EUROS

ALLOCATED
TO FINANCIERS

236,000
CUSTOMERS RECEIVED

OVER THE COUNTER
AT THE HEAD OFFICE
10% LESS THAN 2015

THE ENVIRONMENT I WANT WHEN I GROW UP
ACEA FOR SCHOOLS

2500 STUDENTS
AND 233 TEACHERS



HUMAN RESOURCES

33 HOURS
TRAINING PER HEAD

PROVIDED FOR EMPLOYEES

98.5%
EMPLOYEES

WITH OPEN-ENDED
CONTRACTS

31%
FEMALE PRESENCE

IN THE CORPORATE
GOVERNANCE BODIES



INSTITUTIONS AND THE COMPANY

ABOUT **148** MILLION
EUROS IN INNOVATION

AND MORE THAN 10 ONGOING
RESEARCH PROJECTS

530.7 MILLION
EUROS IN INVESTMENTS

+23.7% COMPARED TO 2015

MORE THAN **30**
PARTNERSHIPS

WITH UNIVERSITIES AND
RESEARCH INSTITUTES

HIGHLIGHTS

ENVIRONMENTAL ISSUES



WATER

Water Area

1,292 Mm³

VOLUME OF DRINKING WATER SUPPLIED IN THE NETWORK (GROUP)

1,188,656

NO. TESTS ON DRINKING WATER (GROUP)

49,650 km

OF NETWORK MANAGED SERVING THE DRINKING WATER SYSTEM OF THE GROUP



ENERGY

Distribution/Production

29,000 km

OF DISTRIBUTION NETWORK IN ROME AND FORMELLO

10,800 GWh

OF ELECTRICITY DISTRIBUTED

43%

TERRITORIAL PROTECTION INDEX

UNDERGROUND HV NETWORK ON TOTAL HV NETWORK



ENVIRONMENT

Waste Management

381,000 t

WASTE PROCESSED IN WASTE-TO-ENERGY

327 GWh

ENERGY PRODUCED BY THE PLANTS IN SAN VITTORE DEL LAZIO AND TERNI

23,670 km

OF NETWORK MANAGED SERVING
THE SEWERAGE SYSTEM
OF THE GROUP

448,123

NO. TESTS ON WASTEWATER
(GROUP)

742 GWh

TOTAL ENERGY
PRODUCED

576 GWh

ENERGY PRODUCED
FROM RENEWABLE SOURCES
ABOUT 78% OF THE TOTAL

90 GWh

HEAT ENERGY PRODUCED
FOR REMOTE HEATING
38,900 INHABITANTS SERVED

SAN VITTORE DEL LAZIO

13.5 MWh/h

ENERGY PRODUCED (MWh)
ON HOURS OF FUNCTIONING OF
THE WASTE-TO-ENERGY PLANTS

TERNI

10.2 MWh/h

SAN VITTORE DEL LAZIO

3.6 t/h

WASTE PRODUCED (t)
ON HOURS OF FUNCTIONING OF
THE WASTE-TO-ENERGY PLANTS

TERNI

2.0 t/h



DISCLOSING SUSTAINABILITY: METHODOLOGICAL NOTE

The *Sustainability Report* describes the financial, social and environmental performances of the Group with a view to providing stakeholders with information as clear, comprehensive and integrated as possible. This edition refers to the 2016 financial year and it represents the eighteenth report published by Acea on a yearly basis. Following its formal approval by the **Board of Directors**, the **Sustainability Report** is published in conjunction with the **Statutory financial statements** and is handed out during the Shareholders' Meeting.

REFERENCE GUIDELINES AND ASSURANCE

Acea has prepared this document in compliance with the **comprehensive option** set forth in the **GRI-G4 Guidelines¹** and the **Electrical Utilities Sector Supplement**.

The indicators in the **GRI-G4 Guidelines** are divided into "general standards" and "specific standards". Consistent with the "comprehensive" level, the **Guidelines require reporting on the 58 "general standards" and on the "aspects" identified as "material", or more significant, for the company** which, as a whole, make up the "specific standards". Each "aspect" includes a description of the management approach (*Disclosure Management Approach*) and is shown in indicators.

Of the 54 "aspects" as stated in the "specific standards" in the Guidelines and Sector Supplement, Acea has identified 42 of them as material (see *GRI-G4 Content Index* at the bottom of the document and, for the "material" aspect identification process, here below).

The *Report* also includes the **Environmental accounts**, consisting of more than **260** items that quantify the physical flows arising from the Group's operations: values

of production, factors used (resources) as well as outputs impacting the external environment (waste and emissions).

Since 2007, Acea has been involved in the **Global Compact (GC)** initiative, acknowledging **consistency between the ten principles** supported by the United Nations through the "Global Pact" and the **ethical guidelines established by the Group's Code of Ethics**. The **advanced level Communication on Progress (CoP)** is included in the *Sustainability Report* through a **combined statement of the GRI indicators and Global Compact principles**, pursuant to the understanding reached between the two organisations.

Prior to being published, the *Sustainability Report* is reviewed by an **independent firm specialised in assurance**, with which Acea does not have any joint interests or any other links. The independent firm is tasked with checking the adequacy of the methods used to prepare the document, examining the contents throughout the document, including the *Environmental accounts*, checking consistency with the Guidelines adopted and **issuing an overall opinion** on its clarity, completeness and transparency (see *Independent Auditors' Opinion Letter* and *GRI-G4 Content Index*).

CONTENT AND STRUCTURE OF THE DOCUMENT

The contents of the *Sustainability Report*, the aim of which is to meet the information needs of the various stakeholders in a clear and balanced way, are provided, as mentioned, according to the indications set out in the reporting *guidelines* as applicable to the Company's business and operating background. Account was taken of the **legal nature of the Company**, listed on the Stock Exchange, the **relationships between the parent company and the other Group companies**, the **business areas** (energy, water and

¹ In 2002, the *Global Reporting Initiative (GRI)*, established in Britain in 1997 by the *Coalition for Environmentally Responsible Economies (CERES)*, became an independent official centre to support the United Nations Environmental Programme (UNEP) and collaborate with the *Global Compact*. The *GRI-4 Guidelines* (published in 2013) – *G4 Sustainability Reporting Guidelines (part 1 and part 2)* are available at www.globalreporting.org. They outline the relevant sustainability reporting standards, general standards and economic, social and environmental performance indicators. The *Electric Utilities Sector Disclosures-G4*, comprising specific industry indicators, is also available on the GRI website.

environment), the utility-oriented **corporate mission**, the **country - Italy - where business is mainly carried on** and the **types of stakeholders** with which Acea interacts.

In 2016, **Acea began a process of engagement of the company top management**, which has led to the **definition of the 2016-2020 Sustainability Plan**, described in detail in the chapter on *Context analysis, strategy and sustainability*.

The **process of preparing the Plan**, from March to September 2016 and aimed at identifying the **priority sustainability contexts** in which to concentrate the **Group's commitments**, saw the **joint involvement of the top managers**, as part of two *focus groups*, which were followed by another 15 more operational working groups, with the involvement of a total of about 75 people.

In the light of the new aspects arising during the year, **Acea decided to update the “materiality” analysis**, aimed at highlighting the themes of an economic, social, environmental and governance nature **of most significance** (so-called “material”) **for both the company and the stakeholders**. The update involves **three main stages** – contextual analysis (documental study), meeting with management (direct discussion), multistakeholder focus groups (direct discussion) – from which the preparation of the fully updated **“matrix of materiality”** emerged (a graph which represents the positioning of the themes according to their significance for the company and the stakeholders). The analysis progressed at **distinct times**: the discussions with company management took place in 2016, during the preparation of the Sustainability Plan; the contextual analysis, in addition to involving the study of certain documents (such as the new Industrial Plan), focused on the regulatory, legal, sustainability and market contexts, and was specifically prepared by the competent Departments in the first two months of 2017. After these two stages, **it was possible to update the matrix of materiality consistently with the position of the company**. **Discussions with the stakeholders will be completed by the end of 2017**.

The **priority aspects** emerged:

- from the **2016-2020 Industrial Plan**, approved by the Board of Directors in mid-March;
- from the **preparation of the 2016-2020 Sustainability Plan**, approved by deliberation of the Board of Directors in November;
- from the **analysis of the regulatory, legal, sustainability and market context**, specifically prepared by the competent Departments, thus enabling an initial, partial, **updating of the 2016 “matrix of materiality”** (see chart no. 1), **outlining Acea's position**.

The analysis did not lead to the introduction of new themes into the matrix, but to **the shifting to the “highly significant” area of some governance themes previously**

of “medium significance”, specifically: *“the introduction of sustainability elements into corporate governance”* (9), and *“listening to, involvement and increasing awareness of the stakeholders”* (11). Another two elements – *“development of synergies with public subjects and private partners”* (21), and *“valorisation of the ESG elements in relations with the financial community”* – saw a significant increase in the significance level assigned by the company, but remained of medium significance. **All of the themes already highly significant were also repositioned**.

A careful reclassification of the themes was also carried out, **grouping together some of them with similar content**, and the acceptance of *“creating value”* was expanded to include the three dimensions: economic, social and environmental. This led to the reduction **from the 34 material themes in the previous matrix to 24**.

Of the 24 total themes, 20 are highly significant in the updated matrix.

For the **identification of the “material” aspects to be included** in the sustainability report, **among those envisaged by the “specific standards” of the GRI-G4 Guidelines (and sector supplement)**, consideration was again given² to their **correlation to the Acea highly significant material themes**. The acceptance attributed to them by the *GRI Guidelines* was also assessed, in some cases tracing them back to the corporate context and **in others establishing their non-relevance or non-applicability**³.

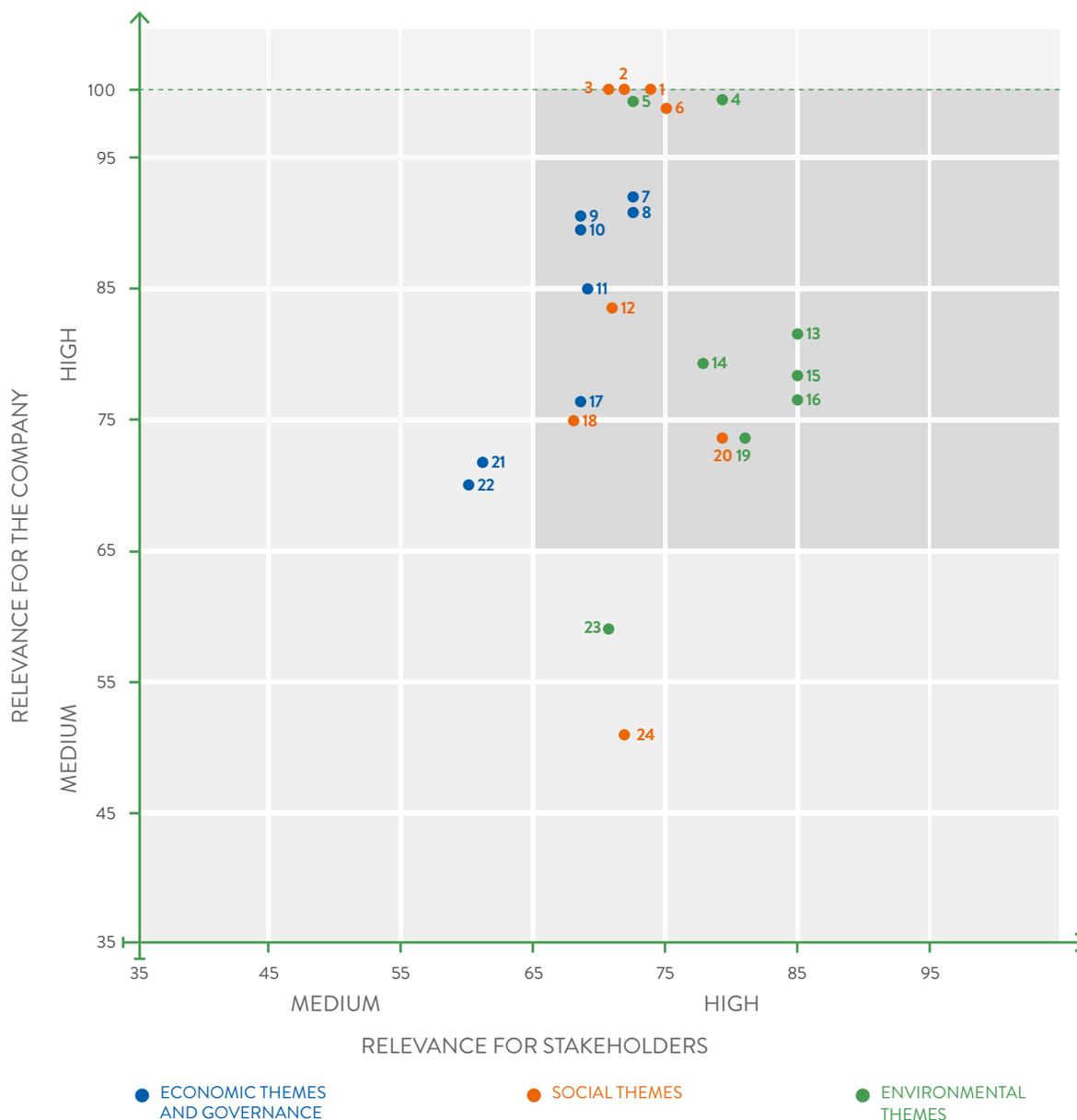
42 of the 54 “aspects” included in the GRI-G4 specific standards and *Sector Supplement* **were deemed “material”**, in other words consistent with the highly significant themes in the Acea matrix of materiality (see table no. 1), although this does not always take account of the range of their significance, which where opportune is discussed in detail in the document. Also, **of the indicators included as “material” aspects, only 6 were deemed non-pertinent** and excluded from the analysis.

On the other hand, **14 of the 20 highly significant themes identified in the Acea matrix of materiality are consistent with the aspects envisaged by the GRI-G4 specific standards**. Another **three are correlated** to some of the 58 **general standards** of the Guidelines, specifically the material theme *“remuneration policy and evaluation of top management performance”* (G4-51 and G4-52), the theme *“introduction of sustainability elements in corporate governance”* (G4-42 to G4-50) and the theme *“discussion with, involvement and increasing awareness of the stakeholders”* (G4-24 to G4-27). The **three material themes** – *“improvement and innovation of customer contacts”*; *“reduction of water losses”* and *“development of waste to energy and integrated waste management”* – with **no specific correspondence to the aspects in the international Guidelines** are also discussed in this document, given their significance.

² Consideration should be given to the fact that the aspects of the GRI-G4 specific standards - each of which comprises 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, as a result of which they cannot be presented in this paper. Reference should be made to the *G4 Sustainability Reporting Guidelines* (part 1 and part 2) and *Electric Utilities Sector Disclosures*.

³ This led, for example, to the exclusion of all aspects related to Human Rights, as they pertain more to multinational enterprises based on the interpretation of the *GRI Guidelines*.

CHART No. 1 – RELEVANT THEMES FOR THE COMPANY AND STAKEHOLDERS: ACEA “MATRIX OF MATERIALITY”



- 1 STUDY AND APPLICATION OF NEW TECHNOLOGIES FOR THE IMPROVEMENT AND EVALUATION OF SERVICES
- 2 IMPROVING AND INNOVATION OF METHODS AND CHANNELS OF CONTACT WITH CUSTOMERS
- 3 DEVELOPMENT AND VALORISATION OF HUMAN RESOURCES
- 4 WASTE-TO-ENERGY DEVELOPMENT AND INTEGRATED WASTE MANAGEMENT
- 5 SAFEGUARDING OF TERRITORY AND MITIGATION OF EMISSIONS: CLIMATE CHANGE, QUALITY OF THE AIR
- 6 HEALTH AND SAFETY AT WORK
- 7 CREATION OF VALUE (ECONOMIC, SOCIAL AND ENVIRONMENTAL)
- 8 ETHICS, INTEGRITY IN CORPORATE CONDUCT AND COMPLIANCE
- 9 INTRODUCTION OF ELEMENTS OF SUSTAINABILITY IN CORPORATE GOVERNANCE
- 10 RISK MITIGATION AND DEVELOPMENT OF BUSINESS OPPORTUNITIES
- 11 STAKEHOLDER ENGAGEMENT
- 12 SUSTAINABLE MANAGEMENT OF THE SUPPLY CHAIN AND SELECTION/EVALUATION OF SUPPLIERS ON THE BASIS OF ESG (ENVIRONMENTAL, SOCIAL AND GOVERNANCE) CRITERIA
- 13 UPGRADING WATER TREATMENT, SEWERAGE WORKS AND SLUDGE DISPOSAL
- 14 DEVELOPMENT OF INVESTMENTS FOR THE REDUCTION OF ENVIRONMENTAL IMPACT
- 15 PROTECTING DRINKING WATER QUALITY
- 16 REDUCTION OF WATER LOSSES
- 17 TOP MANAGEMENT REMUNERATION AND EVALUATION
- 18 MANAGEMENT OF CORPORATE DIVERSITY AND WELFARE
- 19 EFFICIENT WATER USE
- 20 CONSUMER PROTECTION
- 21 DEVELOPMENT OF PARTNERSHIPS WITH PUBLIC AND PRIVATE ENTITIES
- 22 VALORISATION OF ESG (ENVIRONMENTAL, SOCIAL AND GOVERNANCE) ELEMENTS IN THE RELATIONS WITH THE FINANCIAL WORLD
- 23 FAUNA AND FLORA PROTECTION
- 24 PROTECTION OF HUMAN RIGHTS

TABLE No. 1 – MATCHING BETWEEN GRI-G4 “MATERIAL ASPECTS” AND ACEA “MATERIAL TOPICS”

 GRI-G4: CATEGORY ECONOMIC	ACEA MATERIAL TOPICS
Economic performance	3, 5, 7, 8, 10
Market Presence	3
Indirect Economic Impacts	7
Procurement Practices	7, 12
Availability and Reliability (DMA) *	10
Demand-Side Management *	1
Research and Development *	1
System Efficiency *	5
<hr/>	
 GRI-G4 - CATEGORY ENVIRONMENTAL	
Materials + (EN1)	5, 19
Energy	5
Water +	19
Biodiversity + (from EN11 to EN13)	5, 15
Emissions +	5
Effluents and Waste + (from EN22 to EN24, EN26)	5, 13
Products and Services (EN27)	5, 19
Compliance	8
Transport	5
Overall	14
Supplier Environmental Assessment	12
Environmental Grievance Mechanisms	8
<hr/>	
 GRI-G4: CATEGORY SOCIAL	
LABOR PRACTICES AND DECENT WORK	
Employment +	3, 7, 12, 17
Labor/Management Relations	3
Occupational Health and Safety +	6, 12
Training and Education	3
Diversity and Equal Opportunities	17
Equal Remuneration for Women and Men	17
Supplier Assessment for Labor Practices	12
Labor Practices Grievance Mechanisms	8
<hr/>	
SOCIETY	
Local Communities +	7, 14
Anti-corruption	8
Public Policy	8
Anti-competitive Behavior	8
Compliance	5
Supplier Assessment for Impacts on Society	8
Disaster/ Emergency Planning and Response *	1, 20
<hr/>	
PRODUCT RESPONSIBILITY	
Customer Health and Safety +	8, 20
Product and Service Labeling	1, 20
Marketing Communications (PR7)	8, 20
Customer Privacy	8, 20
Compliance	8
Access *	8
Provision of Information *	8, 20

Note: The “material aspects” were identified among all those set forth in the specific standards of the *GRI-G4 Guidelines* and *Electric Utilities Sector Disclosures*. The latter are shown with “*”, while a “+” symbol appearing next to one of the aspects of the *Guidelines* indicates additional information required under the *Sector Disclosures*. If indicators are placed in brackets next to one aspect, then only the indicators shown in the table will be considered to be material. On the other hand, unless otherwise specified, all the indicators relating to the aspect are material (also see *GRI-G4 Content Index*). For Acea material topics - as identified in the table by a number - reference should be made to the figure illustrating the matrix of materiality (Chart 1).

The **structure of the 2016 Sustainability Report** consists of three sections: **Corporate Identity, Socio-economic relations with stakeholders** and **Environmental issues**, supplemented with the **Environmental accounts**. The Report is circulated

by **posting it on the corporate website** – www.acea.it – **as well as on the Company intranet**. It is distributed on a pen drive to a selected mailing list (around 750 recipients) and on the occasion of events.

REPORT BOUNDARY

The area being reported on – i.e., the “Report Boundary” – was established **consistently with the Group size** (see the *Group Profile* below) and **without omitting significant information or data**. The broader boundary being considered pertains to **financial information** referring to the sum of the parts of Acea SpA and the other companies included in the **basis of consolidation**, as defined in the *2016 Consolidated Financial Statements*⁴. **Whenever the**

aforesaid boundary changes, depending on the actual availability of data as related to the progressive centralised management and significance thereof, **any such changes will be appropriately reflected in the text**⁵. The activities carried out by the parent company and the main operating companies in the water, energy and environmental businesses, where the Group’s most significant financial, social and environmental results are achieved, have always been subject to reporting on a regular basis to ensure data comparability over time.

DEFINITIONS AND BOUNDARY

X

“Acea Group”: means all the companies that are included in the basis of consolidation, including Acea SpA.

“Acea SpA”, “Parent Company” and “Holding Company” are terms that carry the same meaning.

The main companies that are included in the Report Boundary in addition to Acea SpA include: Areti (ex Acea Distribuzione), Acea Illuminazione Pubblica, Acea Energia, Acea Produzione, Ecogena, Acea8cento, Acea Ambiente (ex A.R.I.A. into which SAO, Kyklos and Solemme have merged), Aquaser, Acea Ato 2, Acea Ato 5, Acea Elabori.

The companies that engage in the water business: Acque, Gori, Acquedotto del Fiora, Publiacqua and Umbra Acque, which were consolidated with the shareholders’ equity method following the review of the accounting principles, are included in some of the Group’s data and are described in a separate chapter.

Where possible, the report boundary also includes other companies, as from time to time specified in the document.

DATA RELIABILITY AND RETRIEVAL SYSTEM

The data and information published in the Sustainability Report are essentially provided by the relevant Divisions (data owners). They have been further supplemented and illustrated through in-depth discussions and exchanges between the internal workgroup, which is responsible for

preparing the document, and the Industrial Areas, the Divisions and Companies directly concerned, until final validation. Where appropriate, data was reprocessed or reclassified according to the adopted *Guidelines*.

Requests for additional information about the Sustainability Report and its contents may be sent to the following e-mail address: RSI@aceaspa.it

Giuseppe Sgaramella
CSR and Sustainability Unit



Roberto Piermatti
Institutional Affairs Division



⁴ Available at www.acea.it, *Investor Relations* section.

⁵ In several cases, the reporting boundary of the *Socio-economic relations with stakeholders* and *Environmental issues* sections does not tally with the basis of consolidation, although it invariably refers to the Group’s major companies, ensuring significance and comparability. Boundary adjustments are always shown in the text, in the boxes named *Reference Boundary*.

COMPLIANCE WITH GLOBAL COMPACT

Global Compact is an initiative launched by the Secretary-General of the United Nations after the World Economic Forum in 1999. In his appeal, he asked the leaders of the world economies to give their support to and spread nine **universal principles** concerning **human rights, employment** and **the environment**, to which a tenth was added in

2004: **the fight against corruption**, and the network of organizations and businesses supporting the initiative has expanded since then, undertaking formal commitments. Acea has subscribed to the ten principles since 2007, renewing its support on an annual basis.

TABLE No. 2 – THE TEN PRINCIPLES OF GLOBAL COMPACT



HUMAN RIGHTS

1. Businesses should support and respect the protection of internationally proclaimed human rights.
2. Businesses should make sure they are not complicit in human rights abuses.



LABOUR

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



ENVIRONMENT

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



ANTI-CORRUPTION

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

ADVANCED LEVEL COMMUNICATION ON PROGRESS AND ITS CORRELATION WITH THE GRI-G4 GUIDELINES

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

The table below lists and describes these elements according to 21 criteria defined by Global Compact and states their correlation⁶ to the general and specific standards (DMA and indicators of the material aspects identified) of the GRI-G4 Guidelines, applied in the preparation of the sustainability report according to the “comprehensive” level of compliance. See the GRI-G4 contents for the pages of the document where the relevant data and information can be found.

TABLE No. 3 – THE ELEMENTS OF ADVANCED CoP AND GRI-G4 GUIDELINES

GC Advanced Criteria	GC – matching scopes	link with GRI-G4 (general and specific standards – material aspects)
	Integration of sustainability in Corporate	from G4-34 to G4-55
CRITERIA 1-2 Implementing the Ten Principles into Strategies & Operations	Integration of sustainability in the value chain	G4-12 – G4-13 – G4-41 – G4-EC9 – DMA of the aspect Supplier Environmental Assessment – G4-EN4 – G4-EN17 – G4-EN32 – G4-EN33 – DMA of the aspect Supplier Assessment for Labor Practices – G4-LA6 – G4-LA14 – G4-LA15
CRITERIA 3-5 Robust Human Rights Management Policies & Procedures	HUMAN RIGHTS Commitments, strategies, policies; Management systems; Monitoring and evaluation mechanisms	Human Rights aspect and indicators related to it, as proposed by GRI-G4 Guidelines, are relevant for multinational enterprises. Acea has therefore considered such aspects non-material. In the meaning that the Global Compact gives to aspects relating to Human Rights (such as employment protection, freedom of Association, non-discrimination, etc.), they are included in other aspects of the GRI-G4 Guidelines, deemed “material”, as well as in the “material topics” of Acea and are therefore covered in the report.
CRITERIA 6-8 Robust Labour Management Policies & Procedures	LABOUR Commitments, strategies, policies; Management systems; Monitoring and evaluation mechanisms	Labor practices and decent work - DMA and indicators of the aspects: <i>Employment</i> (from G4-LA1 to G4-LA3) <i>Labor/Management Relations</i> (G4-LA4) <i>Occupational Health and Safety</i> (from G4-LA5 to G4-LA8) <i>Training and Education</i> (from G4-LA9 to G4-LA11) <i>Diversity and Equal Opportunity</i> (G4-LA12) <i>Equal Remuneration for Women and Men</i> (G4-LA13) <i>Supplier Assessment for Labor Practices</i> (G4-LA14, G4-LA15) <i>Labor Practices Grievance Mechanisms</i> (G4-LA16)

⁶ This scheme was defined using the document *Making the Connection: Using the GRI G4 Guidelines to Communicate Progress on the UN Global Compact Principles*, available on line on the website www.unglobalcompact.org.

GC Advanced Criteria	GC – matching scopes	link with GRI-G4 (general and specific standards – material aspects)
<p>CRITERIA 9-11</p> <p>Robust Environmental Management Policies & Procedures</p>	<p>ENVIRONMENT</p> <p>Commitments, strategies, policies; Management systems; Monitoring and evaluation mechanisms</p>	<p>Environmental - DMA and indicators of the aspects: <i>Materials</i> (G4-EN1) <i>Energy</i> (from G4-EN3 to G4-EN7) <i>Water</i> (from G4-EN8 to G4-EN10) <i>Biodiversity</i> (from G4-EN11 to G4-EN13) <i>Emissions</i> (from G4-EN15 to G4-EN21) <i>Effluents and Waste</i> (from G4-EN22 to G4-EN24, G4-EN26) <i>Products and Services</i> (G4-EN27) <i>Compliance</i> (G4-EN29) <i>Transport</i> (G4-EN30) <i>Overall</i> (G4-EN31) <i>Supplier Environmental Assessment</i> (G4-EN32, G4-EN33) <i>Environmental Grievance Mechanisms</i> (G4-EN34)</p>
<p>CRITERIA 12-14</p> <p>Robust Anti-Corruption Management Policies & Procedures</p>	<p>ANTI CORRUPTION</p> <p>Commitments, strategies, policies; Management systems; Monitoring and evaluation mechanisms</p>	<p>From G4-56 to G4-58 Society - DMA and indicators of the aspects: <i>Anti-corruption</i> (from G4-SO3 to G4-SO5) <i>Public Policy</i> (G4-SO6)</p>
<p>CRITERIA 15-18</p> <p>Taking Action in Support of Broader UN Goals and Issues</p>	<p>Strategies, business activities, promotion and engagement with stakeholders to support UN sustainable development goals (SDGs)</p>	<p>DMA of the aspects included Economic, Environmental and Social categories (<i>Labor practices and decent work, Society, Product Responsibility</i>)</p>
<p>CRITERIA 19-21</p> <p>Corporate Sustainability Governance and Leadership</p>	<p>CEO commitment and leadership</p>	<p>G4-1, G4-2</p>
	<p>Board adoption and oversight</p>	<p>from G4-34 to G4-55</p>
	<p>stakeholder engagement</p>	<p>from G4-24 to G4-27</p>
<p>High standards of transparency and disclosure</p>	<p>Use of the GRI-G4 Guidelines</p>	<p>from G4-3 to G4-13</p>
<p>External Assessment</p>		<p>G4-33</p>

INDEPENDENT AUDITORS' OPINION LETTER



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Independent auditors' report on the limited assurance engagement of ACEA Group's Sustainability Report as of December 31, 2016 (Translation from the original Italian text)

To the Shareholders of ACEA S.p.A.

We have carried out a limited assurance engagement of the "Sustainability Report 2016" (hereinafter "Sustainability Report") of ACEA S.p.A. and its subsidiaries (hereinafter "ACEA Group") as of December 31, 2016.

Management's responsibility on Sustainability Report

The Management is responsible for the preparation of the Sustainability Report in accordance with the "G4 Sustainability Reporting Guidelines", issued in 2013 by GRI - Global Reporting Initiative, that are detailed in the paragraph "Methodological note" of the Sustainability Report, as well as for that part of internal control that they consider necessary in order to allow the preparation of a Sustainability Report that is free from material misstatements, even caused by frauds or not-intentional behaviors or events. The Management is also responsible for defining the ACEA Group's commitments regarding the sustainability performance and for the reporting of the achieved results, as well as for the identification of the stakeholders and of the significant matters to report.

Auditors' responsibility

It is our responsibility the preparation of this report on the basis of the procedures carried out. Our work has been conducted in accordance with the criteria established by the principle "International Standard on Assurance Engagements 3000 - Assurance Engagements other than Audits or Reviews of Historical Financial Information" ("ISAE 3000"), issued by the International Auditing and Assurance Standards Board for the engagements that consist in a limited assurance. This principle requires the respect of relevant ethical principles, including those related to independence, as well as the planning and the execution of our work in order to obtain a limited assurance that the Sustainability Report is free from material misstatements. These procedures included inquiries, primarily with company's personnel responsible for the preparation of the information included in the Sustainability Report, documents analysis, recalculations and in other procedures in order to obtain evidences considered appropriate. The procedures performed on the Sustainability Report were related to the compliance with the principles for defining report content and quality, as articulated in the "G4 Sustainability

Reporting Guidelines", and are summarized below:

- a. Comparison of the economic and financial data and information included in the Sustainability Report with those included in the ACEA Group's consolidated financial statements as of December 31, 2016, on which we issued our auditors' report, pursuant to art. 14 and 16 of Legislative Decree n. 39 dated April 4, 2017;
- b. Analysis, through interviews, of the governance system and of the process to manage the issues related to sustainable development regarding Group's strategy and operations;
- c. Analysis of the process relating to the definition of material aspects included in the Sustainability Report, with respect to the criteria applied to identify priorities for the different stakeholders' categories and to the internal validation of the process outcome;

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- d. Analysis of the operating mode of the processes supporting the initiation, recording and management of the quantitative data reported in the Sustainability Report. In particular, we have carried out the following procedures:
- interviews and discussions with personnel of the Management of ACEA S.p.A. and of its subsidiaries ACEA Ato2 S.p.A., Acea Illuminazione Pubblica S.p.A. and ACEA Ambiente Srl, to obtain an understanding about the information, accounting and reporting system in use for the preparation of the Sustainability Report, as well as about the internal control processes and procedures supporting the collection, aggregation, data processing and transmission of data and information to the department responsible for preparation of the Sustainability Report;
 - analysis on a sample basis of the documentation supporting the compilation of the Sustainability Report, in order to confirm the processes in use, their adequacy and the operation of the internal control for the correct processing of data and information referred to the objectives described in the Sustainability Report;
- e. Analysis of the compliance and internal consistency of the qualitative information included in the Sustainability Report to the guidelines identified in paragraph "Management's responsibility on Sustainability Report" of the present report;
- f. Analysis of the process relating to the stakeholders engagement, with reference to the procedures applied, through the review of minutes or any other existing documentation relating to the main topics arisen from discussions with them;
- g. Obtaining of the representation letter, signed by the legal representative of ACEA S.p.A., relating to the compliance of the Sustainability Report with the guidelines indicated in paragraph "Management's responsibility on Sustainability Report", as well as to the reliability and completeness of the information and data presented in the Sustainability Report.

Our engagement is less in scope than reasonable assurance engagement in accordance with ISAE 3000 and, as consequence, we may not have become aware of all the significant events and circumstances which we could have identified had we performed a reasonable assurance engagement.

Conclusion

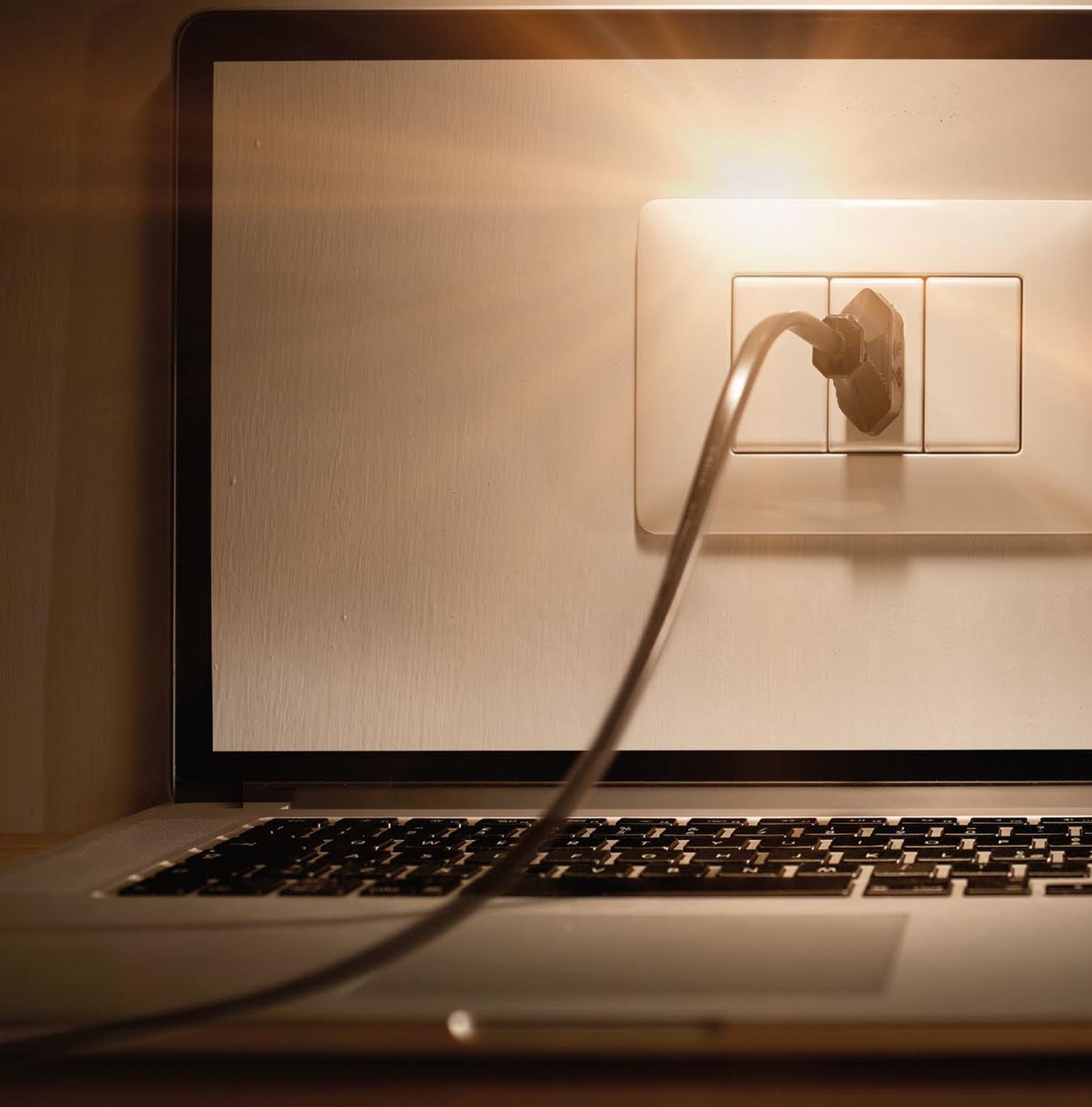
Based on our work, nothing has come to our attention that causes us to believe that the "Sustainability Report 2016" of ACEA Group as of December 31, 2016 is not in compliance, in all material aspects, with the guidelines "G4 Sustainability Reporting Guidelines" issued in 2013 by the GRI - Global Reporting Initiative, as stated in the paragraph "Methodological note" of the Sustainability Report.

Rome, April 6, 2017

EY S.p.A.

Massimo delli Paoli, Partner

This report has been translated into the English language solely for the convenience of international readers





CONNECTED TO YOUR WORLD.



CORPORATE IDENTITY

2016 SUSTAINABILITY REPORT



CORPORATE IDENTITY

ACEA'S HISTORY

Acea's history is linked to the modernisation and industrial development of the capital. Since it was founded in 1909 as Azienda Elettrica Municipale (AEM) in the Municipality of Rome, the company has managed the electricity network initially and then the water network, with the mission of accompanying and supporting the productive and social growth of the city.

Since 1990, the evolution of the regulatory context and the push of public businesses towards more efficient corporate models, also involving private partners, have generated a climate of profound renewal in the sector of local public services. Acea acquired legal status and entrepreneurial independence, becoming a joint-stock company listed on the Italian stock exchange in 1999. The company has always characterised its renewed identity, combining economic growth, industrial and technological development with a respect for man, the environment and the values of the civil society it is part of.

Since 2000, Acea has consolidated its position of public service provider in the capital – for example taking over the energy distribution sector from Enel SpA (2001) and the management of the sewerage service in the Municipality of Rome (2002) – and has undertaken a process of dimensional and business growth, opening up to partnerships with local operators and those in other Italian regions and with international operators such as GdF-Suez, and starting new industrial activities, such as the valorisation of waste and additional environmental services (compost). Recent years have been **characterised 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 provided to increasingly developed customers. The internal process of radical evolution, called **Acea2.0**, is aimed at changing the business model and corporate culture, involving Acea staff, to ensure that the company is at the highest levels in terms of innovation and creation of value for the stakeholders.

ACTIVITIES AND FUNCTIONS OF THE MAIN COMPANIES OF THE GROUP

Acea is **one of the main Italian multiutilities**, with more than century of experience in the **management of public services** in the **energy, integrated water service** and **environment** segments (waste to energy and added value services). The company is the reference operator in the Rome area for the energy (distribution and sale) and water (complete cycle) sectors, and in the latter context, it is also present in several regions (Lazio, Tuscany, Umbria and Campania), as an industrial partner for local businesses. The Group operates following the principles of social responsibility of businesses, promoting the sustainable development of territories and widespread and shared progress with the reference stakeholders. Acea is now the leading national operator in the water sector in terms of inhabitants served and, on the basis of the latest AEEGSI data, the third in terms of volume of electricity distributed and sixth in terms of volume sold on the energy market; in the environment sector, it is the sixth national operator in *Waste to Energy*.

ACEA AMBIENTE

x

In the plan for the reorganisation and development of the Environment Industrial Area, included in the Group Industrial Plan, some extraordinary operations were carried out in 2016, which involved the companies operating in the Area. The first was the merger by incorporation, effective as of November, of ISA into Aquaser; the second operation was the merger by incorporation, effective as of December, of Solemme, Kyklos and SAO into A.R.I.A. Following the latter operation, the incorporating company A.R.I.A. changed its business name to **Acea Ambiente**.

ARETI

x

On the first of July 2016, Acea Distribuzione, the Acea Group company which manages and develops the electricity network, changed its business name and logo, becoming **Areti**. This change was introduced in fulfilment of the regulations and dispositions of the Authority for electricity, gas and the water system, which imposed the separation of the identity, brand and communication policies (*brand unbundling*) of the distribution company and the sales companies operating within the same corporate Group. This new regulation, which concerned all the electrical utilities that are part of a Group the framework of which includes both sales and distribution activities, is part of the process of liberalisation and opening up to competition on the energy market, the success of which is functional to the complete separation, and consequent clear communication to the final customers, between the entity managing the network aspects (such as the distribution phase and connection to the network) and the entity dealing with commercial activities (sale of energy and post-metering activities).

TABLE No. 4 – THE ACEA GROUP FIGURES 2016

Employees (number of, by % consolidation)	4,968
Net Revenues (€/m)	2,832.4
Total Capitalisation (€/m)	3,896
<i>Bonds</i>	2,045.7
<i>Shares</i>	1,098.9
<i>Long-term Loans</i>	751.4
Total Assets (€/m)	6,904.7
Electricity	
Generation (GWh) (gross)	742.5
of which from renewable sources (GWh) (gross)	576.2
<i>Hydroelectric</i>	389.7
<i>Photovoltaic</i>	16.0
<i>Waste to Energy</i>	170.5
Distribution (GWh)	10,802
Sale (GWh) (free market and enhanced protection market)	8,316
Electricity and gas customers (number)	1,383,393
Waste to Energy (WtE)	
Electricity Generation (GWh) (gross)	326.8
Waste burnt (t)	381,685
<i>CDR</i>	281,917
<i>pulper</i>	99,768
Public Lighting	
Bulbs managed in Rome (number)	220,474
Water (integrated water service)	
Drinking water supplied (Mm ³)	669.0
Number of tests on drinking water	1,188,656
Wastewater treated (Mm ³)	872.7
Inhabitants served in Italy (millions)	8.5
Abroad (millions)	3.0

Note: Figures relating to electricity generation pertain to Acea Produzione and Acea Ambiente (waste to energy plants), companies wholly-owned by Acea SpA; figures relating to the water services, pertaining entirely to the Group, refer to the main water companies.

The specific business areas and territorial reach of Group companies are essentially shown in Chart 2.

CHART No. 2 - ACTIVITIES CONDUCTED BY ACEA'S KEY COMPANIES THROUGHOUT ITALY

DISTRIBUTION - PUBLIC LIGHTING - ENERGY EFFICIENCY

Areti schedules, plans and carries out interventions for the modernisation and development of electrical infrastructures (HV-MV-LV lines, cabins, remote control and metering systems) and manages the relevant distribution services in the Municipalities of Rome and Formello. It also manages cemetery lighting in the Municipality of Rome.

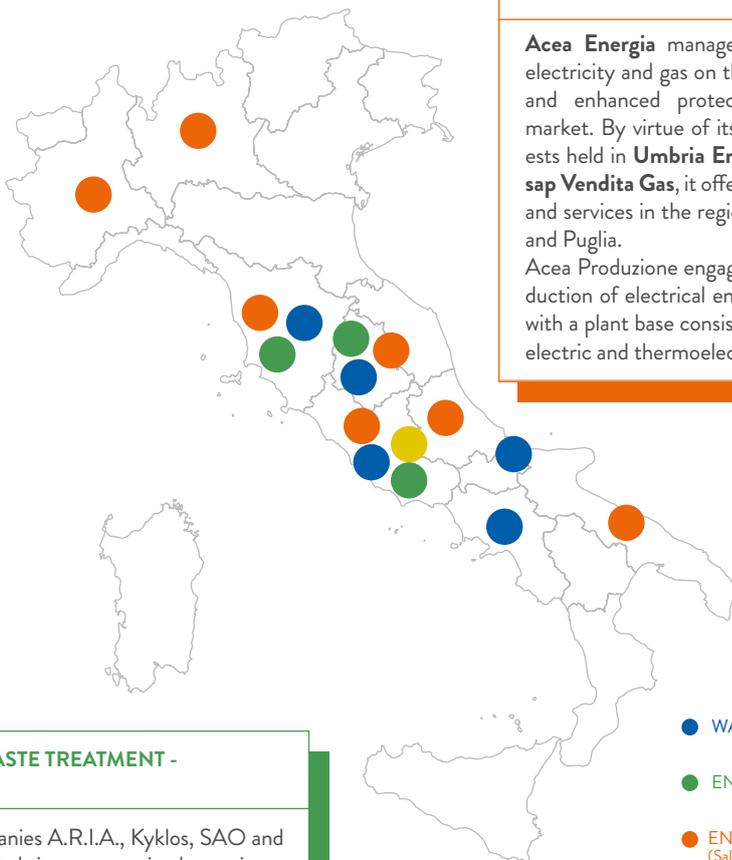
Acea Illuminazione Pubblica engages in the management and development of functional and artistic lighting systems in Rome.

Ecogena designs and rolls out cogeneration and tri-generation plants and acts as an ESCO (*Energy Service Company*), supplying energy efficiency services for internal (efficiency gain obligations under Ministerial Decree dated 20 July 2014) and external customers, while ensuring supervision of technological innovation as related to energy savings.

ELECTRICITY GENERATION - ENERGY AND GAS SALE

Acea Energia manages the sale of electricity and gas on the free and enhanced protection markets. By virtue of its equity interests held in **Umbria Energy** and **Cesap Vendita Gas**, it offers its products and services in the regions of Umbria and Puglia.

Acea Produzione engages in the production of electrical energy and heat with a plant base consisting of hydroelectric and thermoelectric plants.



- WATER
- ENVIRONMENT
- ENERGY (Sale and Production)
- NETWORKS

WASTE-TO-ENERGY - RDF PRODUCTION - WASTE TREATMENT - SLUDGE RECOVERY AND DISPOSAL

Acea Ambiente (which includes the former companies A.R.I.A., Kyklos, SAO and Solemme), with systems in Lazio, Tuscany and Umbria, operates in the environmental sector of waste management (treatment and disposal), the production of energy from waste and composting.

AQUASER, which includes the former company ISA, is involved in the stages of recovery, treatment and disposal of sludge resulting from the treatment phase of the integrated water service.

WATER COLLECTION - TRANSPORT - DISTRIBUTION - SEWERAGE - WASTEWATER TREATMENT - ANALYSIS AND PLANNING

In **Tuscany and Umbria** the Group operates through the following companies: **Acquedotto del Fiora**, delivering the service in 56 Municipalities in the provinces of Siena and Grosseto; **Acque**, operating in 55 Municipalities in the provinces of Pisa, Lucca, Pistoia, Florence and Siena; **Publicacqua**, a contractor for the water service operating in 46 Municipalities in the provinces of Florence, Prato Pistoia and Arezzo; **Nuove Acque**, reaching 36 Municipalities in the provinces of Arezzo and Siena; **Umbra Acque**, reaching 38 Municipalities in the provinces of Perugia and Terni.

In **Lazio and Campania** the following companies are active: **Acea Ato 2**, managing the integrated water service in Rome and 111 additional Municipalities across the province; **Acea Ato 5**, providing the service in 86 Municipality in the province of Frosinone; **Gori**, acting as service contractor in 76 Municipalities in the provinces of Naples and Salerno.

Other operations are managed through **Gruppo Crea** in the Municipalities of Termoli and **Gesesa** in the Municipalities of Benevento and 11 additional Municipalities across the province.

RESEARCH AND LABORATORY



Acea Elabori provides laboratory, research and development services as well as engineering services (designing and supervising works) engaging primarily in water and environmental operations for Acea Group companies.

CUSTOMER CARE



Acea8cento manages customer care operations for the operating companies of the Acea Group, with special emphasis on remote contact channels.

CAPITAL STRUCTURE, ORGANISATION AND BASIS OF CONSOLIDATION

Acea SpA is listed on the Electronic Stock Exchange organised and managed by Borsa Italiana. Roma Capitale is Acea SpA's majority shareholder, holding 51% of its share capital. At **31.12.2016**, other significant direct or indirect

equity interests were held by Suez SA, over 23%, and Francesco Gaetano Caltagirone for 5%.

Of the remaining shares, **more than 15%** are owned by **institutional investors**, with significant portions owned by US, British, Norwegian and Italian entities (see chart 4), and about 5% by **retail** investors.

CHART No. 3 - CAPITAL STRUCTURE AT 31 DECEMBER 2016



SOURCE: CONSOB - Only shareholdings of 2% or greater are shown

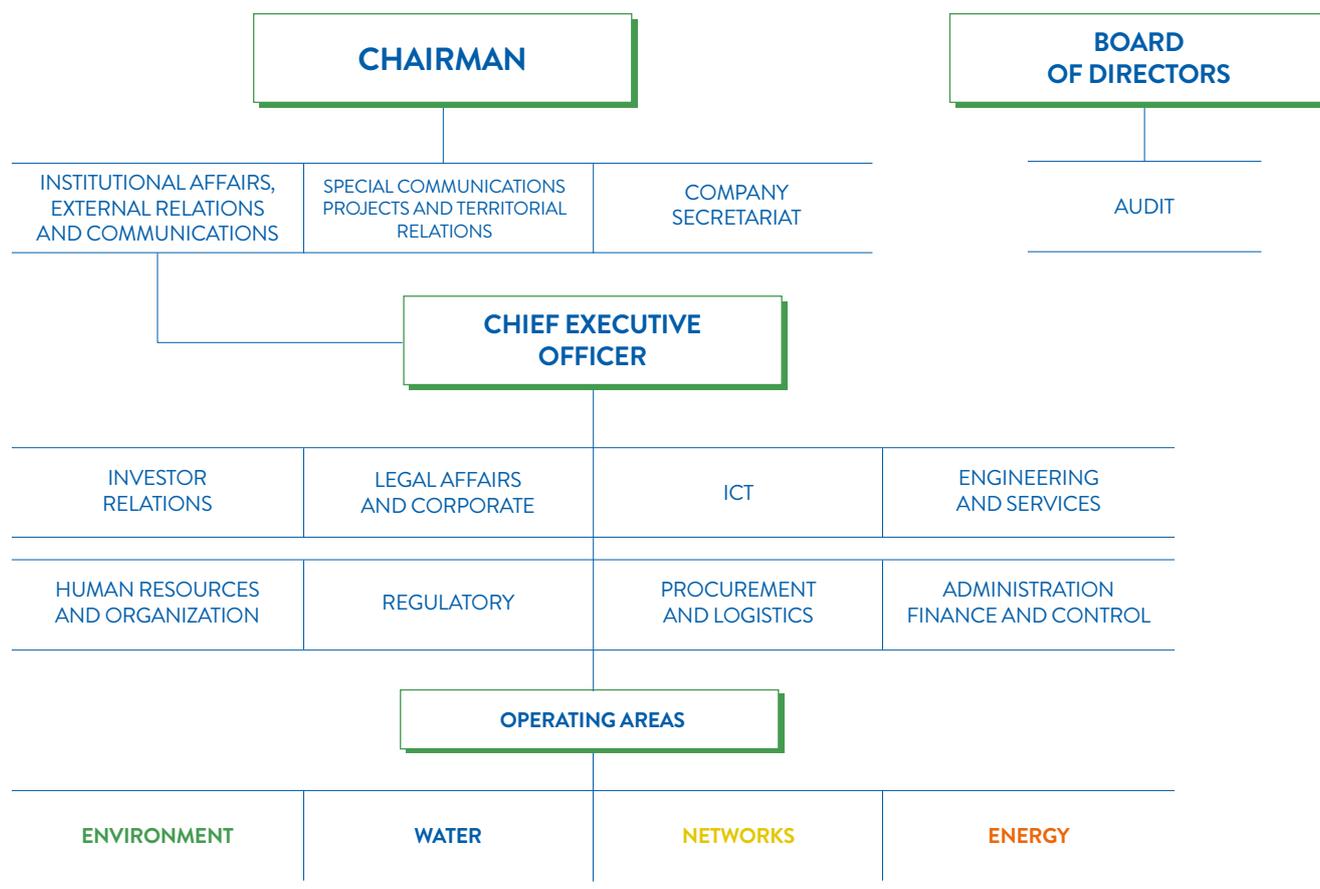
CHART No. 4 - GEOGRAPHICAL REPRESENTATION OF THE INSTITUTIONAL INVESTORS IN ACEA



Acea SpA (parent company) holds the corporate shareholdings and discharges **duties pertaining to strategic policy, control and economic and financial co-ordination** of the Group's activities. It also provides management support to the operating companies by supplying executive, legal,

logistical, technical, financial and administrative services. Acea SpA's **organisational macrostructure** consists of **corporate functions** and **four business areas** - Water, Networks, Energy, Environment - to which the operating companies report (see Chart 5).

CHART No. 5 - ACEA SPA ORGANISATION CHART AT 31.12.2016



The Group's scope of consolidation at 31 December 2016 included **28 companies**, which were consolidated in the Financial statements according to the line-by-line method (see Table 5) and **an additional 26 companies that were consolidated according to the shareholders' equity**

method, including water companies operating in ATOs other than those located in Lazio as well as other minor companies operating in the water, energy, environmental and related service sectors.

TABLE No. 5 - BASIS OF CONSOLIDATION AT 31.12.2016 (companies consolidated using the line-by-line method)

COMPANY NAME	REGISTERED OFFICE	EQUITY INTEREST HELD BY ACEA SPA	CONSOLIDATION METHOD
Areti SpA	Rome	100.00%	Line-by-line
Acea Illuminazione Pubblica SpA	Rome	100.00%	Line-by-line
Acea Ato 2 SpA	Rome	96.46%	Line-by-line
Acea Ato 5 SpA	Frosinone	98.45%	Line-by-line
Acea Gori Servizi Scarl	Pomigliano d'Arco (NA)	69.82%	Line-by-line
Acque Blu Arno Basso SpA	Rome	76.67%	Line-by-line
Acque Blu Fiorentine SpA	Rome	75.01%	Line-by-line
Aguas de San Pedro	San Pedro - Honduras	60.65%	Line-by-line
Acea Dominicana SA	Santo Domingo - Dominican Republic	100.00%	Line-by-line
Acea International SA	Santo Domingo - Dominican Republic	100.00%	Line-by-line
Crea Gestioni Srl	Rome	100.00%	Line-by-line
Crea SpA (*)	Rome	100.00%	Line-by-line
Gesesa SpA	Benevento	57.93%	Line-by-line
Lunigiana SpA (*)	Aulla (MS)	95.79%	Line-by-line
Ombrone SpA	Rome	99.51%	Line-by-line
Sarnese Vesuviano Srl	Rome	99.16%	Line-by-line
Acea Elabori SpA	Rome	100.00%	Line-by-line
Acea Energia SpA	Rome	100.00%	Line-by-line
Acea Produzione SpA	Rome	100.00%	Line-by-line
Acea8cento Srl	Rome	100.00%	Line-by-line
Cesap Vendita Gas Srl	Bastia Umbra (PG)	100.00%	Line-by-line
Ecogena SpA	Rome	100.00%	Line-by-line
Acea Liquidation and Litigation Srl	Rome	100.00%	Line-by-line
Parco della Mistica Srl	Rome	100.00%	Line-by-line
Umbria Energy SpA	Terni	50.00%	Line-by-line
Acea Energy Management Srl	Rome	100.00%	Line-by-line
Acea Ambiente Srl	Terni	100.00%	Line-by-line
Aquaser Srl	Volterra (PI)	93.06%	Line-by-line

(*) Pending liquidation or liquidated.

ACEA 2.0

THE ACEA2.0 PROGRAMME

In 2016, Acea continued the implementation of the innovation and change programme – called Acea2.0 – which involved the entire organisation, changing the management, operating and technological structure of the Group and at the same time acting on the corporate culture.

This ambitious strategic initiative has the goal of radically overhauling operating procedures, harmonising the information systems underlying business processes, and seizing digital-related opportunities to create a new customer experience that will significantly improve customer relations and satisfaction.

In order to keep a high number of employees involved, Acea, in addition to the **training and people engagement** initiatives, has adopted the *change management* model conceived by John Kotter – an expert of international renown and Professor at the Harvard Business School – which is a “dual” corporate system, capable of accelerating organizational evolution thanks to an agile reticular-type structure (network) as an alternative to a traditional single hierarchical organizational system, which is not always able to respond to the necessary transformations.

Acea has chosen to confront the challenge explicitly formulated in the statement of **The Great Opportunity**, thanks to the force of the “network” and guided by the management team.

THE GREAT OPPORTUNITY OF THE ACEA GROUP

I nostri **Clienti** hanno già cambiato abitudini, bisogni e aspettative.

Lo **SVILUPPO TECNOLOGICO** ha già mutato radicalmente il modo di comunicare, di interagire e di fare le cose **NON** possiamo aspettare.

Vogliamo essere la **PRIMA** utility a rispondere alle nuove esigenze del nostro tempo con uno straordinario **CAMBIAMENTO** tecnologico e del modo di lavorare.

Possiamo farlo grazie alla **PASSIONE** e al grande potenziale delle **PERSONE** che costituiscono la **FORZA** di Acea e delle sue partecipate.

Scegliamo il **FUTURO** Cambiamo insieme perseguendo eccellenza e valore per i clienti, per l'azienda e per **NOI** stessi. Condividiamo la **Sfida** di essere migliori.

During the course of the year, the figure of “Facilitators” was introduced to ease the implementation of the new model and enable the easier transmission of information between the hierarchical structure and the network. Fifteen new employees were selected for this purpose, who had already been involved in the reticular approach and trained carefully under the guidance of Mr. Kotter. The team of Facilitators has eased dialogue between the parties involved in the dual model and supported the staff directly and indirectly affected by the initiatives, keeping involvement close and simplifying participation to accelerate change.

The method adopted is characterised by the voluntary involvement of employees of the Group in improvement initiatives, for example:

- the local acceleration and action teams, composed of

staff who realise the agile model and are involved respectively in innovation and improvement projects with an immediate and large-scale impact and specific problems encountered in their everyday work and with variable timeframes;

- the initiatives launched by the guidance coalition, implementing concrete changes in the organisation of everyday work, to reach the challenging realisation of The Great Opportunity together with the hierarchical structure;
- the activities of the urgency team aimed at increasing the number of volunteers by their direct involvement and communicating successes.

Acea was awarded the **Assochange prize** in 2016, testimony to the significant business results achieved with the introduction and diffusion of the *change management* model described above.

ACEA
2.0

THE SCOPRIRETE ACCELERATION TEAM

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The **ScopriRete acceleration team**, one of the **20 teams** launched in 2016, was tasked with **improving and simplifying communications by Areti**, the electricity distribution company, **with the end customers** and **increasing the level of approval of the services offered**. Thanks to the work of the volunteers, **two new communications channels were introduced**, the **signage** notifying faults **was made more effective and legible** and the **phonic tree was improved and implemented digitally**. The objectives reached saw **an increase in customer satisfaction**, in addition to **generating savings for the company**.

ACEA
2.0

THE GUIDANCE COALITION SUPPORTING “UN FANTASTICO VIA VAI”

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Of the projects undertaken by the guidance coalition, that called “*Un Fantastico Via Vai*” was created with the goal of **giving employees the chance to become aware of and compare with the other Group realities, promoting the sense of membership** in an increasingly **One Company** framework and **stimulating an emotively based training process** through the spontaneous exchange of knowledge.

The initiative has **enlivened several hundred** staff, involving **twenty companies** and achieving significant success. The different results achieved, such as **engagement, easing infra-group relations** and **sharing best practices**, have pushed the Group to move towards the **institutionalisation of the initiative**, which was undertaken by the Personnel and Organization Division of the parent company.

GENERAL ECONOMIC INDICATORS

The results for 2016 highlight the Group's **capacity to create value**. The **EBITDA** increased to **896 million euros**

(+22.5% over 2015) and the **EBIT** stood at **525.9 million euros** (+36.1% over 2015). The **Group profit** amounted to **262.3 million euros**, showing a **49.9% increase** compared to the previous year.

TABLE No. 6 - ACEA GROUP EQUITY AND FINANCIAL HIGHLIGHTS (2015-2016)

(millions of euros)	2015	2016
Net revenues	2,917.3	2,832.4
Operating costs	2,213.9	1,965.4
staff costs	211.2	199.2
costs of materials and overheads	2,002.7	1,766.2
Income/(expense) from non-financial investments	28.5	29.3
Gross operating profit (EBITDA)	732.0	896.3
Operating profit (EBIT)	386.5	525.9
Financial operations	(91.1)	(111.6)
Investment operations	1.0	1.7
Profit/(loss) before tax	296.4	416.1
Income tax	114.8	143.5
Net profit (loss)	181.5	272.5
Profit/loss attributable to non-controlling interests	6.6	10.2
Net profit/(loss) attributable to the Group	175.0	262.3

The **Consolidated revenues in 2016** amounted to **2,832.4 million euros** (2,917.3 million euros in 2015). In the **energy and gas sector**, income amounted to **1,875.9 million euros**, a **reduction** of about 7% compared to 2015. Revenues from **public and cemetery lighting operations increased by 7.5%** (**78.6 million euros** in 2016 compared to 73.1 million euros in 2015), while the revenues from **green certificates** remained substantially stable (**21 million euros** in 2016 compared to 20.9 million in 2015). **Environmental services** (waste treatment, landfill management, compost production and RDF), showed revenues of **44.7 million euros**, an **increase of about 19%** compared to the previous year. Revenues from **water management** in Italy and abroad showed a balance of **641 million euros**, an **increase of 8.2%** compared to 592.5 million euros in 2015.

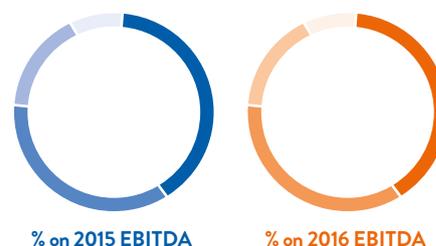
The **EBITDA**, which as already mentioned was 896 million euros, has increased especially due to operations in the Water⁷ and Energy sectors and as a result of the corporate rationalisation process and implementation of the Acea2.0 programme. Excluding the corporate area, the following areas

contributed to total revenues:

- **Water** operating segment (48%), with 355 million euros (310.8 million euros in 2015). This result was affected by tariff rises and the premium recognised to Acea Ato 2 with respect to the standards established;
- **Networks** operating segment (40%), with 356.3 million euros (255.7 million euros in 2015), as a result of the regulatory changes (del. 654/2015), which eliminates the effects of the "regulatory lag";
- **Energy** operating segment (14%), with 130 million euros (107.9 million euros in 2015), an increase of 20.5% as a result of opposing factors: reduction in the costs of operating processes, reduction of the sales and production margins and positive performance in the energy management sector;
- **Environment** operating segment (6%), with 57.2 million euros, virtually stable compared to last year (57.4 million euros), as a result of extraordinary items (insurance repayments) and the recovery of activities and start of operations of the plants in Aprilia and San Vittore del Lazio respectively.

CHART No. 6 – CONTRIBUTION OF THE BUSINESS AREAS TO OVERALL EBITDA (2015-2016)

BUSINESS AREAS	2015	2016
Water	42%	40%
Networks	35%	40%
Energy	15%	14%
Environment	8%	6%



The **EBIT** stood at **525.9 million euros** (+36.1% compared to 386.5 million euros in the previous year). The EBIT is determined by the value of **amortisation, provisions and depreciation**, which stood at 370.4 million euros (+7.2% compared to 345.5 million euros in 2015). This change was the result mainly of the increase in amortisation

(from 234 to 254.2 million euros), related to the increase in investments in all operating segments, and the slight increase in depreciation (from 59 to 64.7 million euros). The provisions remained practically stable (from 52.5 to 51.5 million euros).

⁷ Revenues from water operations abroad accounted for about 1.8% of water-related total revenues and about 0.4% of the Group total revenues. A brief description of the operations abroad is provided under *Operations Abroad*

CONTEXT ANALYSIS, STRATEGY AND SUSTAINABILITY

CONTEXT ANALYSIS

Acea ensures that it regularly analyses the **external reference context**, in order to identify, define and assess the factors that are significant in business terms and may affect the pursuit of the strategic objectives. In particular, **the evolution of the business, legal, regulatory, competitive and market sustainability frameworks** represent different aspects integrated into an overall framework, which outlines **the prevalent reference scenario within which management activities and the outlook of the organization are to be included**.

Sustainability context – 2016 was a year of transition, characterised by the **commitment to divulge** and translate into **properly planned practices** within national scenarios the key agreements concerning sustainable development that were signed, at an international level, in late 2015, such as **COP21 in Paris** and the **17 sustainable development goals of the United Nations 2030 Agenda** (Sustainable Development Goals – SDG). The signatory countries have set the target of bringing an approach based on sustainable development into supranational and internal policies, identifying and defining suitable means of doing so. For example, at an international level, the work of the **COP22 in Marrakesh**, which continued the inter-governmental process aimed at implementing the Paris agreements and, at a national level, the activities of the **Italian Alliance for Sustainable Development (ASVIS)**, which is the promoter and coordinator of multistakeholder initiatives aimed at achieving the United Nations sustainable development goals, can be interpreted from this viewpoint.

The implementation of the SDG in particular was a central element of **numerous institutional initiatives**. The **European Commission** has highlighted its commitment towards the realisation of the 2030 Agenda, restating the centrality of sustainable development as a guiding principle in its policies (COM 2016/739). In **Italy**, the work carried out under the guidance of the **Ministry for the Environment**, with the wide-ranging involvement of the stakeholders, will shortly lead to the **National Sustainable Development Strategy Proposal** with regard to the 2030 Agenda. It should also be noted that, although commitment should be at a national level, **the United Nations has underlined the contribution expected from the production sector**.

The reform of the Budget Law also envisaged the **inclusion of the equitable and sustainable wellbeing indicators (BES) – progressively on the basis of the SDG –** in the cyclical documentation of the State Budget (Economic and Financial Document and report to the Chambers), to begin the reading of the public economic policy measures, evaluating the effects before and after on the dimensions of sustainability in the country (for example on health, community relations, environment, landscapes and cultural heritage, etc.). Lastly, December saw the approval of the **Legislative Decree** (no. 254 dated 30 December 2016) **which included EU Directive 95/2014 on corporate disclosures of a non-financial nature in the domestic legal system**, requiring that **listed companies** include non-financial, or sustainability, disclosures in the standard financial reporting documents to “ensure the understanding of business activities, performance, results and their impact”.

Legal context – The legal context of pertinence to Acea is

wide-ranging and articulated, given: the **specificity of the operating segments** – water, energy and environment – which involve detailed legal and regulatory disciplines; the **variety of the frameworks** disciplined by the lawmakers, which affect all company business operations, from administrative authorisation profiles to those protecting the market and competition; and the peculiarity of the nature of **listed companies**. The legal scenario is therefore analysed from a **multidisciplinary** viewpoint, with 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.

Certain particularly significant aspects have emerged from this scenario: the innovation made by the reform of the **Procurement Code**, which will lead to a radical transformation over time of the rules and systems for the functioning of public contracts; the commitment towards ensuring the constant consistency of business activities with the **Consumer Code** and the **Privacy Code**, ensuring that the commercial operating processes comply with the precepts of the two disciplines and ensuring compliance with measures issued by the Guarantor Authorities for competition and the market and for the protection of personal data. The industrial nature of the services managed also gives significance to the focus on the **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 businesses 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 the light of the “environment” business development strategy (treatment and waste to energy of waste, composting, sludge management), **the evolution of environmental law** assumes particular significance. Lastly, given the acquisitions and mergers ongoing in the Utility segment, the theme of compliance with **antitrust laws** concerning the discipline of concentrations, aimed at preventing market abuse, has also emerged.

Regulatory context – From a regulatory viewpoint, 2016 was the first year of application of the new water and electricity tariff methods.

In the **water sector**, the entire year was spent, with wide-ranging commitments for all those involved, in determining and approving the **new 2016-2019 tariff plans**, including the **Management Convention**, which represents one of the significant elements reviewed following the instructions envisaged in resolutions 656/15 and 664/2015. The new scheme **defines the minimum essential contents of typical agreements** between sector government authorities and the managers of the integrated water services, in order to ensure uniform regulation at a national level. This new scheme specifically concerns the tools for **maintaining the economic and financial balance of service management** and the updating of the data and information that are the basis of the scheduling required by the Authority in order to approve the tariff proposals submitted. From a more operational viewpoint, the **discipline of commercial quality**, resolution 655/2015, has been implemented, and is an element with significant repercussions in terms of the emancipation and modernisation of the water sector.

The **electricity sector**, in addition to some changes made for the new tariff period, has shown a certain dynamic nature in terms of matters of a legal, quality and innovative nature.

In general, the new tariff period which started on 1 January 2016, and for the first time **lasting 8 years**, of which the first four according to a reference regulatory framework that is updated but still in line with previous tariff periods, while for the following period, 2020-2023, the AEEGSI has announced that a new tariff **discipline will be introduced** for the recognition of the sector costs, **which is the prelude to an approach based on total expenditure**, inclusive of both operating costs and capital costs, the so-called “**totex**” approach.

During the course of 2016, resolution 87/2016 introduced, experimentally and with reference to future changes in the discipline of cost recognition, a **new tariff structure based on schemes of regulatory incentives**, applied to the **second generation smart metering systems**. In the triennium 2017-2019, these schemes will only be applied to capital expenditure, while as of 2020, cost recognition will be completely based on total expenditure (both operating costs and capital costs), in application of the “Totex” approach described above.

Another important novelty, introduced by Law no. 208 dated 28 December 2015 (2016 Stability Law) was the payment of the RAI television licence fee by the resident holders of contracts for the supply of electricity by direct charging to their electricity bills, as of 2016. The implementing dispositions of the Ministry of Economic Development have defined the terms and methods for the repayment to the State of the sums paid to the electricity companies and the consequence of eventual delays, both sanctions and interest on arrears. A lump-sum payment of 28 million euros overall is also envisaged for 2016 and 2017, which the Inland Revenue Service will divide among the electricity companies on the basis of criteria defined by the AEEGSI to compensate the investments made and documented in carrying out the required activities. On 29 December 2016, the Authority began a cognitive survey on the costs incurred by those carrying out sales activities in order to identify the criteria for dividing the lump-sum payment. The process is still being defined.

During the year, the process that was started by the Authority in 2015 (resolution 271/2015/R/com) continued, and is aimed at defining the reform of end user price protection, consistently with that described in the 2015-2018 strategic framework, to enable the accrual of the retail market demand (mainly household users) towards the full liberalisation of the energy market. This regulatory process has been empowered with respect to the primary laws, in which the scope of Enhanced Protection is connected to the so-called “**ddl Competition**” procedure, which is yet to be approved. The AEEGSI has implemented its own facilitated procedure for leaving More Protection in favour of the Free Market, the so-called “**Similar Protection**”.

Competition and market context – In the **Environment sector** (treatment and valorisation of waste, including energy recovery), in the light of a national regulatory framework envisaging forms of incentives and consistently with the European directives on the recovery of matter and energy, the market context has highlighted a high “potential demand”, given the current situation in terms of production, disposal and capacity to treat waste in the areas in which the Acea Group has traditionally operated and in surrounding areas. There are thus clear opportunities for consolidation and development, also taking into account the availability of new technologies (composting for example) and the possibility of realising forms of industrial integration with other operators. As regards the recovery/disposal of the waste produced by the water companies in the Group, in the capacity of the main national player in the integrated water service and thus a major producer of sludge, the need – in the framework of added value environmental services (sludge treatment, compost) – to expand the potential for the disposal/recovery of sludge has been stimulated, with the aim of realising a complete and direct in-house management of the entire production line. In the **Energy sector**, sales segment, the outlook of most significance is the completion of the liberalisation of retail sales, with the expected abolition in 2018 of the regime of more enhanced protection, which still includes about two-thirds of consumers. 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** 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 framework (smart city), there are also potential synergies with other operators as regards new business opportunities (ultra-broadband for example). The outlook for growth in the Networks-public lighting sector for operators with specific and consolidated know-how lies mainly in a foreseeable increase in the demand for the application of latest generation energy saving lighting techniques (LED) in the areas where there are still none.

In the **Water sector**, the main development driver is the progress being made in terms of regulation by the AEEGSI, which rewards the efficiency of operators. Similarly to the electrical sector, the national Authority is making progress in the implementation of a reward/penalty mechanism linked to the respect of performance standards (service levels) and also of a system of automatic indemnities to customers. 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.

ACEA'S CONSOLIDATION INITIATIVES IN WATER MANAGEMENT

X

In November, as part of the growth and consolidation processes characterising the Utility segment, Acea made progress in some **acquisition operations**, which have further strengthened the role of national leader in the water sector.

Acea has **signed the preliminary contracts** for the acquisition from the Veolia Group of **Idrolatina**, the owner of 49% of the company Acqua Latina, operating in ATO 4 Southern Lazio, and of 19.2% of **Geal**, operating in integrated water services in the province of Lucca; with this holding, added to that already owned through Crea SpA. Acea now has a 48% holding in the company based in Lucca.

Still during the year, Acea **signed the preliminary contracts** for the acquisition of **Severn Trent Italia** from the Severn Trent plc Group. Through this operation, Acea has taken over ownership of 64% of **Umbriadue Servizi Idrici**, operating in the Umbria 4 Integrated Territorial Area, with a holding of 98% now, thanks to the holdings owned previously; it has also acquired 80% of **Iseco**, operating in the management and maintenance of plants for the treatment of waste water and sludge. The total price for the acquisition of these holdings has been set at about **24.4 million euros**.

STRATEGY AND SUSTAINABILITY

The specific nature of the Industrial Plan and Sustainability Plan

In March 2016, the Acea SpA Board of Directors approved the **Industrial Plan**, and in November the **Sustainability Plan with reference to the timeframe 2016-2020**, the specific parts of which are described below.

On the basis of the context scenario and its own development plan, Acea approved the **2016-2020 Industrial Plan, focusing on the following aspects:**

- consolidation of the **regulated activities**, which generate the best EBITDA and where a new tariff regulation framework has been implemented;

- **innovation, organisational and operating efficiency**, with an acceleration of the pertinent initiatives in the framework of the Acea2.0 project;
- improvement of the **quality of services**, achieved with a strong focus on technological innovation, also related to Acea 2.0, and based on the **centrality of customers**;
- development of the industrial plants for waste treatment and composting, pursuing sustainable development in both **environmental terms and economic and financial terms**.

The Industrial Plan envisages an **increase in investments** compared to the target set in the previous Plan, reaching **2.4 billion euros**.

STRATEGIC OBJECTIVES OF THE 2016-2020 INDUSTRIAL PLAN BY BUSINESS AREA

X

BUSINESS AREA

STRATEGY



ENVIRONMENT
WASTE TO ENERGY AND ENVIRONMENTAL SERVICES

- growth and consolidation of the business position, grasping the **development opportunities in the regions monitored** (Lazio, Tuscany and Umbria), with the objective of becoming the third-largest national operator in the industrial waste treatment sector;
- new investments for the **enhancement and development of the waste treatment and composting capacity**.



ENERGY
GENERATION AND SALE OF ELECTRICITY AND GAS

- optimisation of the customer portfolio, with a **focus on core territories**;
- expansion of **energy efficiency initiatives**;
- **modernisation** of generating plants;
- improvement in the **quality of services provided** and **customer relations**, through the development of services with high technological content connected to the Acea 2.0 platform (CRM, digital channels, billing systems);



WATER
INTEGRATED WATER SERVICE (AQUEDUCT, DISTRIBUTION, PURIFICATION, SEWERAGE)

- use of the new tariffs envisaged in the new 2016/2019 regulatory cycle, targeting the **rewards envisaged for the most efficient operators**;
- **modernisation of the infrastructures** (network and purification), introducing new technologies and adopting **automation processes** (WFM) in managing the operating activities, from the planning to the execution of works, generating efficiency recovery;
- expansion overseas (Latin America), introducing the know how and innovations already realised in Italy into the management systems.



NETWORKS
ELECTRICITY DISTRIBUTION, TECHNOLOGICAL INNOVATION, PUBLIC LIGHTING SERVICE

- increasing the investments in order to achieve the **modernisation of the networks**, with a **view to a smart city**;
- **standardisation of processes** and integration of the technologies to consolidate the management of networks, in the framework of the Acea 2.0 project;
- optimal use of the novelties introduced by the AEEGSI in the 2016/2023 tariff cycle;
- modernisation and expansion of the public lighting network, with the widespread use of **LED technology in light bulbs**.

During the course of the year, Acea also prepared the new **2016-2020 Group Sustainability Plan**, which is qualified firstly for the way it has been produced. The process, which was started in March and completed in November, with its approval for the first time by the Board of Directors, was characterised by:

- the **wide-ranging, direct and collective involvement of the management** of the Group in defining the sustainability objectives;
- an approach aimed at **promoting the systematic and integrated vision** of sustainable development, in consideration of the corporate Vision and Mission, of the Indus-

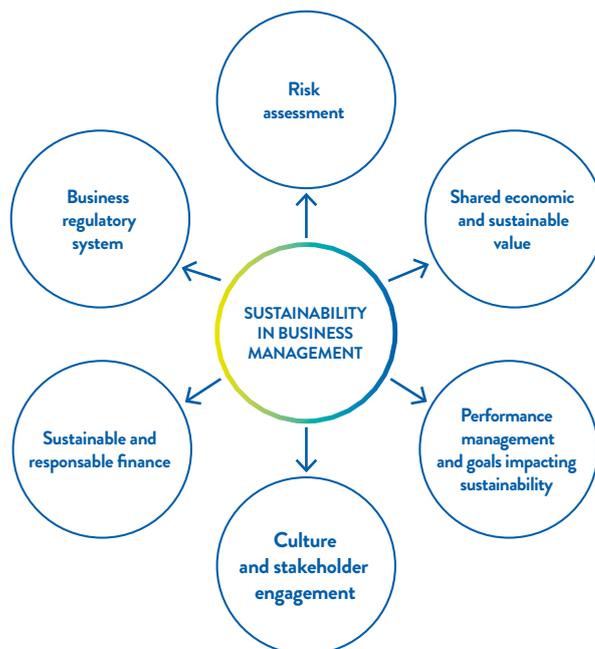
trial Plan and international development trends;

- the identification of objectives centred on the **most significant themes** and capable of contributing more to the **generation of value** for the company.

The Sustainability Plan is **effective at two corporate levels: governance and operational**.

The former (governance) includes **6 intervention frameworks** aimed at **facilitating the progressive integration of sustainability in business management**, acting on transversal aspects of the organization, with effects within and outside of it.

CHART No. 7 – GOVERNANCE LEVEL OF THE 2016-2020 SUSTAINABILITY PLAN



The second level (operational) contemplates **5 sustainability macro objectives**, subdivided by framework of action and punctual operating objectives, described in detail in this document (see the paragraph entitled *2016-2020 Sustainability Plan and operational objectives*).

These macro objectives constitute the guidelines towards sustainable and responsible development, which Acea has decided to indicate consistently with its own nature as a Utility,

and updating and developing its own business mission, which carries out functions of general interest.

Furthermore, the macro objectives of the Sustainability Plan have also been developed in the light of the changes in the international context regarding these themes (COP 21, SDG, etc.; see the paragraph entitled *Context analysis*), directing the Acea process towards contributing to the achievement of the more internationally relevant targets.

THE OPERATIONAL LEVEL OF THE 2016-2020 SUSTAINABILITY PLAN: OVERVIEW OF THE 5 MACRO OBJECTIVES

X

MACRO OBJECTIVE

STRATEGY



PROMOTING CUSTOMER CENTRALITY

- orientation towards **satisfying customer needs**, with particular focus on **relations** and the **quality of services**



VALORISING INDIVIDUALS IN CHANGE

- enhancing the sense of **belonging** and **team spirit**, focusing on the participation and **involvement of individuals**, **valorising their role** within the organization



QUALIFYING THE TERRITORIAL PRESENCE AND ENVIRONMENTAL PROTECTION

- enhancing the **proactive territorial presence** – household context, natural environment and community – in the capacity of a subject capable of valorising and protecting it



PROMOTING HEALTH AND SAFETY ALONG THE VALUE CHAIN

- expansion of **responsibilities throughout the value chain**, internal and external



INVESTING IN INNOVATION FOR SUSTAINABILITY

- implementing a **push towards modernisation and innovation** both throughout the organization and in the external context, on the themes in which the company is involved

The commitment undertaken by Acea in the Sustainability Plan is valorised by the obvious **correlations between sustainability objectives and operating aspects of its business**, which is witness to the progressive process towards integration between the management of industrial activities and sustainability in a common strategy.

A **round table on sustainability** has also been set up, composed of a nucleus of **key Divisions of the parent company**, with the duty of supervising the performance of the Plan and **developing**

integrated governance within Acea, ensuring the **consistency between the Sustainability Plan and the Industrial Plan**, also as regards alignment to the outside context.

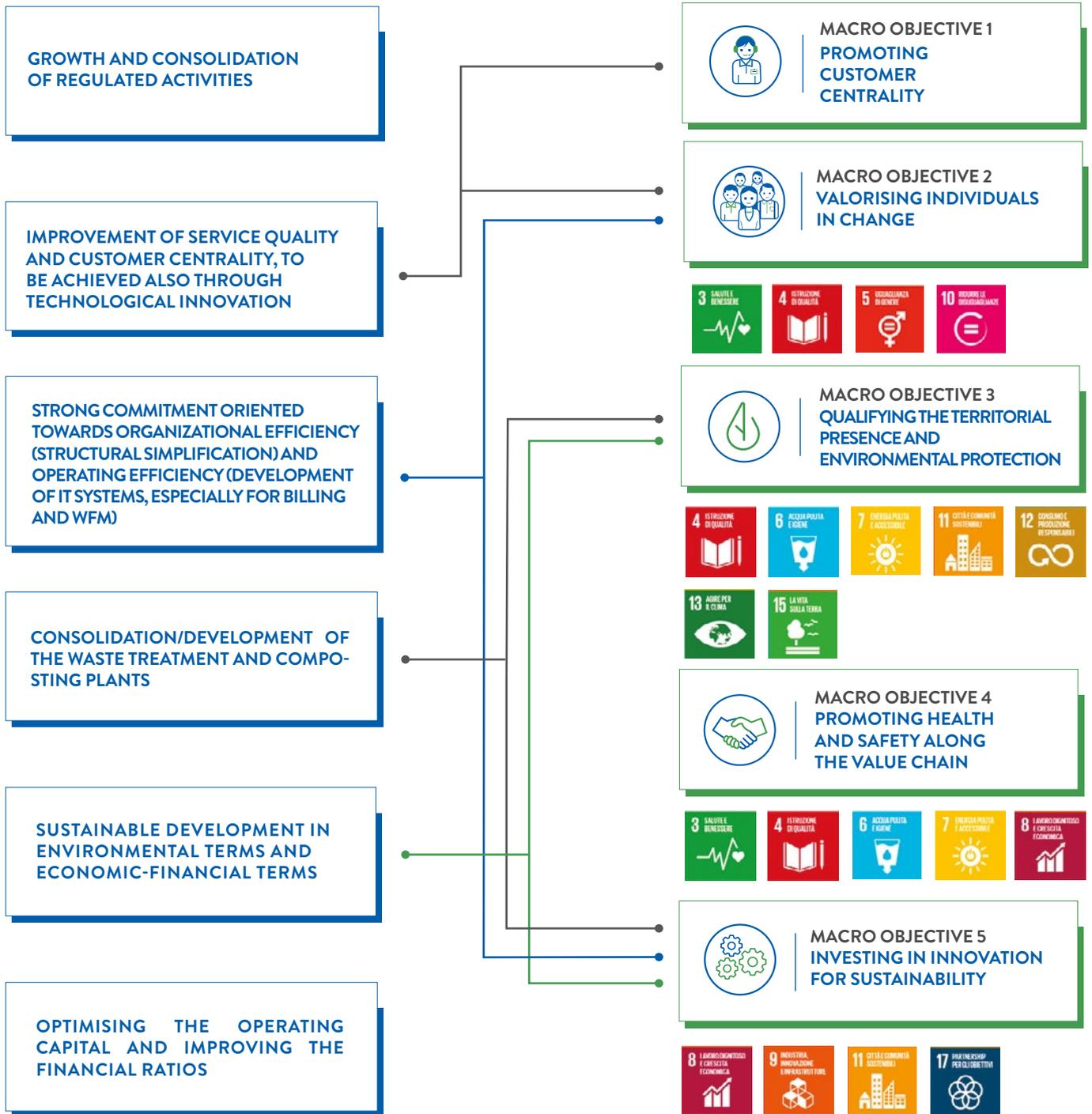
Lastly, these steps are consistent with the orientation of the **recent laws on sustainability**, including Legislative Decree no. 254/2016 on non-financial disclosures (in acknowledgement of EU Directive 85/2014), the Code of Conduct for Listed Companies and, lastly, the United Nations 2030 Agenda and related Sustainable Development Goals (SDG).

Integrated overview of the corporate strategy: industrial and sustainability objectives

With the aim of strengthening links and reciprocity, we are here including a combined overview of the company programming

documents; Industrial Plan and Sustainability Plan (the latter correlated to the United Nations SDG), highlighting consistency and connections between them (see chart 8).

CHART No. 8 – INDUSTRIAL PLAN AND SUSTAINABILITY PLAN



Synergies emerged between the guidelines for the industrial targets and the sustainability macro objectives. Firstly, **customer orientation**, through rethinking the contact channels in terms of innovative aspects, in order to improve accessibility, functionality and capacity to respond to users and the **improvement of the quality** of services. To pursue these objectives, also in terms of corporate **reorganisation** and simplification, in addition to the technological lever, the **involvement of staff** is also necessary in order to realise the change itself. In this sense, both **professional valorisation** (growth of skills in performance evaluation) and the high level of adhesion to the Acea 2.0 process assume particular

significance, as does organisational wellbeing.

The orientation towards **digital innovation** recalled in the Industrial Plan is consistent with the **sustainability objectives** concerning **organizational, technological and process innovation**. As regards the environmental and social aspects, support of the Industrial Plan is to be found in the sustainability objectives which pursue operating targets on the qualification of the **territorial presence and environmental protection, combating climate change** and the **efficient use of resources**, also from the viewpoint of a 360° economy.

2016-2020 SUSTAINABILITY PLAN AND OPERATIONAL OBJECTIVES

The **2016-2020 Sustainability Plan**, defined through the **collective involvement of the Group management**, was **approved in November 2016** by the Board of Directors of Acea SpA (see the paragraph entitled *Strategy and sustainability*), and the Chairman was given mandate, consistently with the proxies conferred upon her on

sustainability matters, of supervising its implementation and its **periodical review**, in accordance with the Chief Executive Officer.

The Plan intervenes at the governance level and operational level: it identifies **6 frameworks of intervention** aimed at further integrating sustainability in business governance



Acea is committed to the **proper integration of sustainability in corporate governance**, through:

GOVERNANCE

- The integration of the sustainability objectives in the system for identifying, assessing and monitoring corporate risks;
- The integrated reading of economic, financial and sustainability data so as to highlight the overall value generated by the Group;
- The introduction of goals aimed at promoting impacts on sustainability into the performance management systems;

with a specific focus on the following five macro objectives and the relevant **frameworks of action and operating goals (*)**:

OPERATING LEVEL



PROMOTING CUSTOMER CENTRALITY

Improving communications with customers

- Developing the web channel as the multi-functional Group website focusing on customer needs
- Realising communications initiatives with customers on Acea's development

Improving service quality

- Improving the commercial quality of services



VALORISING INDIVIDUALS IN CHANGE

Professional and training valorisation and development of skills

- Valorising the potential of individuals through training
- Creating skills for the progressive digitalisation of the corporate processes
- Investing in the development and improvement of the system of evaluating individuals

Involving individuals in the Group identity

- Increasing the level of involvement of the company staff
- Defining and promoting an employer branding plan

Inclusion and organisational wellbeing

- Recording and improving the organisational wellbeing of all the company staff
- Valorising diversity and promoting inclusion



QUALIFYING TERRITORIAL PRESENCE AND ENVIRONMENTAL PROTECTION

Reduction of the environmental impact

- Planning and implementing actions to combat climate change
- Promoting the efficient use of resources, also facilitating the circular economy
- Valorising environmental management systems and energy certificates
- Implementing the logics of sustainability in the procurement procedures

Contributing to the wellbeing of the community

- Promoting activities with a positive impact on the wellbeing of the community in the areas in which the company operates

- Realising projects for territorial valorisation and requalification

Consolidating territorial relations

- Increasing relations with the authorities responsible and competent organisations for collaborating in environmental protection
- Increasing awareness on social and environmental themes

and **5 operational macro objectives** for the Group. The 5 macro objectives are broken down into **14 frameworks for action, 26 operational objectives** and **about 90 targets for 2020 and relevant KPI**. The Plan will be updated periodically, especially at an operational level, so that consistency with changes to the strategic industrial

guidelines of the Group is ensured. The following is a **brief overview of the Sustainability Plan** and a **detailed breakdown at an operational level**. Although the Plan was approved in November and the targets identified are prevalently for 2020, numerous actions were undertaken in 2016 for their achievement.

- Spreading the “culture of sustainability” through awareness initiatives involving the internal and external stakeholders on the matter;
- Valorising the ESG (*Environmental, Social, Governance*) elements in relations with stakeholders and investors;
- Reading the development trends in regulation, at a national and European level, as regards themes related to sustainability in the sectors in which the company operates.



PROMOTING HEALTH AND SAFETY ALONG THE VALUE CHAIN

Health and safety in the workplace for the workers in the Group

- Improving safety standards in the workplace
- Promoting the culture of health and safety in the workplace

Health and safety in the workplace for contractors and subcontractors

- Increasing the awareness of contractors on health and safety in the workplace

Health and safety of the communities the Group operates in

- Guaranteeing the health and safety of customers and the communities involved in the services supplied



INVESTING IN INNOVATION FOR SUSTAINABILITY

Organisational innovation

- Promoting “smart” methods of working

Technological and process innovation

- Promoting the sustainability and resilience of urban areas (smart city)
- Developing remote control and remote intervention systems

Creation and promotion of knowledge

- Promoting research projects in partnership with other competent structures

(*) Each operational goal is broken down into several targets and KPI in the Detailed Plan, which see.

DETAILED OBJECTIVES OF THE 2016-2020 SUSTAINABILITY PLAN AND MAIN ACTION IN 2016



MACRO-OBJECTIVE No. 1

PROMOTING CUSTOMER CENTRALITY

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 1: IMPROVING COMMUNICATIONS WITH CUSTOMERS			
Developing the web channel as the multi-functional Group website focusing on customer needs	Going online on the new Group website with enhanced efficiency and transparency characteristics ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	Yes/No: Yes	The completely renewed single website www.acea.it went live at the end of December. The new website implied that the previous company website and the old websites of the operating companies (Acea Energia, Acea Ato 2, Acea Ato 5, Gesesa and Crea Gestioni) were superseded and closed down.
	Monitoring and supervising the continuous improvement of the website functions in terms of accessibility and usability with WCAG (Web Content Accessibility Guidelines) validation ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	Yes/No: Yes (partially started considering the go live date of 19 December)	Validation of the WCAG (Web Content Accessibility Guidelines), Level A started. The website already has the requirements for Level A.
	Implementing the informative sections of the website to respond to the needs of customers with specific types of disability ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	Yes/No: Yes (partially started considering the go live date of 19 December)	Start planned for the analysis for identifying specific templates for some disabilities, such as text enlargers, vocal summaries and changes to colours to adapt them to vision and setting the proper contrast between text and background.
Realising initiatives on communication and awareness of the evolution of Acea	Communicating to 100% of the customers involved the benefits of the voltage change from 230V to 400V ARETI	No. of customers reached by the information/no. of customers involved	(no action during the year).
	Illustrating the Acea2.0 Programme and its developments to the 21 associations of the National Council of Consumers and Users (CNCU) (2017 target) ACEA SpA - INSTITUTIONAL AFFAIRS, ReC; ACEA ENERGIA - Customer Care; ACEA ATO 2 - Customer Care; ACEA ATO 5 - Customer Care	No. of associations involved/No. of associations that are members of the CNCU: 20/21 , (excluding the CTCTU operating in the Bolzano area)	Activities have started for the awareness and orientation of the Consumer Associations as regards the use of the digital channels: mainly the web form for settlements and the call and e-mail channels dedicated to the Associations themselves.
	Realising an institutional communications campaign on Acea 2.0 targeting customers (2017 target) ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	Yes/No: No	The campaign will be started in the spring of 2017
	Realising a communications campaign for the use of the digital channels (webform and web bill) via call center and e-mail ACEA ENERGIA; Acea8cento	Yes/No: No (a competition has been organised)	the Bolletta Wow (web bill) competition was organised, thanks to which the customers who have activated the web bill service participated in a draw for daily and weekly prizes and the awarding of a final super prize. During the course of the mere three months of the competition, about 30,000 new web bills were activated.
	Increasing customer awareness on the use of the digital channels, also by implementing a self care area in the "public area" ACEA ENERGIA; ACEA ATO 2	No. of customers using the self care channel/ total customers received in the public area (by service): not available for 2016	In December, following the restyling of the counters at the main offices, WiFi coverage was activated and the self care customer area inaugurated, equipped with 7 tablets. The self-care area will be implemented in 2017.
FRAMEWORK OF ACTION 2: IMPROVING SERVICE QUALITY			
Improving the commercial quality of the services	Implementing a system (C4C) for the integrated management of customer profiles, also in the event of different services being used (energy, water, gas) ACEA ENERGIA; ACEA ATO 2	Yes/No: Yes	The C4C successfully went live on 5 December 2016, simultaneously with Twins On SAP.

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 2: IMPROVING SERVICE QUALITY			
(continued) Improving the commercial quality of the services	Reducing waiting times at the counter to a maximum of 30 minutes ACEA ATO 2 - Customer Care; ACEA ATO 5 - Customer Care; ACEA ENERGIA - Customer Care;	Average customer waiting time: Acea Ato 2: 23 minutes.	Acea Ato 2 undertook action during the year aimed at improving performance levels, achieving a reduction in waiting times (2020 target); the other companies have: enhanced, from August, the main counters with 2 resources (Acea Ato 5) and launched Twins on SAP, the new IT system for customer management (Acea Energia).
	Achieving 90% "one call solution" (call center) ACEA ENERGIA - Customer Care; ACEA ATO 2 - Customer Care; ACEA ATO 5 - Customer Care; ACEA8CENTO	Rate of the customer calling back for the same problem : not available for 2016	In 2016, the companies conducted the analyses of the volume of calls to the toll free numbers. The adoption of new IT tools for reporting will progressively enable the analysis of the reasons for calling and the monitoring of the number of customers calling back.
	Expanding commercial operations available on line to 90% for all services ACEA ENERGIA; ACEA ATO 2	% of commercial operations available online Acea Energia: 42%; Acea Ato 2: about 90%	The new website was released in December 2016 and the development of the webform is in progress.
	Implementing tools at the counters that are capable of facilitating customers with specific difficulties (language, disability, etc.) ACEA ENERGIA	Yes/No: partly	Solutions were implemented at the counters during the course of the year benefitting customers with specific needs; these will be activated in 2017, following a communications campaign.



MACRO-OBJECTIVE No. 2

VALORISING INDIVIDUAL CHANGES

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 1: PROFESSIONAL AND TRAINING VALORISATION AND DEVELOPMENT OF SKILLS			
Valorising human resources through training	Developing the managerial skills and soft skills of people in the Group through the promotion of training programmes involving 80% of people with respect to the specific project targets ACEA SpA - STAFF AND ORGANIZATION	% of people involved with respect to specific project targets: 95%	10 experience programmes were carried out in 2016 to support the staff involved in the Acea 2.0 project
	Including at least 80% of the technical staff (of operating companies) in training programmes on technical and specialist themes ACEA SpA - STAFF AND ORGANIZATION	% of technical staff included in training programmes on technical and specialist themes: 100%	Training programmes on technical and specialist themes were carried out for all of the technical staff of Acea Energia, Acea Ato 2 and Areti (a total of 4,500 people participated)
Creating skills suited to the progressive digitalisation of corporate processes	Involving at least 80% of the entire company workforce (about 5,000 people) in training programmes for the acquisition of digital skills ACEA SpA - STAFF AND ORGANIZATION	% of the company staff involved: 40%	Basic training on digital skills was carried out for about 40% of the company staff through various training programmes; a training programme was also scheduled for the fault switchboard operators.
	Training 100% of the people working in the Customer Care sector on the use of the new digital channels available ACEA SpA - STAFF AND ORGANIZATION	% of the target population involved: 100%	Training programmes on themes aimed at the acquisition of digital skills were carried out for all of the operating staff in the Customer Care area of Acea Energia, Acea Ato 2 and Acea Ato 5 (a total of 350 participants).
	Involving 100% of the people working in the Customer Care sector of the Group (about 230 people) in experience programmes promoting the culture of customer centrality ACEA SpA - STAFF AND ORGANIZATION	% of the target population involved: 78% of the target population (234 people)	The training programme <i>In volo verso...Acea 2.0</i> was carried out for the "customer care" professional staff.
Investing in the development and improvement of the system for evaluating individuals	Training and involving 100% of the people in the Group in training and communication activities on the evaluation system ACEA SpA - STAFF AND ORGANIZATION	% of the target population involved: 100%	Manual training and video tutorials were carried out on the new SAP Cloud evaluation system implemented in 2016.
	Introduction in the performance management systems of objectives aimed at promoting the impacts on sustainability ACEA SpA - STAFF AND ORGANIZATION	Yes/No: Yes	The Quality Award objective defined as part of the awards system impacts the promotion of sustainability themes, together with other individual objectives.

(continued) MACRO-OBJECTIVE No. 2

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 2: ENGAGEMENT OF INDIVIDUALS IN THE GROUP IDENTITY			
Increasing the level of engagement of all of the corporate workforce	Organising information and engagement initiatives on the theme of “change” aimed at at least 80% of people involved in the new roles envisaged by the Acea 2.0 programme ACEA SpA - STAFF AND ORGANIZATION	% of the target population involved: 80%	In the companies involved in the go live of the Acea2.0 programme, more than 80% of the staff were involved in specific initiatives in 2016. The initiatives were of a training and informative nature or events were organised aimed at valorising the results achieved.
	Supporting the participation of at least 50% of the corporate workforce in initiatives in the framework of the dual model of accelerating change ACEA SpA - STAFF AND ORGANIZATION	% of the target population involved: 30%	In 2016, the 1st Guiding Coalition and the Urgency Team organised several events for the engagement of the people in the Group and managed more than 11 acceleration teams, in which 200 staff members involved in solving corporate problems participated.
	Involving the workforce through engagement surveys involving at least 80% of the workforce of the companies in the Group and planning improvement actions on the basis of the results ACEA SpA - STAFF AND ORGANIZATION	% of the target population involved no. of improvement initiatives planned	No surveys were conducted. However, during the course of 2016, focus groups and meetings with similar teams were organised to record the level of engagement of individuals (10% of the corporate workforce).
	Carrying out a specific communication campaign aimed at the corporate workforce on the strategic choice, mission and policies of the Group ACEA SpA - STAFF AND ORGANIZATION	Yes/No: Yes	9 internal communications campaigns were carried out: <i>Cambiare Passo, Insieme Possiamo, 4YOU Service Desk, Ti presento Acea.it, Valore, E.L.E.N.A., Roma adotta Amatrice, Spegliamo lo spreco, Italia in classe A</i> and a solidarity event during the handing out of Christmas gifts. Some major events were also organised: <i>Il Capitale Umano, Safety Day Acea, Roma 2016 and Acea Open Day.</i>
Defining and promoting an employer branding plan	Enhancing employer identity, developing an EVP (employee value proposition) consistent with the corporate strategy ACEA SpA - STAFF AND ORGANIZATION	Yes/No: Yes	Company history classes and meetings with students were organised with several Rome universities (LUMSA, La Sapienza, etc.). The dedicated linkedin webpage was also activated.
	Enhancing employer identity by engaging all of the corporate workforce in initiatives promoted by the Guiding Coalition in collaboration with the Acea Internal Communications Unit ACEA SpA - STAFF AND ORGANIZATION	% of the target population involved: 100%	Some projects were started and, in some cases, completed by the Guiding Coalition, including Customer2me and Acea open day.
FRAMEWORK OF ACTION 3: INCLUSION AND ORGANISATIONAL WELLBEING			
Recording and improving the organisational wellbeing of the entire corporate workforce	Measuring the level of perceived organisational wellbeing of the entire corporate workforce through an organisational wellbeing survey ACEA SpA - STAFF AND ORGANIZATION	% of the target population involved	(no action during the year).
	Analysing the results of the perceived organisational wellbeing survey in focus groups ACEA SpA - STAFF AND ORGANIZATION	No. of people involved/no. of people to be involved in survey and/or focus group	(no action during the year).
Valorising diversity and promoting inclusion	Promoting at least 3 awareness initiatives each year on themes of management diversity and gender equality (Diversity Committee) ACEA SpA - STAFF AND ORGANIZATION; ACEA SpA - SPECIAL COMMUNICATIONS PROJECTS AND TERRITORIAL RELATIONS	No. of initiatives promoted: 3	The People Care Unit was set up at the end of 2016, followed by the recruitment of staff; the scientific collaboration with Rome Tor Vergata University was formalised and the guidelines prepared. 2 awareness events were organised on themes of diversity and gender equality: Mai Più 2016, Roma Pride 2016 and adhesion to Parks - Liberi e Uguali started.



OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 1: REDUCING ENVIRONMENTAL IMPACT			
Planning and implementing action to combat climate change	Reducing electricity consumption for lighting the company offices by replacing 100% of the current light bulbs with LED bulbs in the areas used as offices that have been refurbished in the buildings in Via dell'Arte and Piazzale Ostiense ECOGENA (this objective is the responsibility of Acea SpA as of 2017)	No. of light bulbs replaced with LED bulbs in the building in Via dell'Arte/total number of light bulbs in the same building No. of light bulbs replaced with LED bulbs in the building in Piazzale Ostiense/total number of light bulbs in the same building	Preparatory action required for the start of the project was carried out in 2016 and the request was submitted to the GSE in July for the recognition of the Energy Efficiency Certificates for the initiative. The project will be transferred to the Holding company in 2017, which will be directly responsible for the investment and realisation.
	Reducing the consumption of public lighting by 60% through the realisation of the plan defined by the Municipality of Rome for the modernisation of the PL network using LED technology (reference parameter 2015 consumption levels) ACEA ILLUMINAZIONE PUBBLICA	% reduction in public lighting consumption: installation started in the second half of 2016 and the reduction of consumption will become effective in 2017	Following the formalisation of the agreement with Roma Capitale, Acea Illuminazione Pubblica developed the LED Plan in a widespread manner during the year, installing 70,220 LED bulbs.
	Reducing the specific consumption of natural gas by 5% by reconverting the thermoelectric plant in Tor di Valle to a High Performance Cogeneration plant (CAR) (CAR) ACEA PRODUZIONE	% reduction in the specific consumption of natural gas	(no action during the year).
	Transforming two composting plants (Kyklos and one of Solemme's) into integrated composting and anaerobic digestion plants ACEA AMBIENTE	Yes/No: No (preparatory action)	The worksite for the first phase of the works for the conversion of the Aprilia plant (Kyklos) was opened in December, and the works are scheduled to end in late 2018. A new tender procedure has been issued for the plant in Monterotondo (Solemme).
	Producing 7,800 MWh/year using new anaerobic technology SAO (merged into ACEA AMBIENTE in late December)	MWh/year produced: 4,910 MWh in 2016	In 2016, the composting plant, which also has an anaerobic process section, entered the testing phase. Thanks to the use of biogas, 4.9 GWh was produced. The plant will undergo optimisation interventions in the first quarter of 2017.
	Saving 4,000 TEP/year SAO (merged into ACEA AMBIENTE in late December)	Amount saved TEP ≥ 4,000/year: 3,196 TEP in 2016	The amount saved in TEP refers to the total energy produced by the systems at the main plant: new anaerobic digester, FV system (managed by Acea Produzione) and biogas discharge valorisation plant.
	Reducing CO ₂ emissions by about 6,300 t ARETI	t of CO ₂ not emitted: about 1,200 t in 2016	The following were carried out during the year: the reconstruction and efficiency increase of the heating system in the building in Via Flauto (reduction in methane consumption of 1,779 m ³), increasing the efficiency of the internal lighting system in the building in Via Flauto, with savings of about 3.8 MWh; improving the efficiency of the HV/MV/LV distribution network with estimated reduction in physical losses of about 3,109 MWh; use of reduced-loss transformers, with savings of about 131.8 MWh.
	Achieving energy savings of about 15,500 MWh ARETI	MWh risparmiati/MWh net distributed: 3,244.3 MWh saved/10,070 MWh net distributed	
	Achieving savings in the consumption of crude oil of about 2,900 TEP ARETI	TEP saved: 608 TEP in 2016	
	Increasing the number of events qualified as eco-sustainable organised by companies in the Group by 30% annually ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	% increase of eco-sustainable events	The preparatory activities for the internal approval of the project were started.
	Reducing the tonnes of plastic produced by the industry and correlated CO ₂ emissions, thanks to the water supply from the Water Houses installed in Rome and the Province of Rome (≥ 100) ACEA ATO 2	t CO ₂ not emitted: 450 t plastic saved: circa 250 t	Thanks to the water supplies from the 46 Water Houses installed in Rome and the Province of Rome, about 250 t of plastic was saved, corresponding to about 450 t of CO ₂ not emitted (excluding the CO ₂ emitted due to the consumption of electricity and that added to sparkling water)
	Reducing consumption in the purification phase by 5%, starting from the purifiers serving more than 100,000 inhabitants ACEA ATO 2	% achieved of the final target of about 6 GWh: 30%	The optimisation of the oxygen regulation in the oxidising department at the purifier in Ostia was started in April 2016, and this involved an increase in energy efficiency of 1.8 GWh on an annual basis.
	Increasing the energy efficiency of 75% of the offices of Acea Ato 2 and Acea Ato 5 ACEA ATO 2; ACEA ATO 5	kWh saved No. of white certificates obtained	(no action during the year).

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 1: REDUCING ENVIRONMENTAL IMPACT			
Promoting the efficient use of resources, also facilitating the circular economy	Reducing the “real losses” of water in the water distribution networks through a 2.5% increase in the replacement of water pipes compared to 2015 ACEA ATO 2; ACEA ATO 5	Rate of replacement of water pipes: for Acea Ato 5: water pipes replaced, 50% more than 2015	A Plan for the reduction of the real losses is being studied in Acea Ato 2, to be subjected for a feasibility study by the end of the first quarter of 2017. Acea Ato 5 has implemented a plan for the replacement during the year of 46,673 metres of water pipes (compared to 23,262 metres replaced in 2015)
	Reducing the water withdrawn by 5% thanks to the reduction in “real losses” in the water distribution networks ACEA ATO 2; ACEA ATO 5	IWA: real losses in l/s per km of network m3 withdrawn from the environment Acea Ato 5: 0.45 l/s per km (network: 4,260 km) 107.4 m³ withdrawn from the environment. Acea Ato 2: 0.88 l/s per km (network: 11,117 km); withdrawn from the environment: 756 m³	A Plan for the breakdown into districts of the local water networks is being implemented by Acea Ato 5. The Acea Ato 2 Plan for the reduction of real losses, to be subjected to a feasibility study by the end of the first quarter of 2017, will contain correlated elements for the achievement of this target.
	Becoming the third largest operator on the Italian waste management market ACEA AMBIENTE	t of waste managed annually	Consistently with the Industrial Plan, several projects are planned for developing the Environment operating area. Acea was the sixth largest operator in 2016.
	Producing 9,900 t of quality compost per year SAO (merged into ACEA AMBIENTE in late December)	% compost produced/organic waste from r.d. treated: 4%	Activities for the optimisation of the treatment plant in order for it to use its full potential have been planned and are being implemented.
	Recovering 100 t of iron from solid urban waste SAO (merged into ACEA AMBIENTE in late December)	% iron recovered/non-separated waste conferred: 0.1%	110 tonnes of iron recovered.
	Further reduction in the use of paper thanks to the digitalisation of processes, especially in commercial relations ACEA ENERGIA	No. of web bills activated: 62,000 web bills t paper saved annually: 13 t paper/year saved	A total of 62,000 customers changed to the web bill in 2016. In terms of environmental protection, this corresponds to about 13 t/year of paper saved, with regard to paper exclusively.
Valorising certified environmental and energy management systems	Maintaining the certification for the environmental and energy management systems currently valid and extending them to 100% of the main operating companies in the Group (energy, water and environment sectors) ACEA SpA - STAFF AND ORGANIZATION - Integrated certification systems	% of operating companies with certified energy and environmental management systems (by operating sector): the following are ISO 14001 certified: 70% of companies in the Water sector; 100% of companies in the Networks sector; 30% of companies in the Energy sector; 60% of companies in the Environment sector. The following are ISO 50001 certified: 21% of companies in the Water sector; 100% of companies in the Networks sector; 0% of companies in the Energy sector; 0% of companies in the Environment sector.	All of the subsidiary operating companies (except Acea Energia and Ecogena) have certified environmental management systems. The companies already ISO 50001 certified have maintained their energy management systems, but no new certifications were obtained in 2016.
	Obtaining ISO 14001:2015 certification for Acea Elabori (target for 2017) ACEA ELABORI	Yes/No: Yes	Acea Elabori obtained ISO14001:2015 certification, issued by RINA, in December 2016. The External Certification authority RINA did not find any non-compliances.
	Extending the certification of the QASE management system to 100% of the Aquaser Group AQUASER (this objective is the responsibility of Acea Ambiente as of 2017)	No. of certifications obtained/no. of certifications planned	During the course of 2016, Aquaser maintained the compliance and effectiveness of its QAS management systems by external verification by RINA. Following the corporate simplification process in the Environment Sector, Kyklos and Solemme were incorporated into A.R.I.A., which was renamed Acea Ambiente.
	Ensuring the maintenance of ISO 50001 certification and the performance of the energy diagnosis for plants which represent 50% of the KWh consumed ACEA ATO 2; ACEA ATO 5	Yes/No (maintenance of ISO 50001 certification): Yes kWh on which the energy diagnosis is performed/total kWh used	A technical discussion group coordinated by Utilitalia has been set-up involving the companies in the Acea Group to draft the guidelines for the energy diagnosis of plants that are part of the water service; once finalised and approved, they will constitute the national reference point for the preparation of energy diagnosis.
Implementing the logics of sustainability in procurement procedures	Participation in discussion groups for defining the CAM for referents in the Operating Companies by competence The main operating companies	No. of participations/ no. of discussion groups on products of their competence:	No action taken during the year, except for a project being studied by Acea Ato 2.
	Defining the minimum shared criteria for defining a “green” product or a “sustainable” service facilitating the identification as “Green Procurement” of required products during the phase of filling the Shopping Cart The main operating companies	Yes/No: partly	Criteria for “green” procurement have been defined by Areti for the transformers with natural esters and the transformers with very low loss capability. A project is being studied by Acea Ato 2.

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 1: REDUCING ENVIRONMENTAL IMPACT			
(Continued) Implementing the logics of sustainability in procurement procedures	Increasing the awareness of 100% of buyers and suppliers of technical specifications (identified by the Companies) and training them ad hoc The main operating companies	% of internal customers, buyers and suppliers of technical specifications): Arete 100%	Arete has organised specific meetings in 2016 with all of the company resources involved in the procurement processes and preparation of the technical specifications. A project is being studied by Acea Ato 2.
	Creating a section on the intranet site containing documentation useful for identifying "green" products and "sustainable" services, mainly in support of the suppliers of technical specifications ACEA SpA - PROCUREMENT AND LOGISTICS	Yes/No: No	The project was started during the year.
	Use of the Minimum Environmental Criteria (CAM) in the respective Ministerial Decrees in the technical specifications of at least 50% of the categories of goods compatible with the procurement needs of the Group and included in the National Plan of Action for GPPs ACEA SpA - PROCUREMENT AND LOGISTICS	% of CAM used in the technical specifications concerning contracts in force regarding the "Target" categories of goods: 70%	In the "Office Furniture" tender, the prescriptions for the following have been included as both an obligation and reward: painted products, emissions of formaldehyde and COV as in MD 22.02.2011.
FRAMEWORK OF ACTION 2: CONTRIBUTING TO THE WELLBEING OF THE COMMUNITY			
Promoting activities with a positive impact on the communities in the areas in which the company operates	Supporting at least 3 initiatives per year of a social nature for the promotion of sports ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	No. of social initiatives for the promotion of sports sponsored: 5 initiatives realised during the year	During the course of 2016, Acea realised/ sponsored the following initiatives: Acea Camp; Volleyball School - Acea Trophy; Race for the cure - Susan G. Komen Italia; Sport and Society for Autism - Colosseum; Acea with Santa Lucia wheelchair basketball
	Making interactive tools available with regard to the companies in the Group (e.g. interactive maps) to the benefit of customers and the community ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	No. of companies in which interactive tools are available/companies sharing the single website: 6/11	With the go live of the new single website, the maps of the Water Houses, drinking fountains and nozzles concerning 5 companies in the water sector were published, with the map of the LED Plan for Rome by Acea Illuminazione Pubblica.
	Completing the installation of 100 "Water Houses" in the area and setting up 4 rotational supervision centres, water campers ACEA ATO 2	No. of new water houses installed/total water houses to be installed: 46/100 ; No. of rotational supervision centres set up/ total supervision centres to be set up	21 water houses installed and made operational in the year, for a total as at 31.12.2016 of 46 Water Houses in Rome and the province of Rome.
Realising projects for territorial valorisation and requalification	Modernisation of the electrical distribution network and high and very high voltage transmission: removal of 152 lattices ARETI	No. of lattices removed/total lattices to be removed: 34/152	Interventions for the removal of 34 HV lattices were undertaken during the year.
	Completion of the realisation of the network for monitoring the quality of the Tiber and Aniene rivers through the installation of 2 new stations ACEA ELABORI	No. of stations installed/total stations to be installed: 2/2 (target reached and completed)	As part of the "River Tiber Contract", Acea Elabori has supported Acea Ato 2 in the realisation of an additional 2 stations for monitoring the quality of the Tiber and Aniene rivers which, together with the 4 already active stations, complete the cognitive framework as regards the impacts in various stretches of river water.
	Ensuring more engagement of Acea in increasing the awareness of the population on themes of ethics or social campaigns undertaken by the Municipality of Rome, through the temporary lighting of monuments, fountains, squares and public buildings. ACEA ILLUMINAZIONE PUBBLICA	No. of events lit free of charge: 16 events lit free of charge during the year	In 2016, Acea IP organised 16 events, sponsored by REC, for the Municipality of Rome. Five of these events were organised to show solidarity with the countries hit by terrorist attacks.
Increasing by 5% annually the investments made in developing the area around Rome by supporting projects aimed at improving the quality of urban life (base data 450,000 Euros in 2015) ACEA SpA - SPECIAL COMMUNICATIONS PROJECTS AND TERRITORIAL RELATIONS	% annual increase in investments: 8% (€ 488,000 compared to € 450,000 in 2015)	Although not repeating the "Acea per Roma" project, Acea organised numerous initiatives during the year in support of improving the quality of urban life.	
FRAMEWORK OF ACTION 3: CONSOLIDATING TERRITORIAL RELATIONS			
Increasing relations with the responsible authorities and competent organizations to collaborate on environmental protection	Setting up consultational committees in areas in which the Group operates ACEA ATO 2	No. of committees set up:	In 2016, the models of "Consultational Committees" adopted by comparable national companies were studied and the procedure for identifying the areas most suitable for the experimentation of an engagement model for Acea Ato 2 started.

(continued) MACRO-OBJECTIVE No. 3

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 3: CONSOLIDATING TERRITORIAL RELATIONS			
Contributing towards awareness of social and environmental themes	Support or organisation of at least 10 awareness and promotion activities on themes of social utility per year (oncological prevention, women's rights, protection of diversity) ACEA SpA - SPECIAL COMMUNICATIONS PROJECTS AND TERRITORIAL RELATIONS	No. of initiatives supported and/or organised: 10 initiatives supported during the year	Acea supported 10 awareness and promotion initiatives on themes of social utility. The main ones included: Roma Pride 2016; Parent Training Project-Bambino Gesù Foundation; International day for the prevention of violence against women, etc.
	Planning and implementation of awareness campaigns aimed at students in schools concerning the obligations present in the areas in which the Companies in the Group operate on the responsible use of natural resources (response to 100% of requests) ACEA SpA - SPECIAL COMMUNICATIONS PROJECTS AND TERRITORIAL RELATIONS	% of participation requests accepted: 100% - all of the participation requests were accepted	Acea realised the schools project <i>L'Ambiente che voglio da grande</i> , organising at its own La Fornace conference centre and with the involvement of the staff of the Group, 9 training days dedicated to the cycle of water and 2 to the energy production line; the project involved 33 schools, 113 classes and about 2,700 students and teachers
	Planning and implementation of a communication plan on the sustainable use of water and electricity resources aimed at the population ACEA ATO 2; ACEA ATO 5; ARETI	Yes/No: other communications initiatives	During the "European Mobility Week", Areti set up a display stand to promote its own activities in the area of electrical mobility and participated as a relator on sustainable mobility in the "Projects for Rome" meeting. Employees of Areti and Acea Ato 2 participated as "teachers" on energy and water themes in the <i>L'Ambiente che voglio da grande</i> project organised by Acea for schools. During the summer, Acea Ato 5 invited all of the Municipalities in the ATO to issue ordinances aimed at preventing, monitoring and sanctioning the improper use of the water supplied and distributed to all the local media (press and TV) a statement inviting the population to not waste water resources through uses other than drinking water and hygiene and health.
	Organising at least 5 guided tours per year of the plants in the Group, aimed at schools, institutions, committees, etc., with the objective of increasing awareness of environmental problems All of the operating companies with plants	No. of tours organised: 36 during the year	In 2016, a total of 36 guided tours of the plants of the Group were organised, involving a total of more than 3,600 people (of which about 2,500 students as part of the <i>L'Ambiente che voglio da grande</i> project)

MACRO-OBJECTIVE No. 4

PROMOTING HEALTH AND SAFETY ALONG THE VALUE CHAIN



OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 1: HEALTH AND SAFETY IN THE WORKPLACE FOR WORKERS IN THE GROUP			
Improving the standards of health and safety in the workplace	Constant reduction in the index of frequency and index of seriousness compared to the previous year ACEA SpA - STAFF AND ORGANIZATION - Health and safety; with the contribution of the Companies in the Group	Index of frequency (IF) ; Index of seriousness (IG). Group: IF= 13.88; IG= 0.57 ; in 2016, the index of frequency increased and the that of seriousness decreased compared to 2015	in 2016, Acea organised important initiatives on the theme of health and safety, with the aim of increasing the awareness of the staff and reducing the number of injuries: the T-Camp educational and training space, the Safety Day dedicated to safety matters, the intranet section Il Gruppo Acea si cura di te dedicated to health and safety in the workplace.
Promoting the culture of health and safety in the workplace	Online training module on near-miss to be made obligatory for all workers in the Group - all staff members of all the companies involved ACEA SpA - STAFF AND ORGANIZATION - Training	No. of staff members trained/ total staff members to be trained	No. specific course on near-miss was implemented in 2016, but there is an online training course on safety, aimed at all of the companies in the Group, which deals with the theme of near-miss. 80 staff members completed the course in 2016.
	Implementation of an on-line training module on safe driving aimed at all the staff members of the Companies in the Group ACEA SpA - STAFF AND ORGANIZATION - Training	Yes/No: Yes	Implemented, on Pianetacea, a module on Safe Driving for all the Companies in the Group.
	Planning and implementing an ad hoc activity on Quitting Smoking ACEA SpA - STAFF AND ORGANIZATION - Health and Safety and main Companies in the Group	Yes/No: Yes (Acea Energia)	Acea Energia has organised 2 working groups concerning the project "Quitting Smoking" started in 2015 in collaboration with LILT, which involved a total of 9 people, including some of the Acea Produzione Group

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 2: HEALTH AND SAFETY IN THE WORKPLACE FOR CONTRACTORS AND SUBCONTRACTORS			
Making contractors aware of health and safety in the workplace	Introduction of “dispatching” in the process of managing inspections and appointment of inspectors in the framework of contracts for the maintenance of networks or electromechanical systems (operating companies using WFM) ACEA ATO 2; ACEA ATO 5; ARETI	No. of inspections with “dispatching”/no. of worksites	Acea Ato 2, in collaboration with Areti, is preparing the document describing the functional requirement for the introduction of dispatching in the process of managing inspections for tender contracts. The Change Request will be formalised by the end of the first quarter of 2017 and the introduction of the new function into the systems currently used scheduled.
	Introduction in the tender documents of rewarding and penalising criteria connected to health and safety The main companies in the Group involved in contracted works	Yes/No: Yes	In 2016, some tenders for works (water, electrical and civil engineering) awarded on the basis of the most economically advantageous bid introduced reward schemes concerning: the number of skilled professions trained on health and safety for activities carried out in specific environments and conditions (at heights or in confined spaces, for example), and OHSAS 18001 standards on health and safety in the workplace.
	Introduction and confirmation in tender procedures of pertinent works awarded on the basis of the most economically advantageous bid, of rewarding criteria on health and safety ACEA SpA - PROCUREMENT AND LOGISTICS	Yes/No: Yes	

FRAMEWORK OF ACTION 3: HEALTH AND SAFETY OF THE COMMUNITIES IN WHICH THE GROUP OPERATES			
Ensuring the health and safety of customers and the communities involved in the services provided	Increasing the tonality of light colours (LED) by at least 20% compared to 2015 ACEA ILLUMINAZIONE PUBBLICA	No. of LED installed/total no. of sources 70,220 LED installed/220,474 bulbs (31.8%). A total of 84,871 LED were installed/220,474 bulbs during the year, amounting to 38.5% of the total bulbs.	During the course of the year, following the formalisation of the agreement with Roma Capitale, Acea IP expanded the LED Plan on a widespread basis, installing 70,220 LED bulbs. The transformation plan is being implemented transversally throughout the city.
	Maintaining the highest levels of quality in the drinking water supplied ACEA ATO 2; ACEA ATO 5	No. of analytical checks in compliance with the legal limits/ total analytical checks performed: Acea Ato 2: 0.9972 Acea Ato 5: 0.9995 No. of analyses on drinking water/ km network: Acea Ato 2: 8,882/11,116 = 0.8 Acea Ato 5: 1,644/4,260 = 0.38	During the year, Acea Ato 2 and Acea Ato 5 implemented the plan for withdrawal shared with the competent authorities and constantly monitoring the parameters.

MACRO-OBJECTIVE No. 5

INVESTING IN INNOVATION FOR SUSTAINABILITY



OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 1: ORGANISATIONAL INNOVATION			
Promoting “smart” work processes and methods	Experimentation of a project for promoting work-life-balance (E.L.E.N.A. project), involving 200 volunteers belonging to 9 companies in the Group (target for 2017) ACEA SpA - STAFF AND ORGANISATION	Yes/No: Yes	Pilot project started in 9 companies in the Group in October.
	Realising at least one project using the BIM - Building Information Modelling system ACEA ILLUMINAZIONE PUBBLICA	No. of projects realised using the BIM system	No projects were realised in 2016, but an auto-cad 3D course was carried out to introduce the theme of Building Information Modelling.
FRAMEWORK OF ACTION 2: TECHNOLOGICAL AND PROCESS INNOVATION			
Promoting sustainability and the resilience of urban territory (smart city)	Implementing two pilot projects aimed at improving the response of critical infrastructures to crisis situations ARETI	Yes/No: Yes	In response to European calls, Areti submitted the DROMOS - <i>Interconnecting Disaster Risk Managers and Operators through Multi-Sectorial Decision Support Systems</i> project and the CIFERM project to deal with the physical and IT security risks in the critical European energy infrastructures.
	Implementing at least 2 collaborations/agreements on scientific research on the sustainability of the electricity network per year ARETI	No. of collaborations/agreements on scientific research implemented: 2	Arete implemented two research contracts with Rome La Sapienza University on the themes of troubleshooting and defining countermeasures for improving service continuity and developing neural algorithms for forecasting “critical situations” on the electricity distribution network.

OPERATING GOALS	TARGET TO 2020 FUNCTION/COMPANY OWNING THE PROCESS	KPI	ACTIONS 2016
FRAMEWORK OF ACTION 2: TECHNOLOGICAL AND PROCESS INNOVATION			
(Continued) Promoting sustainability and the resilience of urban territory (smart city)	Spreading information to the population through 100% of the Water Houses in partnership with local institutions ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	% of Water Houses through which it is possible to spread information	The IT platform for managing the contents of the monitors in the Water Houses was started during the year. The staff involved in IT management from remote stations were trained; the contents to be published of the internal procedures for the Districts of Rome and the Municipalities in the province of Rome were prepared; the official notification to the Municipalities in the Province of the start of activities was dispatched.
	Spreading information to the population through 100% of the Water Houses in partnership with local institutions ACEA SpA - AI, EXTERNAL RELATIONS AND COMMUNICATIONS	Yes/No: No	During the go live of the new single website on 19 December, a section dedicated to Suppliers was published. The hub will be expanded and implemented in 2017.
Implementing remote control and remote intervention systems	Installing 50,000 remotely read meters in the water sector ACEA ATO 2; ACEA ATO 5	No. of remotely read meters installed/total to be installed	During the course of 2016, Acea Ato 2 implemented the Top 300 pilot project, in other words experimenting smart metering on the 300 utilities with the highest consumption rates.
	Remotely controlling 20% of all light bulbs ACEA ILLUMINAZIONE PUBBLICA	% of lighting points remotely controlled: about 17% of bulbs remotely controlled	Remote control on 925 systems was implemented during the year, for a total of 36,725 bulbs.
FRAMEWORK OF ACTION 3: CREATION AND PROMOTION OF KNOWLEDGE			
Developing research projects in partnership with other competent structures	Scouting and presentation, as a user agency, of at least two European projects concerning sustainability ACEA ATO 2; ACEA ATO 5	No. of projects presented in the period: 1 by Acea Ato 2-Acea Elabori	In partnership with Tor Vergata University and another 7 European countries, Acea Elabori participated in the European Aquavir project (VII Framework Programme), coordinated by the Technical University of Denmark, for the development of a rapid system for determining viruses in water, including drinking water.
	Defining the reference framework for emerging organic micropollutants - MOE (2 families: endocrinal interferents and therapeutic/abused substances) in purification plants of various potentialities - small, medium, large and location - urban, suburban/rural (6 plants) ACEA ELABORI	No. of classes of organic micropollutants found/total classes of micropollutants to be found: 2/2 No. of plants monitored/total plants to be monitored: : 1/6	Acea Elabori has defined a new highly sensitive analytical methodology for 2 families of emerging organic micropollutants (steroid hormones and therapeutic substances), testing it in a purification plant with two lines of liquid treatment in parallel using different biological oxidation techniques.
	Preparing a new methodology for the selection of poly-electrolytes for the dehumidification of mud ACEA ATO 2	Yes/No: Yes	Acea Ato 2 has finalised a new methodology based on the measurement of zeta potential in biological mud exiting the purifiers.



CORPORATE GOVERNANCE AND MANAGEMENT SYSTEMS

CORPORATE GOVERNANCE WITHIN ACEA

Acea's governance model complies with the *Code of Conduct for Listed Companies* and is consistent with the principles of **transparency, balance and segregation of policy-driven, management and control activities**.

The Acea SpA Board of Directors **establishes the strategic guidelines of the Group** and is responsible for corporate governance.

Two committees have been set up within the Board of Directors (BoD) of the parent company, with propositional and consultational duties: the **Audit and Risk Committee** and the **Appointment and Remuneration Committee**. In implementation of Consob regulations, a committee has

been set up for examining **Operations with related parties**. Lastly, the Board of Statutory Auditors performs supervisory duties, according to the traditional model in force.

An **Ethics Committee** also operates within Acea, composed of three non-executive Board members and two external members, the duties of which include promoting and distributing the *Group Code of Ethics*⁸ and supervising its application by Acea people. The Ethics Committee met twice in 2016: after one of these meetings, the Committee shared with the top management the results of a survey on the diffusion of sustainability in the management culture, carried out during the course of the year by a specialist consultant (see the specific box in the paragraph entitled *The stakeholders and their involvement*).

CORPORATE GOVERNANCE COMMITTEES

X

The **Audit and Risk Committee** helps define the guidelines for identifying, assessing, managing and monitoring the main risks for the Group companies, establishing compatibility criteria for such risks and supporting, subject to appropriate preliminary activities, the evaluations and decisions of the Board with respect to the internal auditing and risk management system. With regard to corporate audit activities, it approves the work 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 Head of the aforesaid Function, while monitoring the latter's independence, efficiency and performance. In 2016, the Committee met 6 times.

The **Appointment and Remuneration Committee's** duties include appointing and defining the emoluments of Directors holding particular proxies, the Chief Executive Officer and Executives holding key positions. It provides opinions to the Board of Directors regarding its composition (size, appropriate professional profiles, compatibility of positions) and recommends the policy for remuneration of Directors and Executives holding key positions, supporting medium and long-term sustainability and the balance between fixed and variable elements of remuneration depending on strategic goals and the risk management policy. In this regard, it submits recommendations for performance goals related to variable remuneration. In 2016, the Committee met 4 times.

Since its **listing on the Stock Exchange** (1999), Acea has constantly adjusted its corporate governance system, from its Articles of Association and internal operating procedures, to the applicable regulations and best practices. Group companies adopt **Organisation, management and control models as under Legislative Decree no. 231/2001** (administrative responsibility resulting from offences) as well as **internal audit and risk management models and procedures**.

Following the guidelines in the *Code of Conduct for Listed Companies*, Acea conducts an annual **Board Evaluation** with the aid of an external consultant for the purpose of evaluating the size, composition and operation of the **Board of Directors and its internal Committees** including the Ethics Committee, and the matters being discussed.

THE SUPERVISORY BOARD OF THE 231 MODEL

X

The **Supervisory Board**, which is vested with full and independent decision-making and acting powers with regard to the **operation and effectiveness of the Organisation, management and control model (MOG)** adopted pursuant to Italian Legislative Decree no. 231/2001 for the purpose of **preventing the risk of offences** that may expose the Company to administrative liability.

The Supervisory Bodies of the parent company and its subsidiaries supervise the effectiveness and adequacy of the MOG by constantly monitoring activities that may potentially lead to offences as under Legislative Decree no. 231/01.

Specific control activities are also carried out for the **prevention of risks** pertaining to crimes regarding the **environment, workers' safety and corruption and bribery**, through information flows transmitted by the corporate structures, complete with risk indicators. The Supervisory Board's duties in Acea SpA are discharged by the Board of Statutory Auditors with a view to rationalising the control systems. In 2016, 17 companies owned by the Group updated their MOG (Organisation, management and control model).

The management of the Company is entrusted to the **Board of Directors** consisting of 5 to 9 members as established by the shareholders' meeting. Board members, who are selected and appointed pursuant to the Acea Articles of Association in compliance with applicable regulations, remain in office for three accounting periods and may be re-appointed. The

method adopted for their election ensures **gender equality**, the appointment of an appropriate number of **Directors to represent minority shareholders** and a minimum number of **Independent Directors** as laid down by the law⁹.

The Board in office, appointed by the shareholders' meeting held on 5 June 2014 and further supplemented with two

⁸ The *Code of Ethics* of the Acea Group (2012 edition) is available both on the intranet and corporate website at www.acea.it.

⁹ Pursuant to Article 147 (3), paragraph 4 of Legislative Decree no. 58/98, known as the Consolidation Act on Finance, the minimum number of independent Directors must be 1 in the event of a Board consisting of up to 7 members and 2 if the Board exceeds 7 members. During 2015, the Board checked whether Directors met the conditions required in order to be qualified as independent. At 31/12/2016, 5 Directors qualified as independent.

additional directors by the shareholders' meeting held on 23 April 2015, **consists of nine members**, 4 of them women, including the Chairman of the BoD. It must also be noted that the two internal Board Committees mentioned above are also chaired by two female directors.

The Board co-opted Angel Simon Grimaldos following the resignation of the Board member Diane D'Arras on 28 June 2016.

During the year, the Board of Directors met 10 times. **The Chairman and Chief Executive Officer** are the only **executive Directors**.

The **Report on corporate governance and shareholders' structure**, available online on the company website (www.acea.it), provides detailed information regarding Acea SpA Directors, including CVs, independence requirements, attendance of Board and relevant Committee meetings as well as any offices held in other companies. With regard to Directors' remuneration, reference should be made to *Human Resource Empowerment and Communications* under *Human Resources*.

STRUCTURE OF THE BOARD OF DIRECTORS AND INTERNAL BOARD COMMITTEES OF ACEA SPA (AT 31.12.2016)

X

	Position held in the Board	Appointment and Remuneration Committee	Audit and Risk Committee	Executive Director	Independent Director
CATIA TOMASETTI	Chairman			X	
ALBERTO IRACE	CEO			X	
ELISABETTA MAGGINI	Director	Chairman	Member		X
PAOLA ANTONIA PROFETA	Director				X
ROBERTA NERI	Director	Member	Chairman		X
MASSIMILIANO CAPECE MINUTOLO DEL SASSO	Director	Member			X
FRANCESCO CALTAGIRONE	Director				
GIOVANNI GIANI	Director	Member	Member		
DIANE D'ARRAS	Director (to 31.5.2016)				X
ANGEL SIMON GRIMALDOS	Director (from 28.6.2016)				X

BOX – ROLES AND POWERS OF THE ACEA BOARD OF DIRECTORS

X

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;
- 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;
- Establishing audits for the protection of personal data or third party sensitive data, complete with the drafting of an annual security policy report (Legislative Decree no. 96/03);
- Adopting the necessary procedures to protect the health of workers and appointing individuals to supervise safety in the workplace (Legislative Decree no. 81/08);
- Evaluating the independence of its non-executive members at least on a yearly basis.

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 Board and shareholders' meetings. His/her 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 vs perceived quality as well as activities related to **corporate social responsibility**; supervising corporate secretariat operations of the parent company.

The **Chief Executive Officer** is (i) entrusted with the ordinary business of the Company, (ii) vested with powers of signature, (iii) the Company's legal representative and (iv) 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. 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 Board of Directors. The current Chief Executive Officer also holds the office of General Manager, without receiving any additional compensation in this respect.

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.

If necessary, the Chairman and Chief Executive Officer are entitled to jointly adopt acts lying with the Board of Directors as regards contracts, purchases, participation in tenders, issue of sureties and appointment of members of the Boards of Directors and Boards of Statutory Auditors of the Group's major subsidiaries if the urgency of the matters does not allow a meeting to be called, subject however to informing the Board of Directors in its first subsequent meeting in order to ascertain the legitimacy of any such actions.

The ordinary and extraordinary **Shareholders' Meeting can be called by the Board of Directors** as well as **upon request of the shareholders**, provided that they represent at least 5% of the share capital pursuant to the applicable legal provisions. 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 non-voting shares¹⁰.

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.

PROCESS FOR SETTING EMOLUMENTS FOR TOP MANAGEMENT

A **policy** is in place in Acea for the **emoluments** payable to top management, directors tasked with specific duties and executives holding key positions.

The remuneration system regarding these individuals rests on a **clear and transparent process**, with a key role being played by the Appointment and Remuneration Committee and the Board of Directors. The former is consulted and makes proposals on the remuneration policy, and the latter approves them. The intervention of these two main corporate governance bodies ensures the observance of rules which favours 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 resolution for or against the Policy as illustrated and reflected in the *2016 Remuneration Report*, such resolution not being binding as pursuant to Article 123-ter, paragraph 6, of the Consolidation Act on Finance.

It must be noted that during the ordinary shareholders' meeting on 29 April 2016, a resolution was passed to re-attribute to the Board of Directors the duty (ex art. 2389, paragraph 3, of the Civil Code) of establishing the emoluments of the Directors with specific duties, making reference as regards their economic treatment to that recognised by similar listed companies in terms of dimensions and sector of operation, the limits laid down by the Law holding firm.

The remuneration references established by resolution passed on 5 June 2014 for the Chairman and the Chief Executive Officer were confirmed for the 2014-2016 term of office of the Board of Directors. The annual fixed and variable emoluments of the CEO are well below the median for all the emolument components compared to the market benchmark in 2016 (see the *2016 Remuneration Report - Section I*, available on the website www.acea.it).

A number of **corporate Committees** (*Steering Committee, Management Committee, Business Review, Regulatory Steering*) operate in the parent company with technical and consultational duties to improve business integration and decision-making processes.

Sitting on such Committees are the heads of Acea SpA Business Areas and Divisions, with the Holding Company's Chief Executive Officer acting as Chairman. The topics to be dealt with by such Committees may require specific disclosures to be made to the Board.

The **Acea Internal Audit and Risk Management System (IARMS)** is a key element of the corporate governance structure comprising rules, policies, procedures and organisational structures aimed at:

- **identifying risks and opportunities** for the pursuit of the goals set by the Board of Directors;
- encouraging the adoption of **informed decisions** in line with corporate goals;
- **protecting the corporate assets, process efficiency and effectiveness, reliability of financial disclosures and compliance with internal and external regulations.**

¹⁰ Except for 416,993 treasury shares (corresponding approximately to 0.2% of total shares) in respect of which the voting right is suspended in accordance with Article 2357(3) of the Italian Civil Code. Reference should also be made to the *2015 Report on corporate governance and shareholders' structure*.

This system **applies across the entire corporate structure albeit to different extents**: the Board of Directors and internal Board committees, the Director in charge of the IARMS (i.e. the CEO),

the Board of Statutory Auditors, the Executive Responsible for Financial Reporting, the Supervisory Board, the Ethics Committee, the Audit Function, managers and employees.

CHART No. 9 – THE KEY PLAYERS OF THE IARMS

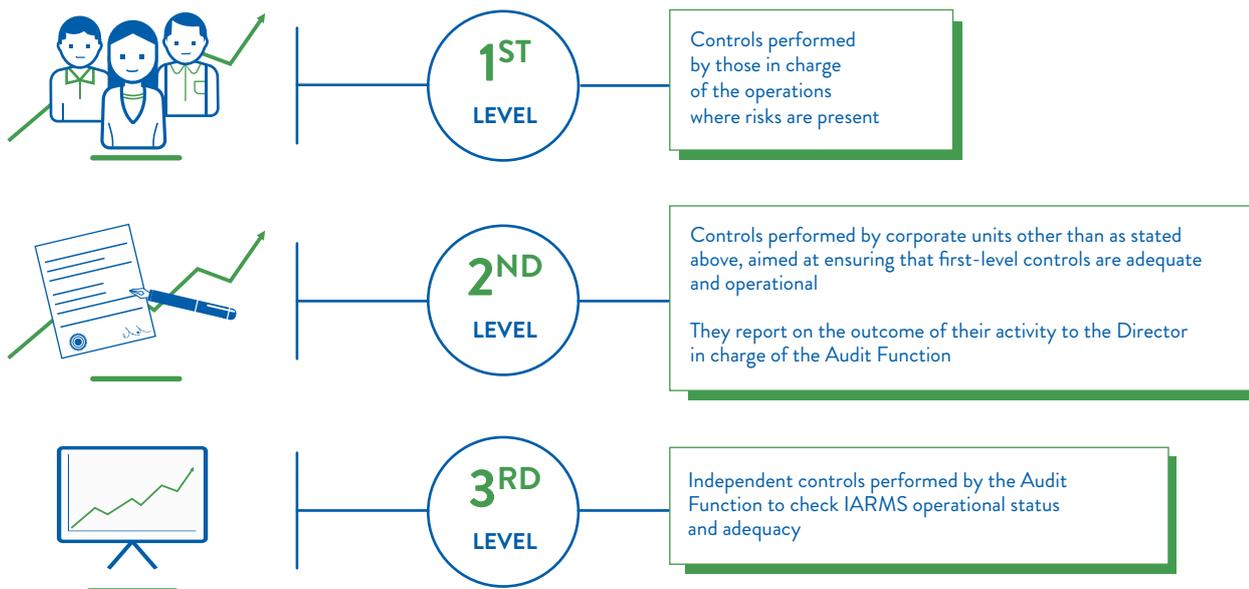
INTERNAL CONTROL AND RISK MANAGEMENT SYSTEM

- 
Board of Directors
 Defines the Guidelines of the Internal Audit and Risk Management System (IARMS) so that the main risks pertaining to Acea may be identified, assessed and addressed.
- 
Chief Executive Officer
 Implements the IARMS Guidelines and, relying on the support of the Audit Function, identifies the main business risks, submitting them to the Board of Directors.
- 
Board of Statutory Auditors
 Supervises compliance with the law and procedures as well as best practices and proper corporate governance.
- 
Executive responsible for financial reporting
 Responsible for establishing and maintaining the Internal Audit System for Financial Disclosures.
- 
Supervisory Board
 Vested with independent powers to see to the functioning of MOG 231 (Organisation, management and control model), with the support of the Ethics Committee in areas of common interest.
- 
Audit Function
 Performs independent checks on the operational status and adequacy of the IARMS through a (risk based) audit plan approved by the Board of Directors; it also monitors the implementation of action plans developed following such checks.
- 
Company Personnel
 Contribute, in their respective roles as managers and employees, to maintaining an effective risk identification and management process, while operating in compliance with procedures in the discharge of line control duties.

Risk management is a **cross-cutting process** that entails **widespread responsibilities and the involvement of all company levels**. It aims to: evaluate exposure to risks;

identify actions to prevent or mitigate risks; carry out audits; transfer unacceptable risks, for example through insurance coverage.

CHART No. 10 – RISK CONTROL FLOW



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.**

As part of the **Control Risk Self Assessment (CRSA)** processes designed and managed by the Risk Control and Internal Control Unit of the Audit Function, in support of the Director in charge of the IARMS, investigation proceedings were extended to include **all Acea SpA Functions and eight Group companies**, subsidiaries and associates, constantly involving the organizational Units involved: in 2016, **more than 161 Function/Unit Managers** evaluated a total of about **320 risk factors**, completing **2,300 evaluation sheets**.

The further **extension of the CRSA perimeter of investigation** enabled the **identification and assessment of risks with eventual impacts of an environmental and social nature** to be extended, for example lack of awareness of the risk of **climate change in the management of the urban cycle of waters** (techniques for the reuse of rainwater,

the active involvement of citizens in the management of water resources); **water shortages** due to the scarcity of rainfall, the pollution of sources (failure to protect sources) or the reduction in the contribution of inter-regional aqueducts; risks/opportunities deriving from the adoption of a **“stakeholder engagement” model**; risks/opportunities deriving from **interaction with stakeholders** through social networks; **regulatory compliance concerning the protection of waters, waste disposal and gas emissions, health and safety in the workplace** and the **quality of service supplied** to customers/users.

In these activities, the Risk Control Unit contributes to **spreading within the Group awareness of the factors that may compromise the achievement of the corporate goals** and assists management in identifying eventual improvements to be made.

THE RISK MANAGEMENT UNIT

X

During the course of 2016, as part of the Administration, Finance and Control Function, the **Risk Management Unit was set up**, with the duty of **defining the policies for the management and monitoring of the market risks** to which the business activities may be subject and the limits of exposure within which the operating companies are bound to carry out their business activities, **adopting the measures required to mitigate them**, also through the acquisition of **suitable coverage on the insurance and financial markets**.

An **internal reporting system is available for employees and external individuals** to report any violations of the law, internal regulations and the *Code of Ethics* as well as any problems relating to the Internal Audit System, corporate disclosures, administrative responsibility of the company, frauds and conflicts of interest, consistent with the

principles under the Guiding Lines of the IARMS, MOG 231 and the *Code of Ethics* itself (so-called **“whistleblowing systems”**). Consistent with national and international best practices, this reporting system **ensures a specific and confidential communication channel as well as anonymity for those voicing their concerns**.

REPORTS RECEIVED ON THE CODE OF ETHICS

X

Acea adopts a specific procedure for receiving, analysing and processing **reports of presumed violations of the rules of conduct prescribed by the Code of Ethics** (whistleblowing). This procedure ensures 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 these activities, and analysed **100 cases of presumed violations** of the *Code of Ethics* in 2016. Of these, **62** were traceable to **cases of a technical/commercial nature** and were therefore forwarded to the competent structures. The remaining **38 cases** concerned the following articles of the *Code of Ethics*: art. 16 “Suppliers” (3 reports); art. 15 “Management, employees, collaborators” (14 reports); art. 14 “Relations with Clients and Buyers” (21 reports). On completion of the analyses, **8 cases of violations** were ascertained, on the basis of which the Audit Function issued reports indicating useful suggestions for the improvement of the internal audit system.

The Audit Function is also tasked with following up the **plan of audits**, approved by the Board of Directors on the basis of the opinion of the Audit and Risk Committee. With regard to the activities carried out during the year, **about 60%** concerned **corporate processes deemed to be exposed**, even indirectly, to the **risk of corruption**. Specifically, these are processes operating within the main companies concerning the reporting and accounting of works and services by suppliers, variants in contracts, procurement of goods and services and acquisition and transmission of energy metering data.

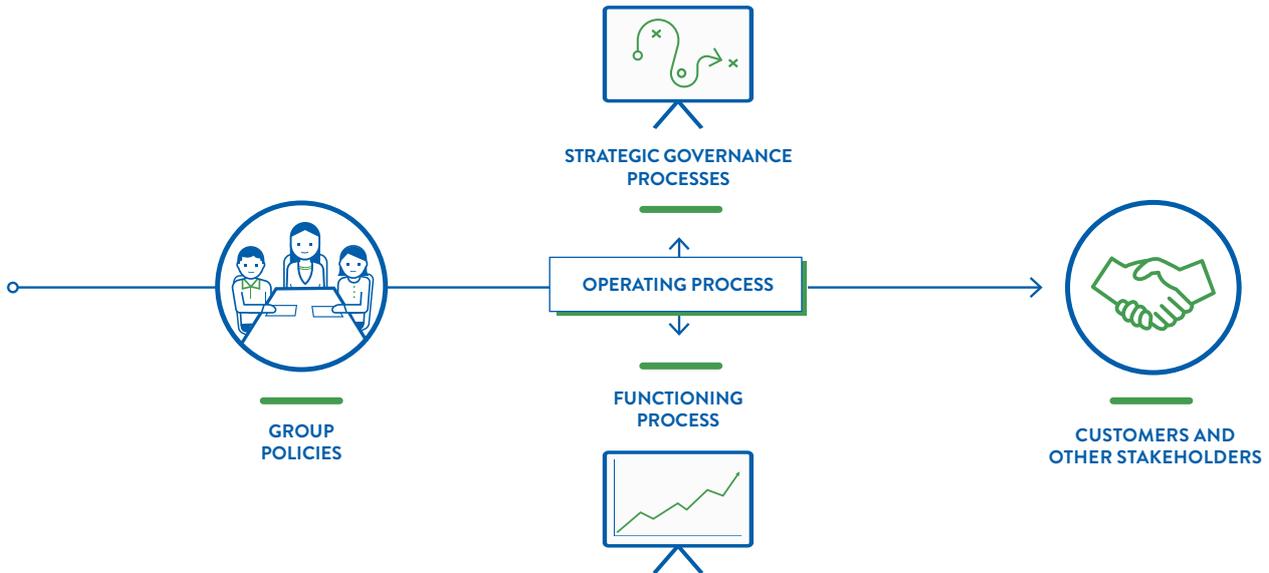
MANAGEMENT SYSTEMS

A complex **internal rule system** which 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:

- **Group management rules**, through which the parent company gives guiding, coordination and control instructions to all corporate units;
- **processes**: consisting of governance, functioning and operating processes, depending on whether they pertain to strategic, across-the-board or individual business areas;
- **procedures**, defining the operating methods through which the company processes are implemented.

CHART No. 11 – THE INTERNAL RULE SYSTEM



The **Integrated certification systems unit**, part of the Human Resources and Organisation Division of the holding company, defines, implements and controls the **integrated implementation of the Group policies on quality, environment, energy and safety in the workplace.**

The Unit Head, in the capacity of Representative of the Acea Certified Management System Department, is responsible for periodically **reviewing and updating the Quality, Environment, Safety and Energy (QASE) Policy.**

CHART No. 12 – THE CERTIFIED INTEGRATED MANAGEMENT SYSTEM



At 31/12/2016, **24 companies in the Group**, subsidiaries and associates, **have their own Certified management systems** consistent with **quality, safety, environmental and energy management standards**. Some facilities have specific accreditation and **EMAS** Registration (see table 7).

In particular, in **2016, Ecogena** attained quality certification and UNI CEI 11352 certification, which enables it to be the **ESCo** company and to obtain the **white certificates** for the entire Group. **Acea Elabori** attained **ISO 14001:2015** environmental certification and extended its certifications to cover the new activities of **Safety coordination for the execution of works** and safety checks on worksites.

During the course of the year, the companies in the Group **started the transition towards the new ISO 9001:2015 and ISO 14001:2015 rules** and Acea Ato 5, Acea Elabori and Ecogena have already attained the new certifications.

The management of the **environment and safety** are central aspects in the company policies, as the number of companies in the Group – subsidiaries and associates – that have over time implemented certified management systems confirms. Observing the situation concerning **the main operating companies (industrial**

areas), it can be seen that they have **environmental (ISO14001) and health and safety (OHSAS 18001)** certified management systems: 100% of the companies in the Networks segment, which also have **energy (ISO 50001)** certified management systems; 70% of the companies in the Water segment; 60% of the companies in the Environment segment (also counting the facilities of Kyklos and Solemme¹¹); 50% of the companies in the Energy segment (production), as regards the environment certified management system, and 66% health and safety.

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 (also see *Environmental issues*, paragraph entitled *Group atmospheric emissions and mobility*).

¹¹ Kyklos and Solemme also merged into Acea Ambiente in December 2016.

TABLE No. 7 – CERTIFIED MANAGEMENT SYSTEMS IN THE ACEA GROUP (AT 31.12.2016)

	QUALITY	ENVIRONMENT	SAFETY	ENERGY	OTHER
Acea SpA	X	X	X	X	
Acea Elabori SpA	X	X	X		UNI CEI EN ISO/IEC 17025:2005 Analysis laboratory accreditation
WATER SEGMENT					
Acea Ato 2 SpA	X	X	X	X	
Acea Ato 5 SpA	X	X	X	X	
Crea Gestioni Srl	X	X	X		
Publiacqua SpA	X	X			UNI CEI EN ISO/IEC 17025:2005 Analysis laboratory accreditation
Ingegnerie Toscane SpA	BEST4 (quality, environment, safety, SA8000)				
Acquedotto del Fiora SpA	X				
Acque SpA	BEST4 PLUS (quality, environment, safety, energy management, SA8000)				UNI CEI EN ISO/IEC 17025:2005 Analysis laboratory accreditation; EMAS
Nuove Acque SpA	X				SA8000
Umbra Acque SpA	X		X		UNI CEI EN ISO/IEC 17025:2005 Analysis laboratory accreditation;
Acea Gori Servizi Scarl	X	X	X		
Gesesa SpA	X				
Geal SpA	X	X	X		
Gori SpA			X		
Sogea SpA	X	X	X		
NETWORK SEGMENT					
Areti SpA	X	X	X	X	
Acea Illuminazione Pubblica SpA	X	X	X	X	
ENERGY SEGMENT					
Acea Energia SpA			X		
Acea Produzione SpA		X	X		
Ecogena SpA	X				UNI CEI 11352
ENVIRONMENT SEGMENT					
Acea Ambiente Srl (*)		X	X		EMAS
Aquaser Srl	X	X	X		
SAO Srl (**)		X	X		EMAS

(*) It must be taken into account that in December 2016, Kyklos and Solemme, in addition to SAO, merged into Acea Ambiente, and they did not have certified management systems in the year in question.

(**) SAO merged into Acea Ambiente in December 2016.

ACEA 2.0

The **Acea2.0** programme, which projects a technological and digital business, affects the **Information and Communication Technology** systems of the companies in the Group, regarding all operating aspects, both internal, such as Workforce Management or the Document Management System, and external, such as Customer Relationship Management or the functions of the new Acea website and the relevant section – and mobile application – MyAcea. The focus on the **exposure of IT systems to criminal attacks** is particularly important, given that they can affect both

the company's information assets, which also include personal data of others (customers for example), and on the continuity of business operations, such as the management of the remote control systems for the water and electricity networks. Acea's commitments to the **constant updating of procedures, IT systems and the relevant security measures**, also through participation in shared initiatives with the most important institutions or research centres, are described in the chapter *Institutions and the Company*.

STAKEHOLDERS AND ALLOCATION OF GENERATED VALUE

STAKEHOLDERS AND THEIR INVOLVEMENT

Consistent with the values set forth in the *Code of Ethics*, Acea relies on dialogue and exchange to promote an approach to the engagement of his own stakeholders¹², enhancing the opportunities for the **creation of common value**. 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 drives and objectives as well as inputs from outside**.

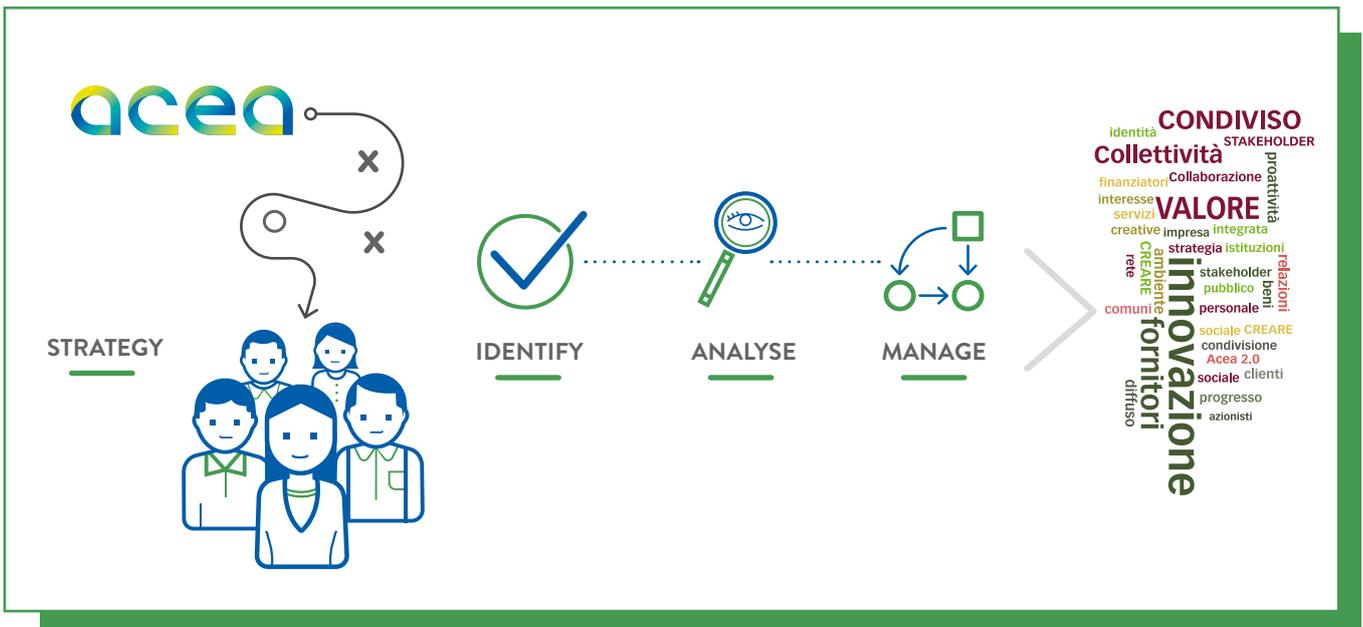
The **stakeholder identification** phase makes it possible to

identify individuals who are directly or indirectly involved in company activities, the purpose being to evaluate the relevant qualitative and quantitative level of impact.

The **review** phase is used to perform a structured evaluation of the interactions existing both between the company and the stakeholders as well as among the stakeholders themselves so that dialogue and 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 attainment of company goals consistent with expectations.

CHART No. 13 – STAKEHOLDERS AND THEIR INVOLVEMENT



¹² Stakeholders are entities - individuals, groups or organisations - who have significant relations with the Company and whose interests are - to different extents - involved in the activities of the Company either by virtue of their dealings with the latter or because they are significantly influenced by such activities.

The “**Acea stakeholder map**” identifies the macro-categories of key stakeholders: customers, employees, suppliers, shareholders and lenders, institutions, community, environment and the company itself. In respect of each one of them, engagement initiatives are undertaken which sometimes result in collaborative paths

that prove crucial to both fostering business development and reinforcing and enhancing the standing and reputation ascribed to Acea by its stakeholders. Some of the initiatives undertaken during the year are illustrated in the stakeholder’s boxes and the detailed boxes.

CHART No. 14 – STAKEHOLDER MAP



As regards **suppliers**, for some works contracts (water, electrical and civil engineering) awarded with the most economically advantageous offer, in 2016 Acea introduced rewards linked to sustainability: **safety** training of the professionals performing the works; supply of **ecological tools** used during the activities; joint possession of **quality, environment and safety** certifications. In 2015, Acea made it **compulsory to fill out** the **QAS Questionnaire** (quality, environment and safety) and the **TenP Questionnaire**, prepared with *Global Compact Network Italy* on the basis of the 10 principles of the “global pact”, **for the registration of suppliers in the works qualification systems** (water, electro-mechanical and electrical) and, **since 2016**, also for registration **in qualification systems for the supply of goods and services**.

The **Safety Team** set up in Acea Elavori to ensure the respect of the rules and the highest standards applicable to the sector has expanded its safety control activities during the execution of works in the context of Single Contracts to Acea Ato 5 and Areti. Acea involves the **supply chain** in the sustainability of business activities through these initiatives.



Acea manages relations with **capital markets** so as to benefit from the best financial funding sustainability conditions, diversifying sources, and make investments in the company that are safe and add value for the investors (equity and debt). At 31.12.2016, more than 70% of debts derived from bond-related transactions. Relations with analysts, credit rating agencies, banks and shareholders are based on dialogue and the construction of relations based on reciprocal trust: **meetings with the financial community**, such as roadshows, are **numerous when the main corporate events take place** and are held in the most important national and international cities.

The focus of the **ESG analysts** (environmental, social and governance) on Acea has been consolidated with structured rating activities. The company responds punctually to the questionnaires and has introduced ESG contents in presentations to the financial community. In 2016, Acea achieved excellent results in the **Carbon Disclosure Project**, positioning itself in the leadership class, and was again included in the **Ethibel excellence investment register**.



During the year, **Acea staff** were involved, made aware of and reminded of many aspects, such as **health and safety**, the **settlement of leisure/work times**, respect of **diversity**, **team work** and a sense of belonging, **energy saving** during working activities, etc.

Acea organised the **Safety Day**, a day entirely dedicated to the theme, with different initiatives (operating simulations, workshops, seminars) realised simultaneously in **15 companies** in the Group. The **safe driving** project was also realised, in collaboration with the ACI Safe Driving Centre in Vallelunga, for **155 individuals** using company cars. **Smartworking** was implemented through the **E.L.E.N.A.** pilot project, which involved **200 employees** of 9 companies in the Group in an “agile management” of their work. On the matter of **diversity**, in advance with respect to the regulatory dispositions, Acea extended the right to the period of paid leave to employees who, independently of their sexual orientation, contract **marriage or civil union recognised in a European Union member state**, also in the absence of transcription in the Italian civil status registers. The **People Care Unit** was set up at the end of the year.

The number of staff hired increased by 14% (of whom 35% are women), almost half of the new staff members are aged between 20 and 30 and many have excellent IT skills.



Customers have always been the **focus** of Acea, which has undertaken to improve its capacity to respond to increasingly developed and needy users. In mid-December, the new Group website was launched: **www.acea.it** and **MyAcea**, the area dedicated to customers and also available as an App, where it is **possible to manage water, electricity and gas utilities in a single account**.

Acea deals with the dynamics of the electricity system and its new figures, such as producer-consumers (**prosumers**); there are more than 10,300 of them active on the Areti electricity network, of which 6,600 are customers of Acea Energia.

As regards the **commercial quality** of services, Acea has been **proactive** and able to set itself challenging goals for improvement in relation to the **new regulatory parameters of the AEEGSI in the water sector**.

Customer evaluation is vital for improving the services and Acea records their satisfaction (**customer satisfaction**) through specific surveys repeated at least twice every year.

In 2016, the agreement signed by the Consumer Associations and companies in the Acea Group was the **first ADR protocol in the water sector in Italy** and, as regards energy, the first that went beyond the sales sector and involved electricity **distribution as well**.



Acea's activities have obvious effects on the improvement of wellbeing and the development of the quality of life and the **community**. In particular, grasping the opportunities offered by the technological context, the contribution of a Utility is vital to development towards **smart city** logics in urban contexts. Acea has continued its activities in support of expanding the **ultra-broadband optical fibre** communications networks; the expansion of **electrical mobility** in the capital; and the widespread implementation of the LED Plan in Rome. It has also continued installing the **Water houses**, of which there are now 46 in Rome and province. During the year, the company several times promoted awareness of its activities among the public: examples of this include participation in **Ecomondo**, an International Fair on the recovery of matter and energy and sustainable development, and in the **Maker Fair Roma**, the most important event concerning innovation. During the year, it also welcomed **3,633 people visiting its plants**.



The **Environment** is the scenario in which Group activities are carried out, and as such is preserved by the responsible and efficient use of resources, the **protection of sources**, **safeguarding the natural areas** where there are service systems and networks, and **mitigating** the physical impact and external criticalities generated in the ecological context by the operating processes. In this regard, the “**satellite project**” for detecting and analysing physical changes close to energy sources is worthy of mention, as it enables changes and illegal acts to be recorded (illegal disposal, unauthorised constructions). The development of industrial processes for **anaerobic digestion** in the sector of waste management, and consequent production of biogas, has led to positive environmental effects: the lowering of methane emissions, production of electricity from renewable sources and consequent reduced CO₂ emissions. The commitment undertaken constantly and determinedly in recent years, increasing the generation of renewable energy, increasing the efficient end use of energy products and modernising the range of vehicles, has enabled Acea to reach a **value of carbon intensity that is among the lowest in Italy** in the Utility sector.



In the planning and performance of services, mediation with local authorities and the search for solutions to shared problems, the **institutions** – independent authorities, local and state bodies – have **continuing relations** with the Group. Thanks to interactions with Departments of the competent public administrations and Inspectorates, for example, it has been possible to define and implement the **LED Plan**. Another important collaboration between Acea, the local bodies and public authorities, concerns the **River Tiber Contract** promoting the proper conservation of the ecology and river system and surrounding areas. The **activities and plants** managed are vital for stability and public safety. In this regard, Acea is involved in **joint round tables with public authorities**, such as CERT Nazionale coordinated by the Ministry for Economic Development, to deal with exposure to potential IT threats or catastrophic events, and guarantee support to the Authorities responsible for public health, **civil defence and protection** and public safety during alert situations.



Acea guarantees the sustainability of its operations by also focusing on itself in order to **improve processes and tangible or intangible assets**. The quality of its financial and equity performance also enables the planning of solid development strategies, as described in the **2016-2020 Plan**, with specific focus on the regulatory sectors.

The **Acea2.0 project** has been diffused and implemented in the Group companies, progressing the path of digitalisation and innovation of the management processes, which has also been recognised externally: Acea won the **2016 Assochange Award**.

Towards the end of 2015, the Acea **Ethics Committee** decided to carry out a survey aimed at assessing the level of integration of sustainability in the managerial culture of Acea.

During the course of 2016, it was tasked with carrying out a survey at the SnO research centre of the HEC in Paris, one of the most internationally renowned business schools.

The survey, coordinated with the Acea RSI and Sustainability Divisions, in collaboration with the Staff and Organisation Function, was carried out in June and July by **providing an on-line questionnaire for all of the managers** of the parent company and the main operating companies (Executives and Managers, for a total of **466 individuals**). In the opinion of the researchers, the response by management was first class, both in terms of the **percentage of those agreeing to take part (52%** of them completed the questionnaire) and the quality of the replies given.

The results of the research were presented in November, during a meeting of the **Ethics Committee**, which was opened up for the participation of the **company's top management**, and a **summary of the results was forwarded to the panel** to which the questionnaire was aimed in January 2017.

THE ENVIRONMENT I WANT WHEN I GROW UP

How do you explain the role and importance of water and energy to children? Acea has done so, organising a cycle of real **study days, with quizzes, experiments and guided tours**. "How do you make tap water drinkable?". This was one of the many questions asked by the children during **L'ambiente che voglio da grande (The environment I want when I grow up)**, an initiative organised by the Special Communications Projects and Territorial Relations Division of Acea SpA, which saw very high attendances in 2016: **about 2,500 students, 22 schools, 113 classes and 233 teachers**. Water and Energy were the main themes of the project created and realised by Acea in collaboration with Roma Capitale for children in primary schools (2nd cycle) and 1st level secondary schools.

Acea has proposed the initiative, which has been expanded, to schools again for the next school year.

In the 2016 initiative, the children were also asked to produce a **photographic composition on the theme of "the environment I want when I grow up"**. More than 600 students participated and six schools selected. There were those who decided to study Villa Sciarra and the twelve fountains in the park at the foot of the Janiculum and those who re-elaborated the Game of the Goose. The students, following the two themes of Water and Energy, thus expressed what they learned during the course at the Acea congress centre "La Fornace" through photographs, drawings and texts. An Acea committee assessed the composites received, on the basis of the following criteria: general composition, creativity and originality, capacity to communicate (slogan) and pertinence to the chosen subject.

Six of the more worthy projects were selected, among them those of the Severino Fabriani State Specialist School for the Deaf. 10 classes at schools in Rome were awarded a 1,000 euros grant to be used in refurbishing/improving their school structure.

External observers also analyse and evaluate Acea's sustainability performance, conferring adequate recognition for the good levels reached.

In particular, **in 2016** the company participated in the **fifth edition of the Top Utility Award**, which values and rewards **the Italian system of Public Utilities from an integrated view of economic, financial, social and environmental sustainability**.

The analysis is applied to the **top 100 Italian Utilities in terms of returns**, public and private, on the basis of **183 indicators** and **6 evaluation areas**: financial situation in the last three years, operating management, communication, social and environmental sustainability, customer and territorial relations and technological and innovation assets. **Acea won the training and human resources category** and was in the **top 5 in class for the "best company" category**, together with A2a, Hera and Iren and the winner **Cap Holding**, for the **"sustainability" category**, together with Acque, Estra, CAP Group and the winner **Società gas Rimini** and for the **"communication" category**, together with CAP Group, Hera, Iren and the winner **A2A**.

In addition to the award conferred by Top Utility, the excellent performance in the framework of the CDP, which valorises food management by companies of the risks concerning climate change, must be noted, in which Acea was included in the "leadership area" (see *Environmental relations* in this regard).

As regards interactions with people in the Group, Acea was awarded the **ASCAI 2016 – Internal Communications** award as the second classified of the twenty Italian companies taking part, for the **Human Capital project**. This latter recognition, for the various internal communications activities linked to aggregation and the enhancement of



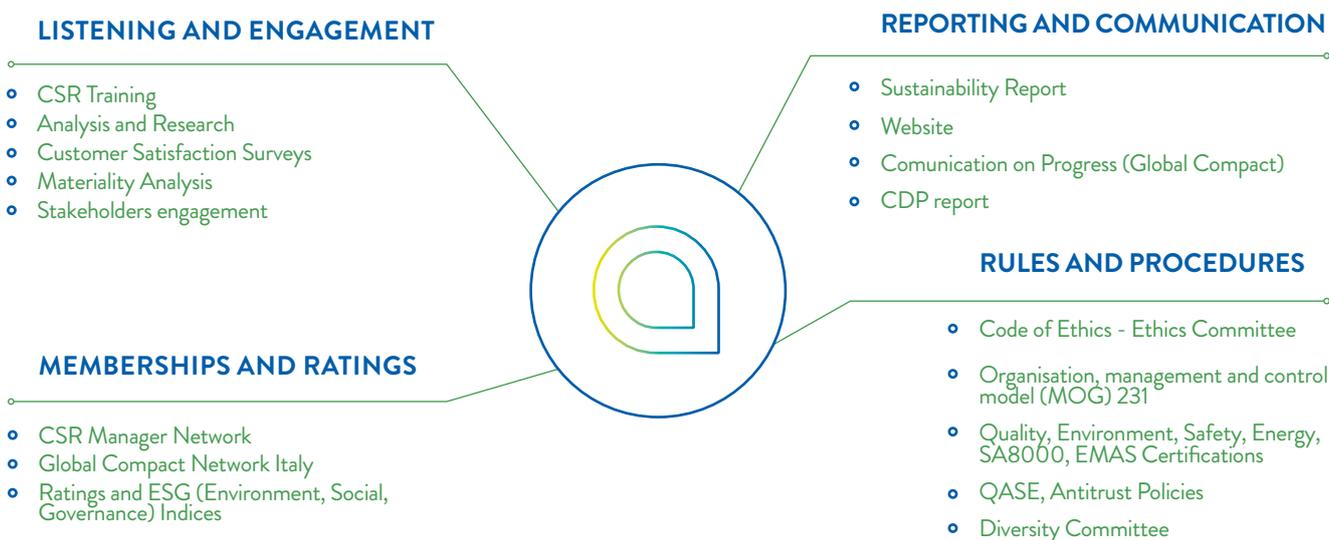
the sense of belonging, was handed over in October by Aretè Comunicazione Responsabile during the Salon on Corporate Social Responsibility and Social innovation held at Bocconi University in Milan.

Tools and actions for sustainability

Acea supplies network services of public interest and is therefore a vital player for the **promotion of economic and civil development in local communities**. The care dedicated to the quality of the services provided and efficiency of the industrial processes managed, the protection of the natural environment and focus on social dynamics in the areas it operates in ensure that corporate social responsibility (CSR) as a method of pursuing sustainable development is part of Acea's identity.

The Group works towards spreading CSR 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. 15 – CSR TOOLS



DISTRIBUTION OF VALUE GENERATED BY ACEA

The economic value generated by the Acea Group in 2016, including the revenues generated by day-to-day management and financial activities, amounted to **2,880.6 million euros** (2,967.1 million euros in 2015)

Below is a breakdown of the above figure amongst the stakeholders: 61.2% to **suppliers**, 17.4% to the **company** as

resources to be reinvested; 6.9% to **employees**; 4.9% to **shareholders** in the form of profits and reserves; 4.5% to **investors** in the form of interest on capital provided; 5% to **public authorities**¹³ in the form of taxes paid and 0.1% to the **community** by way of sponsorships and donations for events and kindred endeavours.

TABLE No. 8 – ECONOMIC VALUE DIRECTLY GENERATED AND DISTRIBUTED (2015-2016)

(in millions of euros)	2015	2016
Total economic value directly generated	2,967.0	2,880.6
Distribution to stakeholders		
Operating costs (suppliers)	1,999.5	1,763.3
Employees	211.2	199.2
Shareholders	113.2	142.0 (*)
Investors	111.2	128.8
Public administration	114.8	143.5
Community	3.2	2.9
Company	413.9	500.9

(*) Additional dividends were paid to the shareholders from reserves; this item includes the profits from minority interests.

TABLE No. 9 – BREAKDOWN OF VALUE GENERATED BY STAKEHOLDER (2015-2016)

	2015 (%)	2016 (%)
Suppliers	67.4	61.2
Employees	7.1	6.9
Shareholders	3.8	4.9
Investors	3.7	4.5
Public administration	3.9	5
Community	0.1	0.1
Company	14	17.4

¹³ The amount paid to the PA net of state and regional public contributions that Acea receives from this stakeholder (6.2 million euros) totalled 137.3 million euros.





CONNECTED TO YOUR WORLD.

SOCIO-ECONOMIC RELATIONS WITH STAKEHOLDERS

SUSTAINABILITY REPORT 2016



CUSTOMERS AND THE COMMUNITY

REFERENCE BOUNDARY

X

Data pertaining to the volume of customers relates to Acea Energia, Areti and, with regard to water, to Acea Ato 2, Acea Ato 5, Acque, Publiacqua, Acquedotto del Fiora, Umbra Acque and Gori (even though the water companies operating in Tuscany, Umbria and Campania are consolidated using the shareholders' equity method); data pertaining to perceived quality, delivered quality, customer care and communication activities relates to a narrower boundary and to the operating companies from time to time referred to in the text.

The interactions among Acea, customers and the community are described and illustrated in a single chapter, as the information and data related to the services delivered - **perceived quality, delivered quality, customer care** - refer

mainly to the **central and southern Lazio area, where the two stakeholders virtually coincide¹⁴**; on the other hand, data referring to electricity and water service customers comprises all areas covered by the operating subsidiaries.

ACEA GROUP CUSTOMERS: ELECTRICITY AND WATER SERVICES



MORE THAN **1.2 million**
CUSTOMERS FOR THE
SALE OF ENERGY

AND ABOUT **149,000**
GAS CUSTOMERS



813,688
WATER CONNECTIONS IN LAZIO
(Acea Ato 2 and Acea Ato 5)

EQUAL TO ABOUT **4.2 million**
INHABITANTS SERVED



MORE THAN **1.6 million**
WITHDRAWAL POINTS
FOR THE DISTRIBUTION
OF ENERGY



2.5 million
WATER CONNECTIONS IN ITALY
EQUAL TO ABOUT **8.5 million**
INHABITANTS SERVED

¹⁴ In the area of Rome and provincial districts Acea runs the integrated water service, the supply of electricity (for more than 1.2 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), reference should be made to Water Company Data Sheets.

According to the data published by the Authority for electricity, gas and water¹⁵, **Acea Energia is Italy's sixth largest operator in terms of volumes sold on the energy sale end-user market, with a 3.9% market share.** Furthermore, the company is the **second largest national operator** in terms of volumes sold to customers in the **enhanced protection market**, with a market share of 5%, and is **ranked eighth** in terms of volumes sold to the **free market**, with a market share of 3% (3.6% in the previous survey). In 2016, Acea Energia managed **over 1,380,000 supply contracts** as a result of combined sales of energy and gas (see Table 10). Following the normal competitive patterns of the free market, the customer base changes each year, either upwards or downwards; between 2016 and 2015,

there was a **slight drop, 3.9%** overall, in the customer base managed in the various segments of the energy market ("free" and "enhanced protection")¹⁶.

Areti is **Italy's third largest operator** in terms of **volumes of electricity distributed**, with a 3.8% market share, and **Italy's second largest operator** in terms of **customer base**¹⁷. In its capacity as holder of the ministerial licence, the company delivers energy across the areas of Rome and Formello and in 2016 its **overall withdrawal points numbered about 1,625,000**. The trend of the customer base is due to both urban expansion and disposals resulting, for example, from businesses being discontinued (see Table 10).

THE FIGURE OF THE PROSUMER IN THE NEW ENERGY MODEL

X

As of 2010, there has been a change to the model of the energy sector, linked to the new **generation systems and the energy exchange configurations**.

The theme of renewable sources has emerged, also favoured by the incentives mechanisms, and is still at the centre of the most important national and international policies, due to its implications on climate change. At the same time, there have been developments as regards the capacity of connection, transmission and distribution systems, linked to the increase, diversification and non-programmable nature of renewable sources.

In addition to implying changes to the physical system of the traditional energy model, these aspects have in recent years made the "**prosumer**" increasingly significant. Due to its dual nature of **energy producer** and **consumer**, the "prosumer" is capable of partially or totally ensuring its own energy supply and transfer any eventual surplus produced to the network, thereby having new relations with both the distributor and the subject responsible for selling/withdrawing energy.

Acea has been proactive towards the above forms of energy and has fulfilled the necessary legal and regulatory obligations concerning the new production and consumption systems.

At 31.12.2016, there were **10,375 prosumers** active on the energy distribution **network** managed by Areti, of which **8,422 qualified as "domestic prosumers"**, in other words customers with household utility contracts who also produce small quantities of energy, and **1,953 qualified as "other uses"**, in other words use outside the household (businesses, professional activities and handicraft). **About 6,600** of the prosumers on the Acea network **are also Acea Energia customers**. The energy transferred to the network by these subjects was **67.53 Gwh** in 2016, **about 71% photovoltaic**.

THE ELECTRICITY SOCIAL BONUS: BASES

X

For customers who are under **financial constraints**, also in relation to large family numbers, and customers who because of their **health** require the use of indispensable energy-consuming medical equipment¹⁸, the AEEGSI, 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 2016, the number of Acea customers benefitting from the bonus**, on both the protected market and the free market, **totalled 13,009**¹⁹, of whom 12,526 due to financial constraints and 483 due to their health. Overall, during the course of the year, the electricity bonus system has led to the beneficiaries saving a total of about 1.28 million euros on their electricity bills

In the territory of the **distribution network** managed by **Areti**, there were also **6,692 customers authorised to receive the electricity bonus** (6,523 due to financial constraints, 169 due to their health) served by companies other than Acea Energia as regards the "sales" component.

¹⁵ See the *Annual report on the state of services and activities carried out*, 2016 edition (on 2015 data), *Structure, pricing and quality in the electricity sector* section available online on the AEEGSI website.

¹⁶ The relevant national Authority accurately defines the energy market segments. See AEEGSI, *Glossario della bolletta elettrica* (annex to Resolution No. 500/2013/R/COM dated 7 November 2013). "Enhanced protection" customers receive energy under the economic and contractual conditions laid down by the AEEGSI, whereas "free market" customers choose the supplier from whom and the terms and conditions under which electricity may be purchased, based on the offers available on the market. While awaiting the cessation of the enhanced protection market, the Authority has regulated "similar protection" for 12 months from 1 January 2017. This contract, although based on the free market, contains contractual conditions defined by the Authority that are the same and compulsory for all sellers. The economic conditions are the same as those of the enhanced protection service, with a reduction in the one-off bonus, if the contract covers all 12 months, which differs from supplier to supplier and is applied to the initial bill.

¹⁷ See the *Annual report on the state of services and activities carried out*, 2016 edition (on 2015 data), *Structure, pricing and quality in the electricity sector* section available online on the AEEGSI website.

¹⁸ For details of the conditions legitimising the request and granting of the electricity bonus, see the specific section of the AEEGSI website: http://www.autorita.energia.it/it/bonus_sociale.htm.

¹⁹ For customers with financial constraints, reference is made to the number of POD (withdrawal points) on which facilitations are active; for customers with health problems, reference is made to the number of requests validated, as there may be several facilitations active on one POD.

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 2.5 million connected users** and an overall base consisting of **about 8.5 million inhabitants in Italy** (see Table 10). The company, the long-standing water service operator in **Rome and Fiumicino**, has **about 628,000 connections** and about 3.7 million inhabitants served in ATO 2-Central Lazio and has

progressively expanded its activities, becoming the reference operator in other Optimal Areas of Operation (ATO)²⁰ 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 (Campania) and Perugia and Terni (Umbria). The Group also operates in a number of South American countries²¹.

THE SUSTAINABILITY OF THE WATER SERVICE: MANAGEMENT EFFICIENCY AND EMERGING SOCIAL ASPECTS

X

In implementation of Law 221/2015 ("Environmental Law"), **two Decrees** were emanated by the **Prime Minister's Office** in 2016 (DPCM 29 August 2016; DPCM 13 October 2016), dealing with the theme of **limiting arrears** and the theme of the **social tariff** respectively. As regards **arrears**, the AEEGSI was tasked with adopting directives aimed at **limiting the phenomenon for equity purposes** and protecting users, the sustainability of the tariff and the coverage of the service costs. The Authority will discipline the phases of the service which have the greatest impact in terms of company/user financial relations – from metering consumption to billing and payments, from complaints to the management of disputes – safeguarding the types of utilities in arrears that cannot be cut off. As regards the **social tariff**, the AEEGSI has been tasked with guaranteeing universal access to water and must ensure that resident household users have access under facilitated conditions to the quantities of water required to satisfy their basic requirements (50 litres per inhabitant per day) and define the methods of recognising and benefitting from a **water bonus** for household users under disadvantageous financial-social conditions. The AEEGSI has therefore started **the procedures for implementing the two DPCMs**, in resolutions 638/2016 and 716/2016, following the activities and dispositions already implemented on the matter (resolutions 655/2015, 218/2016 and 8/2015), in order to reconcile the company's operating needs with the social status of the users and facilitate the reciprocal trust and correctness between customers and water companies.

TABLE No. 10 - SOCIAL INDICATORS: ACEA GROUP CUSTOMERS (energy and water sectors) (2014-2016)

	U. M.	2014	2015	2016
SALE OF ENERGY AND GAS (Acea Energia)				
Enhanced protection market	(No. of withdrawal points)	1,023,316	980,946	942,873
Free market – mass market	(No. of withdrawal points)	293,737	264,928	247,022
Free market – large accounts	(No. of withdrawal points)	53,899	49,334	44,666
Free gas market	(No. of withdrawal points)	154,601	144,185	148,832
Total	(No. of withdrawal points)	1,525,553	1,439,393	1,383,393
ENERGY DISTRIBUTION (Areti)				
Household customers, low voltage	(No. of withdrawal points)	1,305,010	1,304,281	1,309,366
Non-household customers, low voltage	(No. of withdrawal points)	318,307	314,068	312,808
Medium voltage customers	(No. of withdrawal points)	2,885	2,886	2,863
High voltage customers	(No. of withdrawal points)	7	7	7
Total	(No. of withdrawal points)	1,626,209	1,621,242	1,625,044
SALE AND DISTRIBUTION OF WATER (main water companies in the Acea Group)				
Acea Ato 2	(No. of connections)	591,580	625,952	628,078
Acea Ato 5	(No. of connections)	187,121	185,673	185,610
Acque (*)	(No. of connections)	323,449	323,505	324,122
Publiacqua	(No. of connections)	385,968	388,365	391,014
Acquedotto del Fiora (**)	(No. of connections)	234,156	231,086	231,300
Gori (***)	(No. of connections)	518,015	519,896	518,058
Umbra Acque	(No. of connections)	230,849	231,372	231,485
Total	(No. of connections)	2,471,138	2,505,849	2,509,667
Acea Ato 2	(Population served)	3,700,000	3,700,000	3,700,000
Acea Ato 5	(Population served)	460,000	470,000	470,000
Acque (*)	(Population served)	724,809	735,404	737,204
Publiacqua	(Population served)	1,229,691	1,229,691	1,229,691
Acquedotto del Fiora (**)	(Population served)	407,469	405,065	406,453
Gori (***)	(Population served)	1,431,562	1,427,699	1,430,774
Umbra Acque	(Population served)	506,999	505,912	504,966
Total	(Population served)	8,460,530	8,473,771	8,479,088

(*) The connections and population figures for Acque for the last three years have been adjusted.

(**) The 2015 figures for Acquedotto del Fiora have been adjusted.

(***) The connections and population figures for Gori for the last two years have been adjusted.

²⁰ In compliance with Law No. 36/1994, known as the "Legge Galli", which reorganised water services, Italy is divided into Optimal Areas of Operation (ATOs) based on water catchment areas. For information regarding ATOs where Acea operates through subsidiaries, see *Corporate Identity and the Water Company Data Sheets*.

²¹ See *Operations abroad*.

QUALITY PERCEIVED



18,600 people

2016 SURVEYS ON CUSTOMER SATISFACTION INVOLVED, IN LAZIO



GLOBAL ASSESSMENTS ON THE SERVICES SUPPLIED IN 2016:

ELECTRICITY SERVICE «SALES»: **7.7/10**

ELECTRICITY SERVICE «NETWORK»: **7.6/10**

PUBLIC LIGHTING SERVICE: **6.3/10**

WATER SERVICE (ROME AND FIUMICINO): **7.8/10**

WATER SERVICE (FROSINONE AND PROVINCE): **5.1/10**

Acea regularly measures **customer and citizen satisfaction with regard to the services supplied** in the electricity, water²² and public lighting areas, **through half-yearly surveys**, performed by a specialist external company, identified through a tender competition.

The Institutional Relations Unit of the holding company, in conjunction with the operating companies running the services, coordinates the phases of defining the questionnaire, identifying samples to be interviewed and sharing results with top management.

As in past years, the **two half-yearly surveys** in 2016 were conducted using the CATI method²³ and the following main indicators were prepared:

- **overall rating** on the general quality of the service (on a scale of 1 to 10), an index of the customers' "impulsive" rating;
- **summary satisfaction indices**, both **overall** and **on aspects of the service** (Customer Satisfaction Index – Satisfied Customer 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 – Satisfaction degree CSI, expressed as a % function of satisfied customers

- **threshold 75%**), measuring "how much" customers were satisfied or not satisfied with the service.

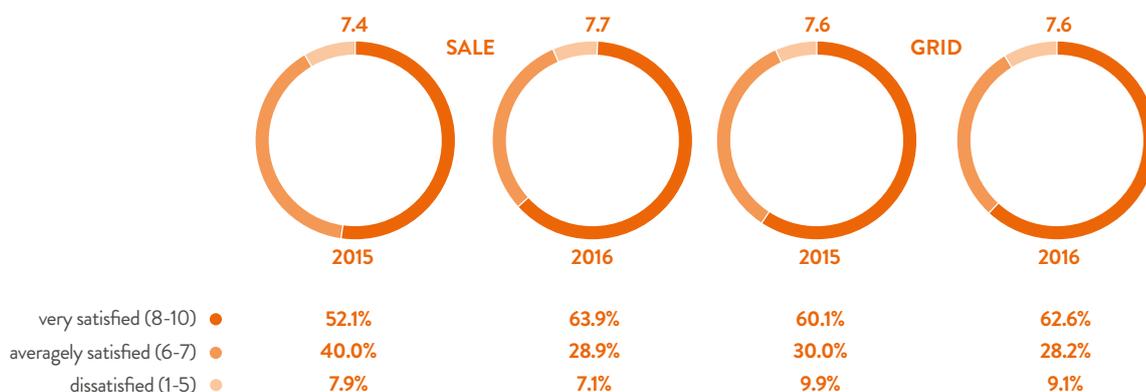
As regards the "contact channels", the interviews involved all of the **customers** selected using the "call back" method **who have recently used the services** (toll free number for commercial information or reporting faults, website, helpdesk, technical interventions) and agreed to be called back.

Electricity service rating

Customer satisfaction as regards the electricity supply service (sale and distribution) was recorded in May/June 2016 and December 2016/January 2017 with **9,007 people** contacted by telephone, representing customers on the **enhanced protection market** and on the **free market: 4,902 for sales-related aspects**, managed by **Acea Energia**, and **4,105 for technical and management aspects of the distribution service** (network), managed by **Areti**.

The **overall opinion of the electricity service**, regarding both commercial and technical aspects, was positive and in line with last year; the percentage of those contacted who deemed the service **very satisfactory** increased: 63%, as an average of the two surveys, compared to 56% last year.

CHART No. 16 - OVERALL RATING ON THE ELECTRICITY SERVICE (2015-2016) (1 to 10 scale)



Note: overall opinions and satisfaction percentages shown in the chart are the average of the two half-yearly surveys.

For **customers on the enhanced protection market**, the **customer satisfaction index (CSI) for electricity sales** remained very high: **82.1 out of 100**, as an average between the two surveys. The opinion on the **four aspects of the service** was also very positive, with the only fall being for the toll free number: **billing (86.8 out of 100)**, **website (82.8)**, **commercial toll free number (77.9 out of 100)**, compared to 84 last year) and **helpdesk (80.6)**.

Observing **the assessments of the service quality factors that**

those interviewed deemed to be most relevant, as regards the **billing** aspect, the percentage of those satisfied (as an average of the two annual surveys) remained high as regards the "accuracy of the amounts" and "clarity and ease of reading" of the bill, 86.9% and 83.6% respectively. As regards **the website**, "ease of navigation", considered as a priority element, and the "thoroughness of information present" recorded a satisfaction index of 84.1% and 81.8%. As regards the **commercial toll free number**, the customer satisfaction indices for the key factors

²² As regards the water service, in addition to surveys conducted in Lazio involving customers of the subsidiaries Acea Ato 2 (Rome and province) and Acea Ato 5 (Frosinone), Acea SpA also handled surveys about the level of quality perceived for subsidiaries operating in Campania, Tuscany and Umbria, sharing with them both the concept and results of the surveys.

²³ Computer Assisted Telephone Interviewing, with the support of a structured questionnaire administered on a sample arranged on the basis of certain variables and representing the entire reference context, with a maximum statistical error of ± 3.2% and 95% significance level.

are still good, considering the threshold of 75% for the adequacy of the service, although slightly lower than the previous year: “skills of the operator”, 77%, and “clarity of the replies given”, 76%. Lastly, as regards the helpdesk, the satisfaction indices for “skills of the operator”, 84.7%, and the “clarity of the replies given”, 82.9%, remained high (see the data and comparison with the previous year in table 11, after this paragraph).

On the free market, the overall customer satisfaction index for the sales service, as an average of the two half-yearly surveys, was 83 out of 100, a further improvement compared to 2015. The CSI for the four aspects of the service – billing (84.6 out of 100), website (82.8 out of 100), commercial toll free number (83.1 out of 100) and helpdesk (78.4 out of 100) – are high and mostly rising.

As regards the quality factors deemed most significant, the satisfaction indices in the billing sector for “accuracy of amounts” (from 79.7% to 84.4% satisfied) and “clarity and ease of reading” (from 74.6% to 82.8%) increased markedly. The satisfaction indices for “ease in carrying out operations” (80.6%) and “ease of navigation” (83.2%) for the website remained high, albeit with slight reductions compared to last year, taking into account that these reductions were recorded during the second half of the year, which was about the time the new website was activated and is a period in which time is needed for the web users to get used to the new website. As regards the commercial toll free number, the satisfaction indices for “skills of the operator” (84.4%) and “clarity of the replies given” (83.9%, from 78.8% in 2015) both increased. Lastly, for the same factors – skills and clarity of information – the satisfaction indices were also good for the helpdesk, 80.6% and 80.1% respectively (see table 11).

As regards the distribution of electricity (network), the surveys confirmed a very high overall customer satisfaction index (87.7 out of 100). The CSI for the four aspects of the service evaluated are excellent in terms of continuity - technical aspects of the service, with 94.9 out of 100 - , high for scheduled disruptions

(85.2 out of 100) and troubleshooting (87.7 out of 100), while it was lower and fell slightly for technical intervention (75.9 out of 100).

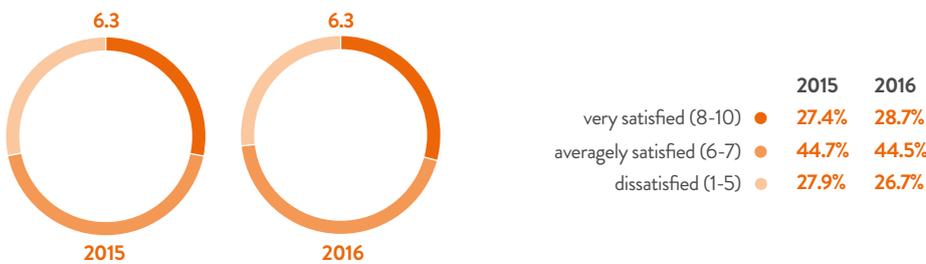
As regards the quality factors deemed most significant, the customer satisfaction index, as an average over the two half years, remained excellent, in the technical aspects sector, for “continuity of service” (94.9%) and “consistency of current” (94.7%); for scheduled disruptions, 85% of those interviewed were satisfied by the “warning time” in the event of disruptions, and 86.6% for the “accuracy of the information on the restoration times” for the service; as regards the troubleshooting aspect, the satisfaction indices for “clarity of the information given” (87.1%) and “courtesy and willingness of the operators” (90.6%) were very high, and lastly, as regards technical intervention, the “rapidity of intervention after request” was still below the threshold of adequacy (68.7% satisfied), while there was again a good appreciation of the “skills of the technicians”, with 82.1% being satisfied (see table 11).

Public lighting service rating

The satisfaction level of citizens as regards the public lighting service was surveyed in April and October 2016, through interviews to 2,400 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-south-east Rome and southwest Rome.

As an average of the two half-yearly surveys and compared to the previous year, the overall rating of the service remained stable in an area with an average satisfaction index (6.3 out of 10), the percentage of those interviewed expressing a satisfactory rating (6-7) remained almost unchanged, while those unsatisfied fell slightly and those very satisfied rose slightly. In truth, the changes are more marked in the breakdown of the two halves of 2016: those averagely satisfied fell from 47.8% in the first half to 41.3% in the second half, and those very satisfied increased from 26.3% to 31.2%.

CHART No. 17 - OVERALL RATING ON PUBLIC LIGHTING IN ROME (2015-2016) (1 to 10 scale)



Note: overall opinions and satisfaction percentages shown in the chart are the average of the two half-yearly surveys.

The inhabitants expressed their rating on the technical aspects of the service and on troubleshooting. The overall satisfaction index for the service was 76 out of 100, as an average over the two half-years, which is good and with a minimal fall compared to last year.

The evaluation of the technical aspects, both those directly concerning the activities of Acea Illuminazione Pubblica and those concerning other operators, improved, with a CSI of 80 out of 100 (77.8 in 2015). The two quality factors deemed most significant among those directly concerning Acea rose and fell slightly: the “continuity of the lighting service”, in other words absence of faults or disruptions, with 72.8% satisfied, and the “uptime and disruptions hours”, with 82.7% satisfied.

Among the aspects that are not the direct responsibility of the company²⁴, both the “presence and capillary nature of services in the city” and the “grade/level of lighting” recorded a satisfaction index of 73.6%, slightly below the threshold value (75%).

As regards troubleshooting, the overall CSI remained good, 77.6 out of 100. The two elements considered most important by those interviewed were the “clarity of the information given” and the “waiting times on the telephone”. In the former case, full satisfaction was reached (79.2%), while the latter, with 71.7% satisfied, remained below the threshold value for the adequacy of the service (75%), albeit improving compared to 68.6% last year (see table 11 for the data and comparison with the previous year).

²⁴ Indeed, public lighting operations in urban territory are carried out on the basis of the instructions given by the Municipality of Rome, for which Acea delivers the service. The lighting intensity of streets, pavements, parks and gardens can also be affected by factors that do not depend on business operations, such as the presence of foliage pending tree pruning.

Water service rating

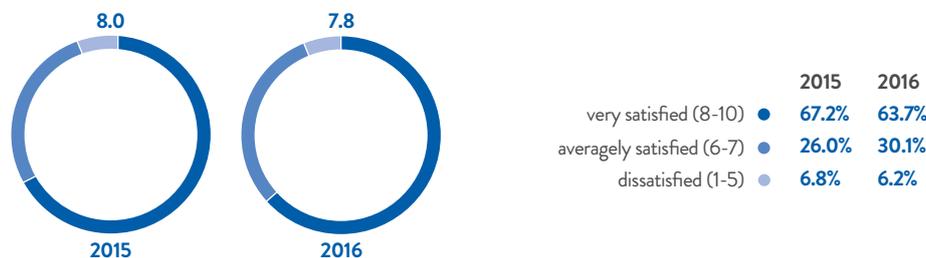
As regards the water service managed in Lazio, the customers in **Acea Ato 2** (Rome and province) and **Acea Ato 5** (Frosinone and province) were satisfied.

In **Rome and Fiumicino**, the surveys were conducted by telephone interview in May/July and November/December 2016. The sample, representing all utilities, was identified in 4 territorial macro areas: central-northern Rome, north-eastern

Rome, southern Rome, south-western Rome and Fiumicino. Overall, the survey involved **3,404 people**, including **household customers**, with or without direct utilities, and **condominium administrators**.

The **overall rating** of the water service, as an average of the two half-yearly surveys, **remained very positive** (7.8 out of 10), with 63.7% of those interviewed being **“very satisfied”**.

CHART No. 18 - OVERALL RATING OF THE WATER SUPPLY SERVICE IN ROME (2015-2016) (1 to 10 scale)



Note: overall opinions and satisfaction percentages shown in the chart are the average of the two half-yearly surveys.

The **summary overall satisfaction index for the service**, as an average of the two half years, was **84.7 out of 100**. The overall CSI for the **“technical aspects”** (continuity) and **“billing”** were very high, 96.2 and 90.2 out of 100 respectively, and the **“commercial toll free number”** (79.9 out of 100) and **“troubleshooting”** (76.3 out of 100) were also good, while the **indices were lower for “technical intervention”** (70 out of 100) and **“helpdesk”** (73.5 out of 100).

The **percentage of customers satisfied with the quality factors** of the water service **considered most significant** in each aspect was particularly **high as regards the technical aspects (continuity 97.1% and pressure level 92.3%)** and the **“billing”** aspect (**“accuracy of amounts”, 92.1%, and “clarity and ease of reading the bill” 82.7% satisfaction**). As regards **“troubleshooting”**, the main quality factor, **“clarity of the information given”**, remained above the adequacy threshold, with a satisfaction index of 75.3%, albeit falling slightly compared to the average index of 76.7% recorded last year, while the **“courtesy and willingness of the operators”**, considered more important than the “waiting

times” in 2016, satisfied 81% of those interviewed. As regards the **“technical intervention”** aspect, the two main quality elements were both rated below the threshold value (75%), slightly or more markedly: the **“rapidity of intervention after request”**, with a satisfaction index of 61.7%, and the **“skill of the technicians”**, with a satisfaction index of 74.6%. The **“skills of the operator”** and **“clarity of the information given”** were the two most significant quality factors for the **“commercial toll free number”** and the **“helpdesk”**, and in both cases, they are well within the limits of complete satisfaction, with indices of around 79%, as regards the “toll free number”, and around 75% as regards the “helpdesk” (see table 11 after this paragraph for the full details).

Lastly, the **in-depth survey of the Acea Ato 2 website²⁵**, conducted among those interviewed who used this channel, showed complete satisfaction with the two main elements: the **“range of operations available on line”**, which rose to a satisfaction index of 77.4% (the average last year was 72.3%) and the **“ease of navigation”**, with a satisfaction index of 76.2%.

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

Customer satisfaction surveys were also conducted in some other municipalities in the province of Rome. The two half-yearly surveys in 2016, conducted in May and 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 **7.2 out of 10**, in line with the previous year.

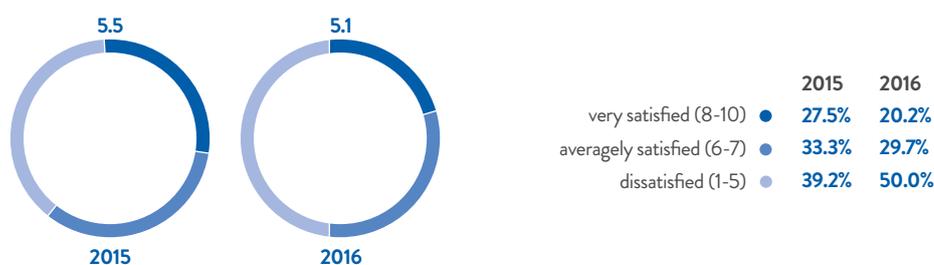
The **overall satisfaction index for the service**, as an average of the two surveys, was **81.5 out of 100**. For the single **aspects** involved in the surveys, the satisfaction indices were **poor** for the **helpdesk** (70.4 out of 100), **troubleshooting** (72.9 out of 100) and the **commercial toll free number** (74.6 out of 100), **albeit all three of them improved compared to last year**, and **very positive** for **technical intervention** (82.9 out of 100), **billing** (85.2 out of 100) and the **technical aspects** (continuity) (90 out of 100).

In the **Frosinone** area, the surveys on the **perceived quality of the water service** were conducted in May/June and December 2016. The telephone interviews involved an overall sample of **3,806 residents** in the municipalities of Optimal Area of Operation 5 – Frosinone, constituted by direct household and non-household connections.

The **global rating** of the water service showed a slight fall, with **5.1 out of 10**. The percentage of those declaring that they were **very satisfied (20.2%)** fell and the percentage of those **unsatisfied rose significantly**.

²⁵ The go live of the Acea website (www.acea.it) occurred on 19 December 2016, with a completely revamped version. The new website involved the incorporation of the various websites of the commercial companies, in both the water sector and the sale of electricity. Customers who register with MyAcea can now access any of the utilities they have with companies in the Group. See the paragraphs *Communications* and *Customer care*.

CHART No. 19 - OVERALL RATING OF THE WATER SUPPLY SERVICE RUN BY ACEA ATO 5 (2015-2016) (1 to 10 scale)



Note: overall opinions and satisfaction percentages shown in the chart are the average of the two half-yearly surveys.

The **overall satisfaction index for the service**, as an average of the two half yearly surveys, was **72.7 out of 100**. As regards the six aspects of the service surveyed, the CSI are very good for **troubleshooting (87.7 out of 100)**, **technical intervention (90 out of 100)**, **commercial toll free number (87.3 out of 100)** and **helpdesk (81.1 out of 100)**, while they are low for **technical aspects or continuity (66.6 out of 100)** and **billing (60.8 out of 100)**.

The **percentage of those interviewed who were satisfied** with the **quality elements** of the service deemed most significant in the **technical aspects** area are below the threshold value for satisfaction (75%) for the **“continuity of service”** and the **“water pressure level”**, 65.9% and 69.5% respectively, and in the **billing** aspect, for the **“accuracy of amounts”** (57.6%) and the **“clarity and ease of reading the bill”** (64.1% satisfaction). Contrarily, the **satisfaction indices are very high** for the factors of **“clarity of the information given”** (88%) and **“courtesy and willingness**

of the operator” (90%), as regards the **troubleshooting** factor, and similarly, in the **technical intervention** aspect, for the **“rapidity of intervention after request”** (84.3%) and the **“skill of the technicians”** (92.3% satisfaction). The results for the **commercial toll free number** are also excellent, with a satisfaction index of 89.8% for the **“skill of the operator”** and 87.8% for the **“clarity of the information given”**. As regards the **helpdesk** aspect, the **“waiting times”** still do not reach the satisfaction threshold limit, albeit with an increased satisfaction index of 63%, while the satisfaction index for the **“skill of the operator”** is high, 87.2% (see table 11).

Lastly, there is **complete satisfaction**, shown in a specific in-depth survey conducted during the first half year, with the most significant quality elements of the **website**: the **“ease of navigation”**, with a satisfaction index of 92.5%, and the **“thoroughness of the information available on the website”**, with a satisfaction index of 91%.

TABLE No. 11 - SOCIAL INDICATORS: CUSTOMER SATISFACTION (2015-2016)

(average of the two half-yearly surveys)	U.M.	2015	2016
ELECTRICITY SERVICE - ENERGY SALE (Rome and Formello)			
ENHANCED PROTECTION MARKET CUSTOMERS			
Sales activity (overall CSI)	0-100	83.5	82.1
Service dimensions and quality factors			
Billing	0-100	84.4	86.8
<i>Accuracy of amounts shown</i>	%	86.3	86.9
<i>Clarity and ease of reading</i>	%	80.6	83.6
Website	0-100	84.3	82.8
<i>Ease of navigation</i>	%	83.3	84.1
<i>Thoroughness of the information present</i>	%	85.6	81.8
Commercial toll free number	0-100	84.0	77.9 ▼
<i>Skill of the operator</i>	%	83.7	77.0 ▼
<i>Clarity of the replies given</i>	%	84.0	76.0 ▼
Helpdesk	0-100	79.8	80.6
<i>Skill of the operator</i>	%	84.8	84.7
<i>Clarity of the information given</i>	%	84.8	82.9
FREE MARKET CUSTOMERS			
Sales activity (overall CSI)	0-100	80.0	83.0
Service dimensions and quality factors			
Billing	0-100	80.2	84.6
<i>Accuracy of amounts shown</i>	%	79.7	84.4 ▲
<i>Clarity and ease of reading</i>	%	74.6	82.8 ▲
Website	0-100	86.5	82.8
<i>Ease of carrying out operations</i>	%	85.5	80.6 ▼
<i>Ease of navigation</i>	%	86.8	83.2
Commercial toll free number	0-100	80.5	83.1
<i>Skill of the operator</i>	%	80.0	84.4

(average of the two half-yearly surveys)	U.M.	2015	2016	
Clarity of the replies given	%	78.8	83.9	▲
Helpdesk	0-100	75.9	78.4	
Skill of the operator	%	82.2	80.6	
Clarity of the information given	%	81.1	80.1	
ELECTRICITY SERVICE – ENERGY DISTRIBUTION (Rome and Formello)				
Distribution activity (overall CSI)	0-100	88.4	87.7	
Service dimensions and quality factors				
Technical aspects of the service	0-100	95.1	94.8	
Service continuity	%	94.4	94.9	
Consistency of the voltage	%	93.8	94.7	
Scheduled disruptions	0-100	90.9	85.2	▼
Warning time for the service disruptions	%	88.8	85.0	
Accuracy of information on the restoration times	%	89.7	86.6	
Troubleshooting	0-100	83.5	87.7	
Clarity of the information given	%	82.6	87.1	
Courtesy and willingness of the operator	%	85.5	90.6	▲
Technical intervention	0-100	77.3	75.9	
Rapidity of intervention after request	%	69.7	68.7	
Skill of the technicians	%	81.8	82.1	
PUBLIC LIGHTING SERVICE (Rome and Formello)				
Lighting service (overall CSI)	0-100	77.3	76.0	
service dimensions and quality factors				
Technical aspects of the service	0-100	77.8	80.0	
<i>(directly concerning Acea)</i>				
Service continuity	%	71.9	72.8	
Uptime and disruptions hours	%	83.4	82.7	
<i>(not directly concerning Acea)</i>				
Presence/capillary nature of the lighting service in the city	%	75.2	73.6	
Grade/level of lighting (intensity)	%	72.3	73.6	
Troubleshooting	0-100	79.0	77.6	
Clarity of the information given	%	77.9	79.2	
Waiting times on the telephone	%	68.6	71.7	
WATER SERVICE – WATER SUPPLY – ACEA ATO 2 (Rome and Fiumicino)				
Water service (overall CSI)	0-100	86.0	84.7	
Service dimensions and quality factors				
Technical aspects of the service	0-100	96.9	96.2	
Service continuity	%	97.3	97.1	
Water pressure levels	%	93.5	92.3	
Billing	0-100	87.1	90.2	
Accuracy of amounts shown	%	86.8	92.1	▲
Clarity and ease of reading	%	86.1	87.2	
Troubleshooting	0-100	75.6	76.3	
Clarity of the information given	%	76.7	75.3	
Courtesy and willingness of the operator	%	79.9	81.0	
Technical intervention	0-100	71.2	70.0	
Rapidity of intervention after request	%	59.2	61.7	
Skill of the technicians	%	79.7	74.6	▼
Commercial toll free number	0-100	82.4	79.9	
Skill of the operator	%	81.8	79.6	
Clarity of the replies given	%	81.5	79.3	
Helpdesk (*)	0-100	85.8	73.5	▼
Skill of the operator	%	88.0	75.2	▼

(average of the two half-yearly surveys)	U.M.	2015	2016	
Clarity of the information given	%	88.0	75.0	▼
WATER SERVICE – WATER SUPPLY – ACEA ATO 5 (municipalities in ATO 5 area - Frosinone)				
Water service (overall CSI)	0-100	74.7	72.7	
service dimensions and quality factors				
Technical aspects of the service	0-100	72.9	66.6	▼
Service continuity	%	70.5	65.9	▼
Water pressure levels	%	73.6	69.5	
Billing	0-100	64.7	60.8	
Accuracy of amounts shown	%	57.0	57.6	
Clarity and ease of reading	%	66.8	64.1	
Troubleshooting	0-100	83.8	87.7	
Clarity of the information given	%	84.1	88.0	
Courtesy and willingness of the operator	%	87.3	90.0	
Technical intervention	0-100	86.3	90.0	
Skill of the technicians	%	91.0	92.3	
Rapidity of intervention after request	%	77.8	84.3	▲
Commercial toll free number	0-100	81.1	87.3	▲
Skill of the operator	%	80.2	89.8	▲
Clarity of the replies given	%	82.6	87.8	▲
Helpdesk	0-100	82.1	81.1	
Skill of the operator	%	92.5	87.2	▼
Waiting times	%	54.4	63.0	▲

Note: the table includes **only quality factors that the sample interviewed deemed to be most important in 2016**; this may imply consequent changes being made to the 2015 column. Furthermore, in the right hand column, there are **significant differences, equal to 5 points or more**. In any event, it must be taken into consideration that the value indicating adequate customer satisfaction is 75% or more (threshold value).

(*) For the “helpdesk” quality factor, water service (Rome and Fiumicino), the rating recorded in **2015** only concerned the first half year, given that it had not been possible to repeat the survey for technical reasons. However, in **2016**, the data included in the table is the average of the two half yearly surveys.

QUALITY PROVIDED

Through the operators managing the services, Acea ensures that the **infrastructures (network and systems) are renewed 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. Focus is also given to the processes **making the customer contact channels and the management of the commercial aspects more efficient**.

In particular, the Group is **strongly customer oriented**, focusing especially on the **development potential offered by the digital era**. In 2016, the implementation of the **Acea2.0 project** was nearly completed, from which the evolution of the key operating processes of the Group is expected, with a significant impulse for the general improvement of service quality. The project also includes the introduction of Workforce Management (WFM), which makes possible the availability and management of a large amount of data, **facilitating the monitoring and analysis of performance levels**, aimed at controlling the quality of the services provided and the identification of improvements.

Some factors of the “**quality provided**” 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 **Authority for electricity, gas and the water system (AEEGSI)** and by the local Authorities.

In particular, at the end of 2015, the Authority published **resolution 655/2015/R/Idr²⁶**, which, similarly to that in force for some time in the electricity sector, establishes the **specific and general levels of contractual quality in the water service**, identifying the maximum times and minimum quality standards, **the same nationwide**, for the services to be guaranteed to the users. The resolution identifies quality **standards for the start and termination of contractual relations** (estimates, cancellations, reactivations and takeovers) for the **management phase** (estimates and execution of works and connections), for the **billing and payment methods**, for **replies to written requests from users** (complaints, requests for information and billing corrections), for **appointments, meter and pressure level checks**, and for the management of the **helpdesk, online helpdesk and call center**. **As regards the services that are subject to specific quality standards, automatic indemnities are envisaged**, to be recognised to users in the event of failure to respect the times given for service performance. As regards the services subject to general standards, the failure to respect them for two consecutive years may constitute a presupposition for the implementation of sanctions against the manager. The resolution also defines the methods of registration, communication and verification of the data concerning the services provided by the operators on request by the users. The new contractual quality regulation **came into force on 1 July 2016**, except for the quality of telephone services, the increase in the automatic indemnities in the event of failure to respect the standards for an extended

²⁶ Regulation of contractual quality of the integrated water service or of each of the single services it is made up of (RQSII).

period of time and the communication of data and information to the Authority and the Sector Government Authority (EGA) (envisaged on 31 March each year) and the end user (30 June each year). The resolution will **come into force on 1 January 2017** for these matters.

In the **electricity sector**, the **5th regulatory period 2016-2023** came into force during the year, concerning both the **quality²⁷** and the **tariff regulation²⁸ of the distribution, metering and transmission services, with the extension of the timeframe of the plan disciplined by the Authority from four to eight years.** As regards the commercial aspects during the year, the Authority published **resolution 413/2016/R/com²⁹**, Annex A of which is the *Integrated text of the regulation of the quality of services for the sale of electricity and gas*, which will **come into force on 1 January 2017³⁰**.

Of the other significant measures emanated during the year and applicable from 2017, the following are worthy of note: resolution 327/2016/R/eel, which deferred the terms for the **separation of the brand and communications policies**

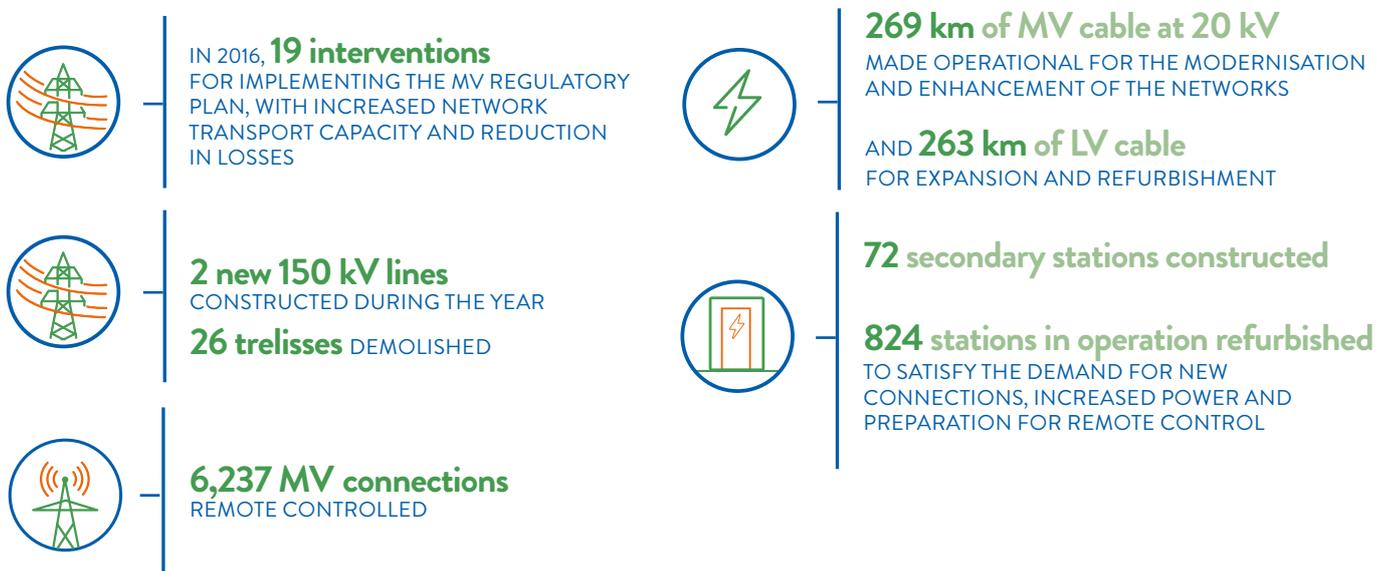
(debranding) for companies operating in the **sale of energy**, both on the **free market** and on the **enhanced protection market**, and resolution 782/2016/R/eel, which introduced for household customers a **non-progressive tariff for the network services** (transmission, metering and distribution costs) included in the bill.

As regards the debranding of electricity distribution activities from the sales activities, on the basis of resolution 296/2015/R/com, Acea Distribuzione SpA changed its brand and business name to Areti SpA on 30 June 2016.

The company is bound to respect the quality parameters defined by the counterparties, which envisage incentive systems, **with rewards in the event of good performance and sanctions in the event of failure to respect the standards.**

Lastly, both Acea SpA and the operators, as specified later on in this document, operate according to **Certified management systems** (see also *The corporate identity*, paragraph on *Management systems*).

Quality in the energy area



Areti³¹, in its capacity as owner of a Ministerial licence, operates the **electricity distribution service in Rome and Formello**. It plans and carries out **modernisation and extension work for its infrastructure**, comprising **high, medium and low voltage electricity lines, stations and substations, systems for remote control and for measuring energy** withdrawn from and fed into the network.

The company operates in compliance with procedures under the **QASE (Quality, Environment, Safety and Energy) Management System certified according to UNI EN ISO and OHSAS Standards** (see also *The corporate identity and Management systems*).

Every year, Areti carries out **work on the infrastructure**, aimed at **improving service quality and increasing the energy efficiency of the networks**. This work is carried out in compliance with the concession, sector regulations and service requirements, especially for the connection of new customers, related to

urban expansion and the increase in electricity applications. **Technological innovation projects** also continued during the year.

In the framework of the **progressive implementation of the MV Regulatory Plan**, in 2016, Areti started a total of **19 interventions** (14 to the north and 5 to the south of Rome). The Plan envisages the **realisation of new main lines** aimed at **rationalising and enhancing the network** and simultaneously **implementing a change of voltage from 8.4 kV to 20 kV**. The change to a higher voltage **significantly increases the transport capacity of the network**, ensuring a residual power margin for new connections, and **reduces the physical loss of energy and falls in voltage.**

Each year, infrastructure management and development endeavours are carried out, involving **construction, extension, transformation, modernisation, upgrading, decommissioning** - and, as a result, reduction of environmental impacts in specific areas - **measuring, protection, everyday and extraordinary**

²⁷ TIQE – Output-based regulation of the distribution and metering of electricity (Annex A to resolution 646/15/R/eel).

²⁸ TIT – Dispositions for the supply of transmission and distribution services, TIME – Dispositions for the supply of the metering service and TIC – Economic conditions for the supply of the connection service (Annexes A, B and C to resolution 654/15/R/eel).

²⁹ *New integrated text for the regulation of the commercial quality of sales services and amendments to the regulation of the commercial quality of distribution services for electricity and natural gas, the commercial code of conduct and the 2.0 bill.*

³⁰ Replacing Annex A to resolution ARG/com 164/08.

³¹ In compliance with the dispositions of the sector Authority and obligations concerning separation of identity, brand and communications policies envisaged, respectively, by paragraph 23.3 and paragraph 38.2 of Legislative Decree no. 93/11, Acea Distribuzione became Areti SpA on 1 July 2016.

maintenance operations on stations and substations, high voltage (HV) lines as well as low and medium voltage (LV and MV) networks. This is functional to the capillary distribution of

electricity and improving the service, especially in terms of the availability and continuity of supplies. **The main interventions carried out in 2016 are described in the relevant box.**

MAIN ACTIONS FOR THE OPERATION AND DEVELOPMENT OF ELECTRICITY NETWORKS AND STATIONS

HV LINES AND PRIMARY STATIONS

X

During the year, **the following were constructed:** the **new 150 kV line** called **Cassia-Flaminia/O** (4.7 km of overhead lines and 0.4 km of underground lines) and the **new 150 kV line** called **Bufalotta-Roma Nord** (about 3 km of overhead lines and 1.6 km of underground lines), which will enable respectively the **demolition** of the current Cassia-Roma Nord overhead line, totalling **9.8 km**, and the current Bufalotta-Flaminio/O overhead line, totalling **9.2 km**. Areti has also completed the work on the former 60 kV Vitinia-Lido Vecchio line, **demolishing the last 26 pylons**. The design phase of the new HV 150 kV line called Stazione Roma Nord-San Basilio was also started in 2016.

The **adjustment, expansion and reconstruction of 19 primary stations** was also carried out.

The installation of the **Petersen system**, which has significant **positive effects on the reduction of network faults**, was started at the Monte Mario/O primary station and **completed in 5 other stations**, where the existing system has been expanded.

Lastly, the following were carried out: **everyday and extraordinary maintenance** on the primary stations equipment and, especially, on **12 HV interrupters; scheduled maintenance on 711 MV interrupters; the overhaul of 13 on-load tap changers** of power transformers. **45 HV voltage transformers** and **15 HV current transformers** were replaced.

PROTECTION AND MEASURES FOR MV AND HV LINES

X

Technical operations were carried out to arrange, calibrate and commission **power protection systems for 71 new MV line bays** and on **the electrical protection systems** present in the primary stations for operation testing purposes (69 HV towers, 183 MV towers, 7 HV/MV and MV/MV transformers and 15 automatic load balancers).

4 network analysers were installed to check the voltage quality at the same number of MV customer locations.

Ground resistance was measured in 3,150 substations and step and touch voltage measurements and total ground resistance measurements were carried out at 17 primary stations and 22 substations.

MV AND LV LINES

X

For the **modernisation and and enhancement of the network**, gradually changing from 8.4 kV to 20 kV, about **269 km of 20 kV MV cables were deployed** in 2016 (242 km for refurbishment and 27 km for expansion).

As part of the **extraordinary maintenance of MV overhead lines**, helicopter inspections were carried out **on the entire network of overhead MV lines**, which led to timely interventions for the replacement of equipment, supports, conductors, etc.

Expansion and refurbishing work aimed at replacing obsolete parts or upgrading inadequate parts **entailed deploying about 263 km of LV cable**, 39 km for network expansion, while on the remaining 224 km, refurbishment was carried out as part of the plan for the overall modernisation of the LV network, required for the subsequent **voltage change** on the LV network, from 220 V to 380 V.

SUBSTATIONS (MV AND LV) AND REMOTE CONTROL

X

To meet the applications for new connections to the grid and voltage increase filed by existing customers, **72 substations were built or extended**. **824 operating stations were (totally or partially) rebuilt to upgrade them to 20 kV, make them remote control-ready or upgrade their equipment.**

Furthermore, the following activities were completed on substations: **135 extraordinary maintenance operations** and **2,205 inspections** to check the maintenance and operating status of equipment and premises and to begin the required everyday maintenance operations.

Remote control was extended to a further 259 substations and 42 reclosers, with **remote controlled MV nodes totalling 6,237 units** at 31/12/2016. Lastly, 3,304 maintenance operations were completed.

Taking into account the **initiatives proposed by the national institutional authorities** and the **opportunities offered by the European Community**, Areti continues to develop several projects, also with other industrial entities, involving research and **application of innovative technology**. Specifically, these were in the frameworks of the “**smart grid**”, **advanced network management systems, their resilience, distributed storage** and “**smart city**” (see the chapter on *Institutions and the Company*).

As regards the project connected to the development of **electric mobility in Rome**, following agreements entered into and finalised by Acea Distribuzione (now Areti SpA), Enel and the Municipality of Rome in past years, **the project continued** and, in 2015, Areti **participated in the procedure for obtaining authorisations** (Services Conference) **for installing 88 charging**

stations, to supplement the first 12 stations installed and made operational in 2013. These activities can continue following the go-ahead given by the Archaeology Inspectorate and the renewal of the above agreements.

Work continued in 2016 for the **expansion of the “ultra-broadband” optical fibre communications network**, with 100 Megabit per second internet connections **in Rome**, as envisaged by the **agreement protocol**, renewed in 2015, between Acea, Telecom, Fastweb and Vodafone. At **31 December 2016**, Areti had **activated 8,900 new electricity supply points**, totalling about 145 km of excavation, using the application of techniques minimising the environmental impact of installing the infrastructures.

With regard to **digital meters** and **smart metering systems**, in

2016, Areti continued the in-depth technical surveys linked to the development and consolidation of the new standards being endorsed in Europe. For example, an **in-depth study of the standard protocols envisaged in Europe** was conducted, and especially on the so-called “G3-PLC” protocol, considered to be **one of the most promising**. Areti thus started a **pilot project** making use of this technology and the initial tests aimed at **evaluating the co-existence of the new digital meter technology and those currently in use**. The company has also **implemented several pilot projects concerning the Multiservice Smart Metering systems**, especially that for the water sector. These projects will be completed in 2017.

The installation of remotely controlled digital counters continued for **low voltage connections, totalling 1,604,681 meters installed on low voltage connections at 31/12/2016**, amounting to 99.3% of the total LV connections.

The quality levels regulated by the AEEGSI

The electricity service quality standards as related to **commercial aspects** (i.e., quotes, work, supply activation/deactivation, replies to complaints) and **technical aspects** (supply continuity) are **established** at a national level by the **Authority for Electricity, Gas and Water (AEEGSI)**, which reviews them on a regular basis, gradually introducing more stringent standards.

As already mentioned, **2016 saw the start of the new regulatory cycle** for the quality of **distribution, metering and transmission services for the 5th regulatory period 2016-2023** (see the beginning of the paragraph *Quality delivered*).

The 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 performances.

The **commercial quality** aspects of the service consist of “**specific**” levels and “**general**” levels³², applicable to the operations pertaining to the electricity **distribution company** (divided into low and medium voltage supplies) as well as operations pertaining to the **selling company** (see Tables 12, 13 and 14). A quality criterion also governs the timely communication of technical data between the energy distributor and seller (see Table 12). Every year **Acea submits the results achieved to the AEEGSI for review and then notifies such results to its own customers**, as required, by enclosing them with the bill.

Electricity distribution and metering operations are carried out by **Areti; 2016 performance** pertaining to the “**specific**” levels of **commercial quality** regarding both low voltage supplies to household and non-household customers as well as medium voltage supplies showed, in many cases, a fall in performance levels, mainly due to the need to calibrate the new IT systems introduced during the year, albeit remaining, with the sole exception of the replacement of the fault measurement group, within the margins of the maximum time laid down by the

standards, with an improvement during the course of the year. Also as regards the “general” levels, which only replies to written complaints are now part of, the significant fall in performance levels is related to the need to calibrate the new IT systems, which is currently being resolved (see table 12 at the end of this section). The system contemplates automatic compensation³³, to be granted to customers in the event of failure to comply with “specific” quality levels starting from a basic amount³⁴, 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).

With regard to the sales activities subject to regulation, following the innovative transformation process aimed at achieving a radical development of the performance of the company in all contact channels undertaken in 2016, **Acea Energia has improved its percentages of compliance with the quality standards**. In particular, it should be noted that there has been a significant improvement in compliance with the “specific” quality standards and an enhancement of the compliance levels required by the AEEGSI for the “general” standards on both the free market and the enhanced protection market (see Table 13 at the end of this section).

The **Authority** also defines and updates the benchmark parameters of service “**technical**” quality³⁵, relating to **electricity supply continuity**, contemplating an incentive system for the operator (bonuses and fines) and compensation for customers. It should be stressed that the **continuity indicators** relating to 2016 are those stated by the AEEGSI and are still pending certification³⁶.

The figures shown in Table 14 indicate **positive results** for the performance of Areti in in all concentration areas, **with regard to both the duration of disruptions and the number of disruptions** for LV users.

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 own equipment³⁷ in the event of a **number of disruptions in the supply of electricity exceeding that stated by a specific standard**. **19 MV users were indemnified** during the course of 2016.

Moreover, lasting or extensive disruptions, in other words **service disruptions the duration of which exceeds the agreed 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 Equalisation Fund for the electricity sector. In addition, the distributor will automatically indemnify customers affected by disruptions. **19 MV customers and 16,089 LV customers** were indemnified during the course of 2016.

³² “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. “General quality standards” are defined as the minimum percentage of services to be provided within a given deadline.

³³ Compensation as pursuant to the Authority’s 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.

³⁴ The amount currently set by the Authority starts from a basic amount of 35 euros for household low voltage customers; 70 euros for non-household low voltage customers and 140 euros for medium voltage customers.

³⁵ Resolution 654/15/R/eel.

³⁶ Once the data has been verified, the Authority will publish it and make it available on its website (www.autorità.energia.it).

³⁷ 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 Equalisation Fund for the Electricity Sector.

TABLE No. 12 - SOCIAL INDICATORS: SPECIFIC AND GENERAL LEVELS OF COMMERCIAL QUALITY - ENERGY DISTRIBUTION (2015-2016) - (AEEGSI parameters and Areti performance; data submitted to the AEEGSI)

ENERGY DISTRIBUTION

SPECIFIC LEVELS OF COMMERCIAL QUALITY

PERFORMANCE	AEEGSI PARAMETERS - Max. time for service delivery	Service delivery average actual time	Percentage of services carried out within time limit	Service delivery	Percentage of
				average actual time	services carried out within time limit
		2015	2016		
LOW VOLTAGE (LV) SUPPLIES					
HOUSEHOLD CUSTOMERS			ARETI PERFORMANCE		
Estimates for work on LV networks (ordinary connections)	15 business days	7.09	99.06%	11.19	82.53%
Completion of simple work (ordinary connections)	10 business days	5.00	99.78%	8.38	80.83%
Completion of complex work (*)	50 business days	(.)	(.)	15.76	92.00%
Supply activation	5 business days	1.27	99.75%	2.02	95.70%
Deactivation of supply on customer's request	5 business days	0.82	99.85%	1.09	97.13%
Reactivation of supply following disconnection for late payment	1 business days	0.19	99.73%	0.29	97.72%
Resumption of the supply following faults of the metering equipment (requests sent during business days from 08:00 to 18:00 hrs.)	3 hours	2.78	81.03%	1.87	87.17%
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	2.35	89.86%	1.88	92.31%
Notification of outcome of metering equipment check on customer's request	15 business days	9.41	89.29%	9.84	88.43%
Notification of outcome of voltage supply check on customer's request	20 business days	28.00	0.00%	19.00	100.00%
Maximum punctuality band for appointments with customers	2 hours	/	99.82%	/	83.83%
Replacement of faulty metering equipment	15 business days	10.89	99.42%	17.71	76.68%
Resumption of correct supply voltage	50 business days	12.00	100.00%	/	/
Estimates for work on LV networks (temporary connections)	10 business days	/	/	/	/
Completion of simple work (temporary connections not exceeding 40 kW)	5 business days	/	/	/	/
Completion of simple work (temporary connections exceeding 40 kW)	10 business days	/	/	/	/
NON-HOUSEHOLD CUSTOMERS			ARETI PERFORMANCE		
Estimates for work on LV networks (ordinary connections)	15 business days	7.11	99.36%	10.38	86.73%
Completion of simple work (ordinary connections)	10 business days	4.53	99.81%	6.04	88.22%
Completion of complex work (*)	50 business days	(.)	(.)	12.55	94.98%
Supply activation	5 business days	1.27	99.69%	2.64	93.07%
Deactivation of supply on customer's request	5 business days	2.43	99.30%	1.64	95,85%
	95.85%	0,19	99.69%	0.33	97.38%
Reactivation of supply following disconnection for late payment	1 business day	0.19	99.69%	0.33	97.38%
Resumption of the supply following faults of the metering equipment (requests sent during business days from 08:00 to 18:00 hrs.)	3 hour	2.95	78.33%	2.26	81.07%
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	2.41	88.85%	2.08	90.62%
Notification of outcome of metering equipment check on customer's request	15 business days	8.84	90.75%	9.02	90.84%
Notification of outcome of voltage supply check on customer's request	20 business days	47.67	0.00% data refers to one procedure only	/	/

(continued) LOW VOLTAGE (LV) SUPPLIES**(continued) HOUSEHOLD CUSTOMERS****ARETI PERFORMANCE**

Maximum punctuality band for appointments with customers	2 hours	/	99.85%	/	87.24%
Replacement of faulty metering equipment	15 business days	9.20	99.43%	16.13	79.49%
Resumption of correct supply voltage	50 business days	/	/	/	/
Estimates for work on LV networks (temporary connections)	10 business days	3.28	98.64%	5.34	90.85%
Completion of simple work (temporary connections not exceeding 40 kW)	5 business days	2.07	99.73%	4.08	88.15%
Completion of simple work (temporary connections exceeding 40 kW)	10 business days	2.34	99.36%	3.67	100.00%

MEDIUM VOLTAGE (MV) SUPPLIES**END CUSTOMERS****ARETI PERFORMANCE**

Estimates for work on MV networks	30 business days	16.94	85.71%	30.83	86.67%
Completion of simple work	20 business days	5.07	100.00%	23.33	83.33%
Completion of complex work (*)	50 business days	(.)	(.)	22.00	100.00%
Supply activation	5 business days	3.10	100.00%	5.90	77.78%
Deactivation of supply on request	7 business days	2.63	100.00%	8.69	84.00%
Reactivation of supply following disconnection for late payment	1 business day	0.41	100.00%	6.83	50.00%
Notification of outcome of metering equipment check on customer's request	15 business days	6.32	100.00%	9.13	75.00%
Notification of outcome of voltage supply check on request	20 business days	57.50	33.33%	/	/
Maximum punctuality band for appointments with customers	2 hours	(.)	100.00%	/	81.44%
Replacement of faulty metering equipment	15 business days	0.56	100.00%	/	/
Resumption of correct supply voltage	50 business days	/	/	/	/

COMMUNICATION OF TECHNICAL DATA BY DISTRIBUTOR TO SELLER (*)

Technical data (that can be obtained by reading a metering system)	10 business days from receipt of request	21.54	58.74%	6.57	90.42%
Technical data (that cannot be collected by reading a metering system)	15 business days from receipt of request	9.32	96.61%	13.81	77.01%

GENERAL LEVELS OF COMMERCIAL QUALITY

PERFORMANCE	AEEGSI PARAMETERS - Minimum percentage of services to be provided within max. time limit	Service delivery average actual time	Percentage of services provided within max. time limit.	
			2015	2016

LOW VOLTAGE (LV) SUPPLIES**HOUSEHOLD CUSTOMERS****ARETI PERFORMANCE**

Reply to written complaints/enquiries regarding distribution operations	95% within 30 calendar days	17.29	99.22%	29.99	70.20%
Reply to written complaints/enquiries regarding metering operations	95% within 30 calendar days	32.06	58.33%	66.92	49.94%

NON-HOUSEHOLD CUSTOMERS**ARETI PERFORMANCE**

Reply to written complaints/enquiries regarding distribution operations	95% within 30 calendar days	18.40	98.97%	33.22	68.99%
Reply to written complaints/enquiries regarding metering operations	95% within 30 calendar days	33.51	53.43%	67.64	43.42%

MEDIUM VOLTAGE (MV) SUPPLIES**END CUSTOMERS****ARETI PERFORMANCE**

Reply to written complaints/enquiries regarding distribution operations	95% within 30 calendar days	6.85	99.77%	11.40	92.59%
Reply to written complaints/enquiries regarding metering operations	95% within 30 calendar days	34.25	50.00%	76.23	38.46%

(*) In the new regulatory period, this standard, which was a general standard until 2015, is included among the specific quality standards.

(.) Not applicable.

The “/” symbol is used for those cases in which service was not required during the year.

TABLE No. 13 - SOCIAL INDICATORS: SPECIFIC AND GENERAL LEVELS OF COMMERCIAL QUALITY - ENERGY SALE (2015-2016) - (AEEGSI parameters and Acea Energia performance; data submitted to the AEEGSI)

ENERGY SALE

SPECIFIC LEVELS OF COMMERCIAL QUALITY (*)

PERFORMANCE	AEEGSI PARAMETERS - Max. time for service delivery	Percentage of services carried out within time limit	
		2015	2016
ENHANCED PROTECTION SERVICE			
ACEA ENERGIA PERFORMANCE			
Billing adjustments	90 calendar days	64.0%	100.0%
Double billing adjustments	20 calendar days	42.9%	88.9%
Reasoned reply to written complaints	40 calendar days	85.2%	93.2%
FREE MARKET			
ACEA ENERGIA PERFORMANCE			
Billing adjustments	90 calendar days	93.2%	100.0%
Double billing adjustments	20 calendar days	20.4%	/
Reasoned reply to written complaints	40 calendar days	65.6%	91.7%
GENERAL LEVELS OF COMMERCIAL QUALITY			
PERFORMANCE	AEEGSI PARAMETERS - Minimum percentage of services to be provided within max. time limit.	Percentage of services provided within max. time limit	Percentage of services provided within max. time limit
ENHANCED PROTECTION SERVICE			
ACEA ENERGIA PERFORMANCE			
Reply to written enquiries	95% within 30 calendar days	97.6%	99.5%
Reply to written requests for billing adjustments	95% within 40 calendar days	96.4%	96.2%
FREE MARKET			
ACEA ENERGIA PERFORMANCE			
Reply to written enquiries	95% within 30 calendar days	96.9%	99.5%
Reply to written requests for billing adjustments	95% within 40 calendar days	95.8%	96.9%

(*) In the event of failure to meet the standards, enhanced protection service customers (mainly households and small businesses) will receive an automatic compensation of 20 euros.

The “/” symbol is used for those cases in which service was not required during the year.

TABLE No. 14 - SOCIAL INDICATORS: SERVICE CONTINUITY DATA - ENERGY DISTRIBUTION (2014-2016) - (AEEGSI parameters and Areti performance: data certified by AEEGSI; 2016: provisional data submitted to AEEGSI pending certification)

ENERGY DISTRIBUTION - CONTINUITY INDICATORS - LV CUSTOMERS

DURATION OF DISRUPTIONS AND IMPROVEMENT PERCENTAGES

PERFORMANCE	Average aggregate duration of lasting disruptions without prior notice due to operator's fault affecting LV customers per year (minutes)			Improvement percentage	
	2014	2015	2016	2016 vs. 2014	2016 vs. 2015
High concentration	30.23	34.55	27.88	-7.8%	-19.3%
Medium concentration	54.73	49.70	31.46	-42.5%	-36.7%
Low concentration	51.51	58.38	45.76	-11.2%	-21.6%

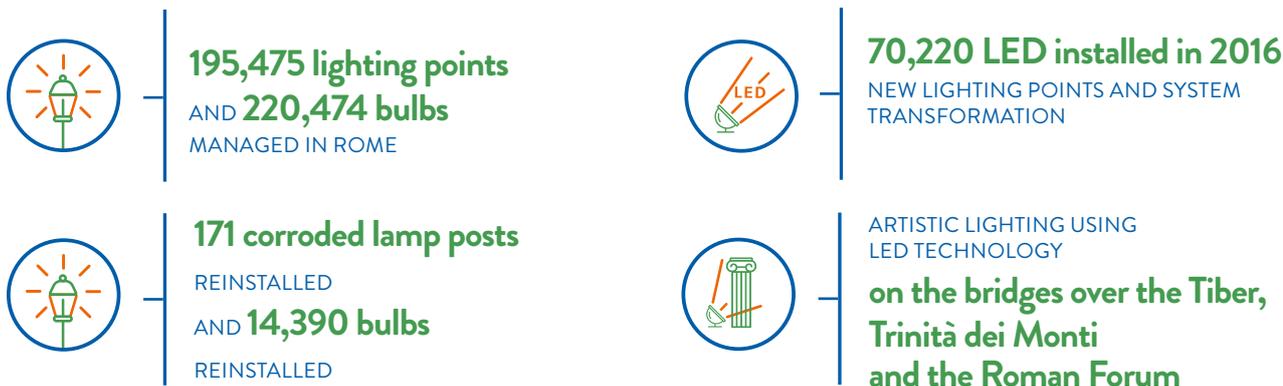
AVERAGE NUMBER OF DISRUPTIONS AND IMPROVEMENT PERCENTAGES (*)

PERFORMANCE	Average number of disruptions without prior notice due to operator's fault affecting LV customers per year			Improvement percentage	
High concentration	1.44	1.74	1.42	-1.2%	-18.2%
Medium concentration	3.30	2.79	1.67	-49.3%	-40.0%
Low concentration	3.97	3.46	2.51	-36.8%	-27.5%

(*) The yearly average number of disruptions per LV customer takes into account both lasting disruptions (>3 minutes) as well as short disruptions (≤ 3 minutes but exceeding 1 second).

Note: 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 “average concentration”; less than 5,000 inhabitants is defined as “low concentration”.

Quality in the public lighting area



Throughout 2016³⁸, **Acea Illuminazione Pubblica** managed the **functional and monumental artistic public lighting system of Rome**, covering an area of approximately 1,300 km², equivalent to 7 times that in Milan, by virtue of the *Service Agreement*³⁹ between Acea SpA and Roma Capitale. The company is responsible for the **design, construction, operation, maintenance and restoration of networks and plants** 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** (see also *The corporate identity and Management systems*).

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 delivering the service for the Municipality of Rome, the Company makes its know-how available to other stakeholders.

ACEA 2.0

WFM (Workforce Management) in operating management was implemented in 2016, and this made possible **the assignment and reporting of field operations in real time**, through the adoption of new centralised information systems.

TABLE No. 15 – PUBLIC LIGHTING IN ROME IN FIGURES (2016)

No. of lighting points	195,475 (+0.15% compared to 2015)
No. of monumental artistic lighting points	• approximately 10,000
No. of bulbs	220,474 (+0.14% compared to 2015)
MV and LV grid (km)	7,844 (+0.11% compared to 2015)

The major public lighting operations in 2016 in the functional, artistic and monumental domain included the transformation of about 68,500 lighting points as part of the **LED Plan**, the expansion and modernisation of the lighting system in **Piazza dei Cinquecento**, the large area in front of Termini Station, the lighting of the **Bridges over the Tiber, Trinità dei Monti** and the new artistic lighting system in the archaeological area of the **Roman Forum** (see the specific boxes below).

In June 2016, the agreement was signed with Roma Capitale for the **transformation into LEDs of public lighting in the**

city. The activities for the installation of the light bulbs were **started in July and will terminate by the end of 2017, with the replacement of a total of 186,000 light bulbs.**

All operations are managed **through an interactive system for acquisition on an area basis implemented by the Company** in order to **obtain a census of all the LED lights that have been transformed**, thus enabling the **acquisition and updating of the status of the lighting points** and their equipment **in real time**, during installation operations using mobile devices connected to the network.

LED PLAN STARTED IN ROME

X

The **LED Plan** for the transformation of public lighting systems in Rome, managed by Acea Illuminazione Pubblica, was **started in mid-July 2016**, following the agreement signed with Roma Capitale. **The initial work** involved the transformation of the lighting points in **peripheral areas** and, **from mid-December**, with the availability of specific types of device, the work also involved **the districts bordering the historical city centre** and some of the central areas of the city. At 31 December, **about 68,500 light bulbs had been installed** throughout the city and, from the post installation tests, the objective of **a 55% saving in energy consumed** compared to the initial energy consumption has been consolidated. The project choices have been validated by the metering and feedback from the field installations, the lighting levels obtained using LED devices **guarantee the respect of the regulations in force on public lighting** and **have significantly reduced the effects linked to the dispersion of light flux** towards the sky, also known as “light pollution”. The transformation process will be completed by the end of 2017.

³⁸ In December 2016, part of the activities carried out by Acea Illuminazione Pubblica were merged into Areti SpA, which manages the distribution of electricity to Rome and Formello, in acknowledgement of the planned partial proportional split-off of Acea Illuminazione Pubblica SpA in favour of Areti SpA.

³⁹ 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.

By carrying out two surveys in 2016 on customer and residents satisfaction with the services provided, **Acea has once again recorded the opinion and perception of residents of the ongoing replacement of lighting with LED.** The results, as an average of the two half yearly surveys, showed that about 69% of the 2,400 people interviewed had heard of the new technology being used, an increase of 8 percentage points compared to last year, and **about 41% (+11% compared to 2015) had noticed the**

LED lighting in the streets. 87.2% of those interviewed, in line with the data from last year, believe that the project for the transformation of lighting to LED is important for the city and the three main reasons given were the **reduction in consumption** (energy efficiency) for 85%, the **better differentiation of colours in the street** for 20% and **environmental respect** for about 15%, -6% compared to 2015.

THE EXTERNAL LIGHTING SYSTEM IN PIAZZA DEI CINQUECENTO

X

During the course of 2016, on request by the Infrastructures Development and Urban Maintenance department of Roma Capitale, Acea carried out the works for the **expansion and modernisation and entry into operation of the external lighting system**, owned by Grandi Stazioni, in **Piazza dei Cinquecento**. On completion of the work, the systems involved in the interventions were included among the lighting points of Roma Capitale managed by Acea.

117 LED technology light bulbs were installed/replaced and about 3,000 metres of cable were replaced with **new aluminium cables** to combat the phenomenon of copper cable theft, which has been a frequent occurrence in recent years.

Moreover, all of the iron lamp posts have been replaced with new ones in fibreglass, providing greater safety in terms of both the removal of the problems relating to the corrosion of the metal lamp posts, and also as regards the eventual risk concerning indirect electrical contact. **The work, carried out in the areas surrounding the entrance to Termini Station, which has a very high daily flow of people, was conducted in coordination with ATAC and the technicians of Grandi Stazioni** in order to minimise disruptions to the circulation of vehicles and pedestrians in the area.

On completion of the work, **the area open to the public was more widely and homogeneously lit, with benefits in terms of safety.**

The work carried out during the year also includes **the transformation into LED of the public lighting at the Terni waste to energy plant**, managed by Acea Ambiente, a company in the Acea Group. This was the **first industrial plant in the Group to modernise its lighting points using new technology, in order to achieve more efficient energy**

consumption. The work was designed and carried out by Acea Illuminazione Pubblica and involved **550 lighting points** being either modernised or newly installed (see the specific detailed box in the paragraph on *Energy saving, in Environmental relations, The use of energy and water*).

TABLE No. 16 – MAIN PUBLIC LIGHTING WORKS ON LIGHTING POINTS (2016)

Type of work	(No. of lighting points)
Installation of new lighting points (including artistic)	1,205 lighting points (of which 892 LED)
Actions to improve energy efficiency/technological innovation (fixture replacement)	69,328 LED
Safety measures	1.567 lighting points

Note: the table includes operations carried out for the Municipality of Rome and third parties.

Each year, Acea carries out scheduled and extraordinary maintenance work on the systems for safety purposes and in order to maintain an adequate level of lighting in the area managed (see table 17).

TABLE No. 17 – SCHEDULED AND EXTRAORDINARY PUBLIC LIGHTING REPAIRS AND MAINTENANCE (2016)

Type of work	(No.)
Checking corrosion on lamp posts	17,084 lamp posts checked
Replacing bulbs prior to luminous flux loss	14,390 bulbs replaced
Reinstalling lamp posts that were corroded or knocked down due to accidents	171 lamp posts reinstalled

Acea constantly monitors the **public lighting system quality standards** pertaining to the **fault repair lead time**, which is calculated starting from a fault being reported⁴⁰.

Service standards are defined based on an average service resumption time allowed (TMRA) within which repair work should be completed, and a maximum time limit (TMAX), with fines being applicable in the event it is exceeded⁴¹.

Performance concerning the average resumption time (TMR) for the functioning of the systems, used by Acea in 2016 for the various types of fault (See table 18), **is not directly comparable with the performance levels in previous years**, given that during the course of the year, two factors emerged which have affected management

performance. On one hand, in a much more significant manner compared to past years, the reports were received by the company through the dedicated website, implemented in a transitory manner in 2015, causing a **serious backlog in the back office work** and a consequent slowing down of the intervention times. **In December 2016, the portal was superseded by the new single website - www.aceait - with more upgraded and efficient functions** reducing the need for second level processing. On the other hand, **the passage to the new information systems envisaged by the Acea2.0 programme was implemented in April**, requiring additional interventions, which are still being completed, in terms of restoring the full regularity of extractions and reporting.

⁴⁰ For the purpose of calculating service levels, reports pertaining to damages caused by third parties will not be considered.

⁴¹ 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 2016 subject to fines being calculated is not available.

TABLE No. 18 – PUBLIC LIGHTING SERVICE RESUMPTION FOLLOWING FAILURES: FINES, STANDARDS AND ACEA PERFORMANCE (2015-2016)

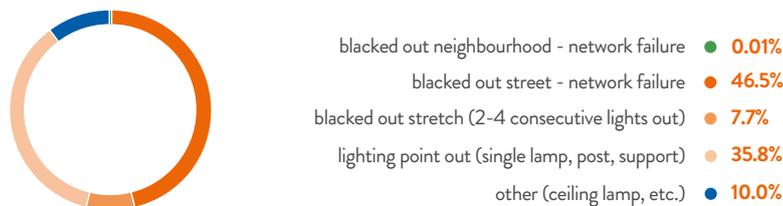
Type of failure	Fine per day of delay (in euros)	Service level agreement (*)		Acea Performance	
		TMRA (average service resumption time allowed) (business days)	TMAX (maximum service resumption time limit) (business days)	TMR (average service resumption time) (business days)	
				2015	2016
Blacked out 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	1.41 days	2.7 days
Blacked out stretch (2-4 consecutive lights out)	50	10 days	15 days	3.98 days	9.1 days
Lighting points out: single lamps, posts, supports	25	15 days	20 days	4.25 days	8.3 days

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

Faults are detected by internal control systems, such as remote management, and, as already mentioned, reported by the citizens and the Municipality of Rome using the different contact channels available (call centre, web, fax or ordinary mail)⁴². 21,365 reports on faults were received in 2016⁴³ and 92% of them were dealt with by the end of the year. However, it is deemed probable that, following the full alignment of the new systems, this percentage

will be increased. Observing the **percentage distribution of reports by type of fault** (see chart 20), it can be seen that there is a significant incidence of “blacked out street” caused by a network fault (46.5%) and “lighting points out” (35.8%), which has a lesser impact in terms of safety, while “blacked out stretch” is more contained (7.7%), and cases of “blacked out neighbourhood” due to a network fault has a minimal incidence (0.01%).

CHART No. 20 - TYPES OF PUBLIC LIGHTING FAULTS OUT OF TOTAL REPORTS RECEIVED (2016)



In agreement with the relevant Authorities, Acea is committed to **enhancing the artistic and architectural heritage of the Capital** by deploying over **10,000 dedicated lighting points**, thanks to the **distinctive skills in the artistic lighting sector** it has acquired over time, which makes it available for interventions requested by “private entities” (such as churches, hoteliers or third parties in general). During the course of 2016, the Jubilee year, in addition to the

usual maintenance of the existing systems, Acea Illuminazione Pubblica also carried out various **significant interventions**, including the **new lighting systems on 16 bridges over the Tiber** in the urban area, **Trinità dei Monti** and **Piazza di Spagna** and the construction of a **new lighting system for the Roman Forum**, inaugurated on 21 April, the anniversary of the foundation of Rome. LED lighting systems were used for each of these interventions (see the relevant boxes).

NEW LED LIGHTING SYSTEMS ON THE BRIDGES OVER THE TIBER

X

As part of the extraordinary work for the Jubilee, Roma Capitale requested that Acea Illuminazione Pubblica carry out an intervention involving the **refurbishment of the accent lighting on the bridges over the Tiber** in the city limits of Rome.

The lighting systems were designed and constructed for the following bridges: Palatino, Cestio, Fabricio, Sisto, Mazzini, Regina Margherita, Matteotti, Risorgimento, Duca d’Aosta, Milvio (the turret building), Garibaldi, Cavour, Sant’Angelo, Vittorio Emanuele II, Umberto I and Principe Amedeo Savoia Aosta.

Accent lighting was achieved with the installation of the light bulbs **on the bridge pylons, inside the arch vaults, on the banks of the river** and, in some cases, **next to the balustrade**.

Views have been valorised thanks to the installation on the pylons and/or on the banks of the river, of lights equipped with **optics which contain**, as far as possible, **the light flux within the surface of the object in question**, so as to **reduce to a minimum the phenomena of dazzling and light pollution**. For the light bulbs on the **pylons, immersion-type devices** have been chosen, to **avoid possible disruptions due to the water level in the river rising**. For the arches, the devices have been positioned in the vault key giving a wall washing effect on the entire surface. **Linear projectors** have been used to **highlight the parapets**, using in and out technology, which enables the devices to be powered directly from the network cable using a watertight outlet, which has made possible the **removal of the derivation boxes** required for the pre-existing lighting to function, and a **significant containment of the visual impact of the system**.

The colour temperature used was 3,000K, the most suited for accent lighting architectural structures, except for the lighting of the single-lancet window on Ponte Principe Amedeo Savoia Aosta, for which a warmer colour temperature was chosen (2,200K) in order to highlight the natural colour of the lattice and create a colour contrast.

A total of 1,021 projectors were installed, for a total **power used of about 37.3 kW**, compared to the previous power used of **about 81.7 kW**, with an **energy saving of approximately 55%**. Given the specificity of the intervention, a specialist firm was engaged, with personnel qualified to work using ropes and at heights.

⁴² More detailed information on the call centres' performance and written complaints is provided in the Customer Care section.

⁴³ The data excludes reminders and repeated reporting of the same fault.

WORK IN PIAZZA DI SPAGNA: THE STAIRWAY AND CHURCH OF TRINITÀ DEI MONTI

X

The Roma Capitale Inspectorate, during the restoration of the stairway in Piazza di Spagna leading to the church of the Santissima Trinità dei Monti, commissioned from Acea Illuminazione Pubblica the project for the new lighting system using LED technology, for both the stairway and the church.

For the stairway, it was necessary to study and obtain specific optical groups (retrofit), not available among the “standard” ones, with which to valorise the particular concave and convex contours of the walls and pincer-shaped ramp, which is typical eighteenth century. This is why several construction companies were involved, and a solution reached using two different types of optics for the distribution of the light flux: rotor-symmetric (circular) for the lamp posts within the stairway itself, and asymmetric, using a bascule and rotating system enabling the light to be directed as best as possible, for the lighting points along the outer walls. As regards the consistencies of the system, both the type of lantern (Campidoglio) used and number (16) of lighting points was unchanged. As regards the power used, which was previously 2.4 kW using gas discharge lightbulbs, a power rating of 1.3 kW is sufficient using the current LED system. The colour temperature used is 3,000K (hot white). For the church of Ss. Trinità dei Monti, 16 LED projectors were used, of limited size and with a power rating of 40W each, with a colour temperature of 4,000K. Although it has not been possible to modify the positioning of the projectors, the use of LED technology has enabled the expected result to be achieved, drastically reducing the size and volume of the equipment used, and thus their visual impact.

LIGHTING IN THE ROMAN FORUM

X

On the anniversary of the founding of Rome on 21 April, the new lighting system in the Roman Forum was inaugurated, promoted by the Special Inspectorate for the Colosseum and the Central Archaeological Area of Rome, with the support of Acea, which was also involved in the design and construction. From dusk to dawn, the numerous monuments in the Forum are once again visible to everyone, from via dei Fori Imperiali, to the belvedere del Clivo Capitolino, from the square behind the Mamertine Prison. Thanks to the new lighting system, guided visits of the Forum at night have also started, in the ancient political centre and heart of business activities in Rome, which is now an archaeological site of extraordinary importance and beauty.

The new lighting system, comprising 448 latest generation LED projectors and 6,000 metres of cable, involves the Via Sacra, the arches of Titus and Septimius Severus, the Basilicas of Massenzio, Aemilia and Julia, the House of the Vestal Virgins, the Forum square, the Curia, the temples of Saturn, Antoninus and Faustina, Caesar and Castor and Pollux and the church of Santa Maria Antiqua.

The carefully studied design of the lights, with tonalities between 2,200 and 3,800K, range from white gold to soft white to highlight and valorise as best as possible the architectural forms, colours and materiality of the monuments. The devices installed are small and highly efficient. The lighting technology used is among the most advanced available and will enable a significant reduction - about 60% - in electricity consumption.



Quality in the water area

Acea manages the integrated water service (SII) in several Optimal Areas of Operations (ATO) in **Lazio, Tuscany, Campania and Umbria**, through holding companies.

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 a total of about 3.9 million inhabitants served), **the “historical” area of operations of the Group**⁴⁴, and by **Acea Ato 5, also operating in Lazio** (ATO 5 – southern Lazio and Frosinone, with 86 municipalities and about 480,000 inhabitants)⁴⁵. The main environmental and social information on the **other companies in the Group** operating in Italy in the water sector⁴⁶ are described in the section *Water company sheets*, with some of the Group data integrated in the section describing *Environmental relations* and in the *Environmental report*, while the water activities carried out in Latin America are described in the chapter *Overseas activities*.

The management of the integrated water service comprises the entire drinking and wastewater cycle: from collection of the natural resource from the springs to its return to the environment. It is governed by a **Management Agreement** between the **company running the service and the relevant jurisdictional Authority** (renamed “Ente di Governo dell’Ambito, EGA” - Area Regulatory Agency). On 29 December 2015, the Authority for electricity, gas and the water system, in resolution 656/15, approved the minimum essential contents of the “model agreement” **regulating relations between awarding and managing entities uniformly and nationally**. This new model agreement concerns the instruments for maintaining the economic and financial balance of the management systems and updating of the data and information on the basis of the planning deeds required by the Authority for the approval of the tariff proposal and takeover procedures and consequent payment of the reimbursements due. The management agreement, adjusted to comply with the model agreement, is the deed required for the tariff proposal, as is the schedule of interventions (Pdl) and economic and financial plan (PEF).

The **Integrated water service charter**⁴⁷, annexed to the Agreement, defines the **general and specific quality standards** that the manager must respect towards the

users, **in accordance with that defined in resolution 655/15**. 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.

The **Authority for electricity, gas and the water system** (AEEGSI), as already mentioned, passed a resolution (655/15/R/Idr) **on the regulation of contractual quality**, defining the **specific and general quality levels**, in force as regards most of the aspects **since July 2016** (see the section *Quality delivered*). Therefore, the main performance levels in this document will only be reported in the next Sustainability Report, when the **annual performance data** becomes available.

However, it must be noted, as regards **Acea Ato 2**, that the **Authority**, during the approval of the tariff proposal (resolution 674/2016/R/Idr dated 17/11/2016), **accepted the request** made by the Operating Technical Secretariat (STO) of the Area Regulatory Agency for the **recognition of rewards for contractual quality concerning the improvements to the indicators defined in resolution 655/15**⁴⁸. In particular, **43 of the 47 indicators included in the resolution** were the subject of improvements, with an estimated average improvement of 46.5% in 2016 and 38.3% in following years. **The recognition of rewards for performance levels in 2016 will be made in the tariffs for 2018, and within the limits in which the proposed improvement levels have been reached and reported**. It was also defined that, in order to enable the STO to check and verify performance levels, **Acea Ato 2 will, every year from 2017, produce no later than 20 January each year (earlier than the deadline of 31 March established in resolution 655/15) a register of the performance data for the previous year (only for the second half year for 2016)**⁴⁹. After making the required verifications, the Technical Secretariat will quantify the reward due for the economic performance levels in the relevant year.

Furthermore, both **Acea Ato 2 and Acea Ato 5**, in fulfilment of the regulatory interventions already made on the matter, have made **available the information concerning the quality of drinking water for consultation by users on the website www.acea.it**.

⁴⁴ 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”.

⁴⁵ These are the two main companies in the Acea Group operating in the water sector in Italy, and consolidated in the annual financial statements using the step-by-step method (100% Acea SpA). Alone, they represent about 50% of the population served in the water sector by all the companies in the Group. The companies operating in Tuscany, Umbria and Campania, owned by Acea, are consolidated using the equity method.

⁴⁶ It should be stressed that some of Acea's subsidiaries engaging in water operations, especially those operating in Tuscany, publish their own sustainability report, to which reference should be made.

⁴⁷ 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 on-line on the website www.acea.it. Specifically, Acea Ato 2 has adopted the Service Charter as modified in AEEGSI resolution 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”.

⁴⁸ Except for those concerning processes not present in the operating organisation or with more stringent levels in the Service Charter.

⁴⁹ With regard to 2016, on 20 January 2017 Acea Ato 2 sent to the STO the data on the contractual quality levels achieved for the recognition of the reward for the second half of 2016. Specifically, the performance levels reached for each indicator monitored were sent, with a summary of the results broken down for each indicator, according to that disciplined by resolution 655/2015, an accompanying explanatory note and the details of the data in Excel spreadsheets, broken down by indicator according to the resolution. Following the verifications carried out, the Secretariat recognised to Acea Ato 2 a reward of about 23 million euros.

The Integrated Water Service in ATO 2 – Central Lazio



ABOUT **11,000 km**
NETWORKS MANAGED
FOR DRINKING WATER
(of which about 6,000 remote controlled)

AND ABOUT **6,100 km**
OF SEWERAGE NETWORKS



Fastest interventions

GEO-REFERENCED NETWORKS AND FAULTS
VIEWED IN A SINGLE VIRTUAL FRAMEWORK



46 Water houses active

(19 in Rome and 17 in province)

ABOUT **12.2 million** OF WATER SUPPLIED

250 t OF PLASTIC/YEAR SAVED AND
450 t OF CO₂ NOT EMITTED INTO THE
ATMOSPHERE



Smart metering

Top 300 PILOT PROJECT STARTED



370,720 analytical checks

ON DRINKING WATER CARRIED OUT
IN THE YEAR AND

151,446 analytical tests
ON WASTE WATER

Acea Ato 2 engages in 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**, and the **quality policy**, redefined from an integrated viewpoint, which states as the **key factors** in process management **the promotion of the culture of quality, respect of the environment and safety in the workplace and energy saving** (also see *Corporate Identity, Management systems*).

Acea Ato 2 **gradually takes over the management** of the municipalities in the reference Optimal Area of Operation after performing **the recognition of the state of the infrastructures** (networks and systems) in accordance with the local administrations and, in the event of non-compliances, must wait for the municipalities concerned to complete the work required to correct them. In 2016, thanks to the completion of some of these works, **the management takeovers of the municipalities of Bracciano and Pomezia were completed**. At **31 December 2016, Acea Ato 2 manages the integrated water services** – aqueduct, sewerage and waste water treatment – **in 79 municipalities** of the 112 in ATO 2 – Central Lazio⁵⁰. About **3.7 million** inhabitants (residents) are served in the area, about 94% of the total inhabitants in ATO 2; the IWS is **managed partially in another 13 municipalities**.

The **infrastructures managed** in the area include about **11,000 km of networks** (aqueduct, transport, distribution)⁵¹ **for drinking water** and about **6,100 km of sewerage networks**. The networks are connected to a complex system of facilities and plants making the aqueduct, waste water treatment and sewerage services operational.

The company follows the development of new urban expansions and carries out work for the modernisation and enhancement of the systems and completion, expansion or reclamation of pipelines and networks.

ACEA 2.0

As part of the initiatives of the Acea2.0 project, **Workforce Management** (WFM) came into force in Acea Ato 2 in 2016. This is a working model aimed at rationalising and streamlining the processes using new centralised information systems and was extended during the year to all of the other water companies in the Group. Simultaneously, technological updates were introduced in the operating systems which have enabled the additional streamlining of some processes, such as, for example, **the reduction in the response time for initial operations on faults** through the introduction of automated systems engaging operators when calls are made to the call center.

The new functions in the information systems have enabled the **total integration between the GIS geographical system⁵² and the SAP maintenance system** and this enables the **visualisation of the networks and faults in a single context**, guiding the call center operators in determining the fault and the association of reports to existing faults. It is also possible to signal rectifications or updates recorded during operating activities from the field, using the device, so as to keep the **GIS system constantly updated** and make it more compliant with the status of the assets in the territorial area in question.

Lastly, the systems have been worked on to make Acea Ato 2 ready to acknowledge the recalled measures of the AEEGSI concerning service quality.

⁵⁰ It must be taken into account that 8 small municipalities have chosen to manage their own services, invoking the right to not subscribe to the IWS for municipalities of less than 1,000 inhabitants, as envisaged by art. 148, paragraph 5 of Legislative Decree no. 152 dated 03/04/2006.

⁵¹ In detail: 1,376 km of supply networks, 208 km of aqueducts and 9,533 km of distribution networks.

⁵² GIS - Geographic Information System - is a computerised information system which enables the acquisition, registration, analysis, visualisation and return of information deriving from geographical data, placing several elements in relation to each other on the basis of their common geographical reference.

The systems enabling the **remote reading** and **remote management** of **electricity, gas and water meters** are defined as “**smart metering**” and generate significant advantages:

- reduction in the cost of meter reading and contract management, which are carried out automatically and from remote stations;
- making the end users more aware of their consumption levels and consequently encouraging the rational use of resources;
- improved management of the network and easier identification of technical and commercial losses.

Considering these advantages, the Authority for electricity, gas and the water system has expressed its intention to extend smart metering to the water sector.

Acea Ato 2 has anticipated the requests of the regulator and, thanks to the potential of Acea2.0, **has begun experimenting** in order to further enhance the quality of the service provided and make data and measurements typical of smart metering available to users, such as recording/alerting losses or controlling consumption. This is the **Top 300 pilot project**, through which Acea Ato 2 is verifying the application of smart metering **to 300 utilities corresponding to very high consumption levels**.

Specifically, **300 devices**, supplied by Acea Elabori and Ingegnerie Toscane, both companies in the Acea Group, **have been installed** on different utilities:

- 50 utilities with presumed weekday consumption levels (Ministries, schools, etc.);
- 100 super condominiums;
- 120 condominiums on dn>40 meters;
- 30 utilities with consumption presumably concentrated during the weekend (sports centres, Luneur, etc.).

The experience gained will lead the company to extend the application of smart metering in a widespread manner in coming years.

During the course of the year, the study of the distribution networks and search for water losses, conducted together with Acea Elabori, continued, on the basis of the “**district division**” approach envisaged by Ministerial Decree 99/97. Specifically, the focus was on the municipalities of Lariano, Manziana, Castel Madama, Olevano and Palestrina and analyses were started in the municipalities of Artene, Cave and Carpineto Romano. In Rome, activities involved the area of District XV (see *Environmental issues, Use of energy and water*).

As regards the progressive digitalisation of the sanitary water networks in ATO 2, the insertion of the data **into the GIS information system has almost been completed** at 31.12.2016, with about **10,808 km of drinking water networks** and **5,666 km of sewerage networks digitalised**.

The aqueduct service managed by Acea Ato 2

The main aqueducts and the transport network are **controlled remotely**, from a qualitative and quantitative viewpoint, and remote metering provides information useful for knowing the status of the network and its conduction (set up of the plants, status of the pumps, position of the valves, measurements, alarms and the possibility of performing remote controlled manoeuvres). The distribution network in Rome is also powered by remote controlled water centres with flow and/or pressure and/or level meters. According to the data extracted from the GIS system (geo-referenced network) **the overall extent of the network subject to remote control spans about 5,968 km**. Thanks to the progressive implementation of the system, **509 water centres** were partially or totally remotely controlled (with pressure and/or flow and/or level measurements) in 2016, and **159** of them were equipped with remotely controlled quality measurement capabilities. **46** Water Houses and **101** pressure points were also remotely controlled.

The main operations on the aqueduct system include the **completion**, in November 2016, **of the works for the modernisation of the system for pumping the sources of the Peschiera**, with the performance of significant works on the electrical and electro-mechanical service infrastructure,

from which a considerable increase in general operating reliability is expected. Furthermore, **the enhancement of the Peschiera aqueduct system is being finalised**, which would imply the construction of new aqueducts and interconnections between the existing aqueduct systems, capable of dealing with the development of requirements in the area with the necessary effectiveness and flexibility.

During the year, **maintenance and reclamation activities** were carried out on the supply system for Rome. A major **overhaul of the transport network** in October and November involved operations on the Torrenuova-EUR (DN 1000) transport network and the water centres in Torrenuova, EUR and Casilina, for the insertion of new manoeuvring tools and the construction of a new transport pipeline. Acea Ato 2 performed the complex works **without disrupting the supply of water and ensuring the constant powering of the underlying network**.

Lastly, the **revamping of the ozone segment of the purifier** in Bracciano **was planned**, which will make the entire Peschiera-Capore system more reliable and flexible. The works should be completed in 2017.

AceaAto2 attempts to **deal with water emergency situations** occurring in the municipalities managed, especially during the summer season and when consumption increases. To this end, the company is carrying out operations to eliminate water shifts in Velletri. Specifically, the pipeline for a tank and connections are being constructed and the overhaul of some of the pumping systems has been completed. Similar problems in Olevano have been solved thanks to the effectiveness of the search for losses, district division and reclamation.

The **installation of new meters or replacement of meters that are not working properly** continued, involving **27,800 operations** in 2016.

Table 19 shows the main **routine and extraordinary maintenance work** carried out during the year on the water networks in Rome and the other municipalities managed, and the **checks performed on the quality of the drinking water supplied**.

TABLE No. 19 - MAIN OPERATIONS ON WATER NETWORKS AND CHECKS PERFORMED ON DRINKING WATER IN ATO 2 - CENTRAL LAZIO (Rome and other municipalities under management) (2016)

Type of work	(No.)
Operations for aqueduct network failure/leak detection	48,633 operations (47,214 for faults and 1,419 for leak detection)
Scheduled maintenance work on aqueduct network	8,190 operations
Meter installations (including new installation and replacement)	27,847 operations (9,565 new installations 18,282 replacements)
Water network extension	6.4 km of water network extension
Water network reclamation	22.7 km of network reclaimed
Drinking water quality control	9,115 samples of drinking water collected 370,720 analytical tests performed

With regard to **water supply continuity**, in 2016 **1,950 disruptions and pressure reductions** occurred. Of these, **1,874 were urgent disruptions** (due to accidental faults to pipes/plants) and **76 scheduled**. About 10% of the disruptions lasted for more than 24 hours. The data is not directly comparable with that for past years, which

referred exclusively to network shutdowns. In fact, the new IT systems enable the **disruptions and water pressure reductions due to anomalies in the plants, and also those generated by network shutdown**, to be traced in more detail. This total number has thus been used, which is more compliant with reporting standards.

TABLE No. 20 - NUMBER, TYPE AND DURATION OF WATER SUPPLY DISRUPTIONS IN ATO 2 (2016)

	2016
Urgent disruptions (No.)	1,874
Scheduled disruptions (No.)	76
Total disruptions (No.) (*)	1,950
Disruptions lasting >24h (No.)	193

(*) The data for total disruptions includes shutdowns (due to damage to pipes/pipelines and network manoeuvres) and the disruptions due to disservices 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 *Environmental issues, Water Area 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, both exceeding the number laid down by provisions of the law** (Legislative Decree no. 31/2001), 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. In the municipalities supplied with water that has intrinsic quality issues, many more tests are performed and if specific problems are detected, **extraordinary analysis campaigns** will be launched. **Overall**, during the course of the year, **9,115 samples were taken** and a total of **370,720 analytical tests** carried out by both Acea Elabori and Acea Ato 2 on drinking water in the municipalities in ATO 2 – Central Lazio under management.

The **quality of the spring water** collected to supply the **areas of Rome and Fiumicino** (Acea's "historical network") shows **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. During the past few years, more than 30 purification plants were rolled out for an overall flow rate of about 500 l/s, which are gradually being managed remotely.

In 2016 the purifiers serving the municipalities of Oriolo Romano and Vejano were completed and authorisation is awaited for Sant'Oreste (Fontane Nuove purifier). **The tenders have also been prepared and the construction of the purifiers in Allumiere (second line) and Fiano Romano (Campo Pozzi Sasseto) is being scheduled**. Also, a **new pumping station** has been completed, tested and **put into operation at Santa Marinella**, and has been connected to the "Olgiate-Civitavecchia" supply pipeline, replacing the existing source of water supplies. In **Trevignano Romano**, a new pumping station has been made operational, as a derivation of the "Traiano" aqueduct. In **Bracciano**, for which management has recently been acquired, the maintenance work for the purification of the Fosso della Fiora (a perennial source present in the area) has been completed and work is currently ongoing in preparation for the construction of another purification plant serving the Vigna di Valle area. In **Ardea and Pomezia**, as part of an **emergency plan** shared with the competent authorities, the **project for a provisional purification plant has been finalised** and the works for the **revamping of a water pumping station** aimed at modifying the set-up of water distribution and improving the mixing of local resources with water supplied by the Marcio aqueduct are currently being completed.

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 given by the respondents on taste, smell and clearness of the water distributed in Rome and Fiumicino was good**, standing at **7.6 out of 10** as an average of the two surveys; the same overall satisfaction figure **in provincial districts stood at 7.1 out of 10**, in line with last year. In Rome, **54.3% of the respondents stated that they normally drink tap water**, while **22.7% stated that they never do**. In provincial districts, these percentages, again as an average of the two surveys, were

38.9%, for those **normally drinking tap water**, and 37.6% for those who do not. The **main reason stated for not drinking tap water**, both in the city as well as provincial districts, **was the habit of drinking mineral water**, in 54.8% of cases in Rome and Fiumicino and 52.3% in provincial districts.

The installation of the *Water Houses* - **free dispensers of cold natural or sparkling water for the inhabitants and tourists** – started at the end of 2014⁵³ **continued in 2016, reaching a total at the end of the year of 46 Water Houses⁵⁴ available : 19 in the city of Rome and 27 in the province of Rome**, the goal being to install another 50 in 2017.

The water distributed by these “*hi-tech big-nose shaped fountains*” is the same as that delivered by the aqueducts and the quality is **certified by strict regular checks** conducted by Acea and the relevant local health authorities. Water Houses have a **180 l/h flow rate**, allowing a 1-litre bottle to be filled in 20 seconds. Each Water House is fitted with monitoring equipment in synch with the Acea Ato 2 remote control systems and they will also be 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 has been fairly successful and during 2016**, the Houses supplied a total of **12,276,000 litres of water**, of which about 62% was sparkling water. In addition to obvious **social benefits**, the **environmental benefits** must also be highlighted: the amount of water supplied is equal to **about 250 tonnes of plastic saved in the year** (equal to **more than 8 million 1.5 litre bottles**) and **about 450 tonnes of CO₂ not emitted into the air**, due to bottles not being produced⁵⁵ and excluding emissions due to energy consumption by the Houses and the CO₂ 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. In particular, maintenance work was carried out on the pumping and recycling system of the Naiads Fountain and the upper central jet of the fountain was enhanced. Moreover, with regard to the small fountains supplying drinking water and fire hydrants, Acea Ato 2 is responsible for the water segment up to the “point of delivery” and provides technical support in the event of damage to the water supply system and for water flow opening and closing operations.

The water treatment and sewerage service run by Acea Ato 2

Integrated Water Service operations include the **collection of wastewater** and its **treatment prior to being returned to the environment**.

The treatment system in **ATO 2 – Central Lazio** consists of “**catchment basins**”, territorial units comprising **wastewater treatment plants, sewerage networks** connected thereto and the relevant **water lifting stations**. The infrastructures managed at **31.12.2016** include **541 sewerage lifting stations** (173 of them in the municipality of Rome), **168 treatment plants** (33 of them in the municipality of Rome) and about **6,100 km of sewerage networks** (**4,088 km** managed for the city of Rome). During the year, throughout the territory managed, **about 6,450 operations** were carried out (4,074 due to faults and 2,374 scheduled). In many cases, operations on the network, in addition to repairing the fault identified, also included accurate inspections of a larger section, to **plan any improvement activities** aimed at enhancing the operating conditions. In addition to management and maintenance activities, the **expansion, integration and reclamation of the sewerage network** continued (see table 21).

TABLE No. 21 – MAIN OPERATIONS ON SEWERAGE NETWORKS AND CHECKS PERFORMED ON WASTEWATER IN ATO 2 – CENTRAL LAZIO (Rome and municipalities under management) (2016)

Type of work	(No.)
Operations due to sewerage network failure	4,074 operations
Scheduled maintenance work on sewerage network	2,374 operations
Network extension	8.3 km of sewerage network extension
Network reclamation	3.1 km of network reclaimed
Wastewater quality control	5,866 samples collected and 15,446 analytical tests performed on wastewater

Acea **monitors the parameters indicating the quality of the water coming into and flowing out of the purifiers and the impact on the receiving water bodies**: the Tiber and Aniene rivers (also see *Environmental issues, Water Area*).

Every year, **Control Centres monitor** an increasing number of plants; **493 plants were monitored in 2016**, including purifiers and sewerage lifting plants. 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 Maritime Operations Office, and **data on the quality of the water along the urban stretches of the Tiber and Aniene rivers is also monitored**.

⁵³ By Resolution No. 9/2014, the ATO 2 Mayors' Conference approved the investment scheme, including the operation in the 2014/2017 Investment Plan, with funding being allocated in the region of 3 million euros over three years.

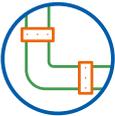
⁵⁴ At 31.12.2015, 25 Water Houses were installed and inaugurated in Rome and provincial districts, including the first one installed in late 2014.

⁵⁵ Although significant, this figure is certainly underestimated, as it does not take into account the saving in emissions due to bottles not being transported by road/railway.

As part of the “**River Tiber Contract**” signed by entities and authorities in order to **protect the surface water resources**, **Acea Elabori** has supported **Acea Ato 2** in the construction in 2016 of **two additional stations for monitoring** the quality of the Tiber and Aniene rivers which, in addition to the 4 stations already in operation, **complete the cognitive framework of the impacts in different stretches of river water**.

For the valorisation and social benefit of the water resources, **the constant monitoring of the quality of surface water resources** they affect is vital, **so as to acquire over time an accessible and reliable representation of a complex environmental situation**, such as to adequately orientate/support the investments plan, also because of the quality objectives concerning surface water bodies. For these reasons, **Acea Ato 2** had already planned and realised a network of constant monitoring, determining the characteristic parameters in four stretches of river water in the Tiber and Aniene rivers, aimed at evaluating the effects of the operations for maximising the purification efficiency of the plants, the progressive reduction in illegal discharges and the rationalisation of the management of the purification plants and the sewerage network.

The Integrated Water Service in ATO 5 - Southern Lazio - Frosinone

	<p>ABOUT 4,260 km OF DRINKING WATER NETWORKS MANAGED</p> <p>AND 1,730 km OF SEWERAGE NETWORKS</p>		<p>ABOUT 500 interventions OF RESEARCH AND LOSS RECOVERY</p>
	<p>ABOUT 450 km OF WATER AND SEWERAGE NETWORKS DIGITALISED IN GIS (Geographic Information System)</p> <p>MORE THAN 22,000 interventions FOR NEWLY LAID CABLES AND REPLACEMENT OF METERS</p> <p>ABOUT 63 km OF WATER AND SEWERAGE NETWORKS CLEARED</p>		<p>85,500 ANALYTICAL CHECKS ON DRINKING WATER</p> <p>31,258 ANALYTICAL TESTS ON WASTE WATER</p>
			<p>ACEA2.0 programme STARTED IN ACEA ATO 5: WFM AND ERP</p>

Across the ATO 5 area - Southern Lazio - Frosinone, **Acea Ato 5 engages in network and plant design, construction, maintenance and restoration operations⁵⁶** 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*).

During the course of the year, no new municipalities were acquired under management, and **at 31 December 2016, the integrated water service** – aqueduct, sewerage and treatment – was managed in **83 municipalities**. **About 470,000 inhabitants were being served**, equal to more than 95% of the total. **Two municipalities outside of the Sector** (Conca Casale and Rocca d’Evandro) **were also being managed**, for a total of **85 municipalities** under management.

Acea Ato 5 managed a total of about **4,260 km of networks** (including supply and distribution)⁵⁷, serving the drinking water system, and about **1,730 km of sewerage networks**. The networks are connected to a complex plant and construction system that make it possible to operate the aqueduct, treatment and sewerage service.

ACEA 2.0

In line with the modernisation of the entire technological infrastructure and the operating procedures of the Group, **the Acea2.0 programme was started in Acea Ato 5 in April 2016**, centred, in particular, on the following projects:

- **WFM (Workforce Management)**: with the main objective of improving the management of the workforce in the field, envisaging the introduction of the mobility “devices” and a review of the operating procedures in order to streamline and improve the service;
- **ERP 2.0 (Enterprise Resource Planning)**: an evolution of the current management system which integrates the main processes (sales, procurement, warehouse management, accounting, etc.);
- **GIS (Geographic Information System)**: involving the continuation of the process already started for the digitalisation of the drinking water and sewerage networks, also in view of integration with other information systems;
- **monitoring and remote controlling.**

For the WFM and ERP 2.0 projects, the software licences have been acquired and the preliminary consultancies

⁵⁶ On 13 December 2016, the ATO5 Frosinone Mayor’s Conference approved (33 in favour, 16 against, 37 abstaining) the resolution for the termination of the contract with the managing company Acea Ato 5. The decision by the Conference was challenged by the water company and the procedures envisaged by the management agreement to follow-up the resolution are ongoing currently.

⁵⁷ In detail: about 573 km of supply network and 3,686 km of drinking water distribution network.

started. The work was focused on the collection of the functional requirements and drafting of the project document. Some training on the SAP product was also carried out, mainly for the IT staff involved, going into detail on the technological aspects envisaged for the new software platform.

The company intervenes on the infrastructures each year, through the modernisation or enhancement of the plants and the completion, expansion or reclaiming of the pipelines and networks.

In 2016, the analysis of the set-up of the water networks and **leakage detection and recovery** involved about **500 operations**, especially in Sora, Cervaro and Arpino; **the pilot study at Isola del Liri was brought to an end**, and enabled the recovery of about 25 l/s and improved the set-up of the networks, and a **similar study in the municipality of Fiuggi is coming to a close** (see *Environmental issues, Use of energy and water* for more details).

Consistently with the Acea2.0 programme, the digitalisation of the sanitary networks in the areas under management continued, with the data being fed into the **Geographic Information system (GIS)**: at **31.12.2016**, **223 km of the water network** had been digitalised (162 km of supply network and 61 km of distribution network). All of the water sites (wells, springs, reservoirs/dividers) and the sewerage lifting and treatment plants have already been geo-referenced, including the relevant functional schemes, making technical support easier and more effective. **Similar work is being carried out for the mapping of the sewerage network**: at 31.12.2016, the network digitalised in the mapping system spans **222 km** (217 km of primary section, 4 km of connection section and about 1 km of discharge section).

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). The installation of additional instrumentation required for the more detailed monitoring of the plants already remote controlled continued, and investments were made for the remote management of new sites. **The remote controlled plants**, identified from among the largest and those with the most hydraulic complexities, number of inhabitants served and strategic territorial aspects, **totalled 55 sites at 31.12.2016** (46 equipped with hydraulic measures - flow, pressure and levels - and 9 with water quality control systems). The development of the dedicated remote control application continued during the year, in order to improve its efficiency and functionality.

The **installation of new meters or replacement of those not working properly** continued, involving **5,016 operations in 2016**. In addition, a large-scale campaign was conducted through a specialised contractor for replacing meters that were obsolete, with **17,023 meters** replaced during the year.

Table 22 shows the main **routine and extraordinary maintenance work** carried out on the water networks required to deliver the drinking water supply service in Frosinone and in the other municipalities under management, as well as the **checks on the drinking water supplied**.

TABLE No. 22 - MAIN OPERATIONS ON AQUEDUCT NETWORKS AND CHECKS PERFORMED ON DRINKING WATER IN ATO 5 - SOUTHERN LAZIO (Frosinone and municipalities under management) (2016)

Type of work	(No.)
Operations for aqueduct network failure	32,359 operations
Scheduled maintenance work on aqueduct network	159 operations
Meter installations (including new and replaced meters)	5,016 operations (2,189 new and 2,827 replaced meters) in addition to 17,023 operations for large-scale meter replacement
Water network extension	10 operations for expanding the water network, totalling about 3.2 km of network expanded
Water network reclamation	about 150 operations for network reclamation, totalling about 51.2 km of network reclaimed
Drinking water quality control	1,731 samples collected and 85,500 tests performed on drinking water

With respect to the **water supply continuity**, in 2016 **730 disruptions** proved necessary, of which **355 were urgent** (due to pipeline or plant failures, energy shutdown, etc.) and **375 scheduled**. **About 0.3% of the disruptions lasted for more than 24 hours**. The data is not directly comparable to that for past years, which referred only to

network shutdowns, given that the new IT systems enable **disruptions and reductions in water pressure due to anomalies at the plants** to be traced in more detail. This total number has thus been used, which is more compliant with reporting standards.

TABLE No. 23 - NUMBER, TYPE AND DURATION OF WATER SUPPLY DISRUPTIONS IN ATO 5 (2016)

Type of work	2016
Urgent disruptions (No.)	355
Scheduled disruptions (No.)	375
Total disruptions (No.) (*)	730
Disruptions lasting > 24h (n.)	2

(*) The data for total disruptions includes shutdowns (due to damage to pipes/pipelines and network manoeuvres) and the disruptions due to disservices and plant anomalies.

Acea Ato 5 performs **drinking water quality monitoring** tasks with the support of Acea Elabori. Tests are carried out on samples collected from springs and wells, supply plants, reservoirs and along distribution networks. The frequency of the tests and sample collection points, both **exceeding the number laid down by provisions of the law** (Legislative Decree no. 31/2001), are defined taking into consideration volumes of water distributed, population covered, network and infrastructure conditions and specific characteristics of local springs. In 2016, **more than 85,500 tests** were performed as a whole on 1,731 samples collected. **The main water quality parameters** broken down by “isoquality” zones (i.e. zones having equivalent average quality characteristics) are available online on the website www.acea.it.

Customer satisfaction surveys for Acea Ato 5 customers also required an in-depth review on **drinking water quality experience** with respect to taste, smell and clearness of the water distributed. The overall rating expressed **has not reached full satisfaction, and is 5.5 out of 10**. In line with last year, the low percentage of respondents stating that they usually drink tap water was confirmed, a mere 17.5%, as was the high percentage of those stating that they never

drink any, 64.6%. The main reasons given by the latter were three: 35.2% stated “it is not good for my health”, 31% said “I don’t like it, it tastes of chlorine”, and 33.8% replied “I am accustomed to drinking mineral water”.

The treatment and sewerage service run 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 “**catchment basins**” comprising **wastewater treatment plants, sewerage networks** connected thereto and the relevant **water lifting stations**. The infrastructures managed at 31.12.2016 included **211 sewerage lifting stations, 127 treatment plants and 1,730 km of dedicated networks**. In 2016, **1,358 troubleshooting operations and 53 scheduled maintenance operations** were completed on the networks servicing the sewerage and purification system. In addition to operation and maintenance tasks, work for the **extension, integration and improvement of the sewerage network** was carried out (see table 24).

Wastewater monitoring tasks were performed on 1,683 samples, totalling **more than 31,258 analytical tests**.

TABLE No. 24 – MAIN OPERATIONS ON SEWERAGE NETWORKS AND CHECKS PERFORMED ON WASTEWATER IN ATO 5 – SOUTHERN LAZIO (Frosinone and municipalities under management) (2016)

Type of work	(No.)
Operations due to sewerage network failure	1,358 operations
Scheduled maintenance work on sewerage network	53 scheduled operations
Network extension	7 operations for the extension of the sewerage network, totalling about 2.3 km of network extension
Network reclamation	46 operations for reclaiming the network, totalling about 5.2 km of network reclaimed
Wastewater quality control	1,683 samples taken and 31,258 analytical tests performed on wastewater

PRICING POLICY

Electricity service pricing

The Italian electricity sales market consists of the following segments: (i) the “**free market**”, in which the consumer interacts directly with the operator chosen for the supply of the service; (ii) the “**enhanced protection service**”, where the service is provided to the customer **under the contractual terms and conditions and pricing⁵⁸ laid down by the Authority for Electricity, Gas and the Water System (AEEGSI)**, i.e. the national body governing the industry, and, the remainder, the “safeguarded service”.

The **costs** shown on the energy bill **refer to four expense items: sales service, energy matter, network or grid and metering service, system-related overheads and taxes due⁵⁹**.

On the basis of the latest measures by the Authority, in force since 2016, a different aggregation of the billing components has been established, and in particular the items that were included under the **sales services** are now merged into the item **cost of energy matter**, while the items included in the **network or grid services** are now merged

into two distinct aggregations: **costs for transport and management of the meter** (distribution, metering, transport, equalisation of transmission and distribution, quality) and **costs for system expenses**, including incentives towards renewable energy, the social bonus, energy efficiency and research. Lastly, the indirect **taxes**, applied on the quantity of energy consumed and the final total cost of the bill.

The **enhanced protection service** remains the **most common segment chosen by Italian customers** (household and non-household), with a subscription rate of 65.4%⁶⁰ (68.3% in 2015), but is recording constant decreases in favour of the free market.

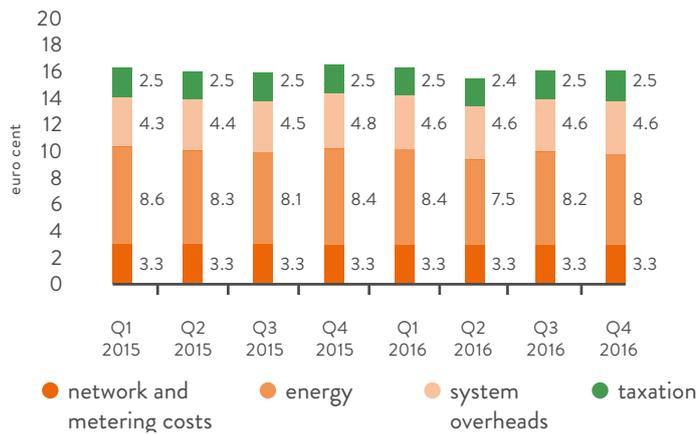
In this segment, with “**standard**” consumption – amounting to **2,700 kWh/year, with 3 kW power – the overall annual expenditure for electricity amounted to about 497 euros in 2016** (18.4 € cent/Wh), a slight reduction compared to last year (18.7 € cent/Wh, totalling about 504 euros). The final price is affected mainly by the incidence of the energy component, which was variable across the four quarters of the year in question, but generally less. Also for 2016, the items comprising the cost of energy matter amounted to less than 50% of the total cost of the bill (see chart 21).

⁵⁸ The pricing is established by the AEEGSI and is updated quarterly based on the costs incurred by the *Sole Purchaser*, minimising the costs and risks connected with the different procurement methods, to meet enhanced protection customers’ requirements on the electricity wholesale markets.

⁵⁹ Resolution dated 30 April 2015, 200/2015/R/COM – Bill 2.0.

⁶⁰ On the basis of the number of withdrawal points served under enhanced protection at 31/12/2015 (AEEGSI Annual Report 2016).

CHART No. 21 – ELECTRICITY PRICE PATTERN FOR A STANDARD HOUSEHOLD CUSTOMER (€ cent /kWh) (2015-2016)



Source: website of the Authority for Electricity Gas and Water (AEEGSI) - statistic data.

With regard to the **enhanced protection service, for all customers owning a digital meter** that can read consumption in different time bands, a mandatory **dual hourly rate will apply**, as laid down by the AEEGSI, ensuring greater savings for usage during evening hours, week-ends and public holidays.

The commercial activity of **Acea Energia on the free market** is aimed at **satisfying the different requirements of its customers**: from families to major industrial customers. From this viewpoint, Acea Energia has prepared **commercial proposals for 2016** (see the relevant box).

ACEA ENERGIA'S 2016 COMMERCIAL OFFERINGS ON THE FREE MARKET

x

Acea Energia's commercial offers intended for the **mass market segment** – residential customers, freelancers, commercial businesses and small and medium-sized companies – are numerous, **with the launch of promotions for specific market/customer targets**. All of the products for residential customers are very characteristic, so as to respond to well defined target requirements: the **Acea Unica** product has been enhanced by the possibility of activating added value services which facilitate the management of supplies; the **Acea Rapida** product, aimed at customers subscribing on the internet, is characterised by the possibility for those subscribing of managing their energy supplies entirely on-line; the **Acea Viva** product, which supplies **green energy** produced from renewable sources with Guarantee of Origin, with the aim of responding to the requirements of customers who want to respect the environment, has been limited to subscription on the internet only and the activation of the web bill, which avoids wasting paper. For the major **Business customers**, selecting the Acea Viva product constitutes an asset in terms of strategic placement, enhanced by personalised communication solutions that Acea Energia makes available to each individual customer. **The total volume of green energy supplied in 2016 reached 360,000 MWh, an increase to the 2015 figure (265,809 MWh), although the incidence of this item on the total amount of energy sold to free market customers remains very limited (0.6%).**

The family of Acea Energia products also includes, for a limited time period, **Acea Zero Canone**, which guarantees for new customers on the free market who have activated both their electricity and gas supplies **the complete reimbursement of the Rai television licence fee**. This offer has been the subject of a significant communications campaign, launched through various means and supports, focusing on the city of Rome.

To stimulate customers in choosing the free market, the **Acea Dream** competition was launched in November, which rewards customers who activate one of the free market offers with the possibility of winning daily and weekly prizes and a final super prize of 50,000 euros, to be extracted in mid-2017.

For customers on the free market, the **"Acea con Te"** (Acea with You) **loyalty programme**, reserved for **household users**, has continued to stimulate and reward customers choosing the services offered by Acea Energia, **with specific reference to on-line services** (electronic billing, household services, payment by credit card, etc.), giving them the possibility of benefitting from advantages and special discounts, both through the mechanism of collecting points and participating in prize-winning competitions. The **Emozioni da prima fila** (First row thrills) competition was launched in November, awarding free entry to events and exclusive experiences in the sports, cultural and entertainment sector.

Water service pricing

The **Authority for Electricity, Gas and Water** consolidated an **equal, certain and transparent pricing system** last year, through **resolution 664/2015**.

This system envisages a method of determining prices for the 2016-2019 term based on **regulatory schemes**, and is vital in terms of guaranteeing **efficient and economic-financially balanced management**, in the light of the principles of **full cost**

recovery (complete coverage of the industrial and environmental service costs) and **"who pollutes pays"**.

In subsequent resolutions during the course of 2016, the Authority approved the **specific regulatory schemes** containing the relevant pricing predispositions for the **2016-2019 term**, for **Acea Ato 2** and **Umbra Acque**. Specifically, for **Acea Ato 2**, the AEEGSI, in resolution 674/2016, accepted the request made by the Technical Secretariat of the Sector Authority for the recognition of rewards for improving the commercial quality indicators defined in resolution 655/15. The proposal discussed by the ATO 2 Mayor's Conference concerning the use of the solidarity fund to reduce the adjustments approved in the previous regulatory period, with consequences on pricing from 2016, was also accepted. Similarly for **Umbra Acque**, in resolution 764/2016, the AEEGSI recognised additional costs in the pricing system for each year from 2016 to 2019, concerning the adjustment of the contractual quality standards defined by the national regulatory authority.

Again regarding the 2016-2019 term, for **Acea Ato 5**, the Mayor's Conference of the relevant Optimal Area of Operations Authority defined its own pricing proposal in December, albeit contrasting the request made by the water companies: for **GORI**, in September the Extraordinary Commissioner of the Sector Government Authority approved the tariff for the 2016-2019 term.

As regards the Tuscan companies (**Acque, Publiacqua** and

Acquedotto del Fiora), the Tuscan Water Authority approved in October 2016 the respective tariffs rewarding contractual quality for Acque and Publiacqua and with additional costs for Acquedotto del Fiora.

For Acea Ato 5, Gori and the Tuscan companies, approval on the part of the AEEGSI is still pending. The average prices applied in 2016 by the leading water companies of the Acea Group are shown in Table 25.

TABLE No. 25 – AVERAGE WATER PRICES APPLIED BY ACEA GROUP COMPANIES (2016)

Company	€/m ³
Lazio/Campania	
Acea Ato 2 SpA	1.40
Acea Ato 5 SpA	1.98
Gori SpA	1.84
Tuscany/Umbria	
Acque SpA	3.46
Publiacqua SpA	2.72
Acquedotto del Fiora SpA	2.80
Umbra Acque SpA	2.47

CUSTOMER CARE



ABOUT **5 million** CALLS TO TOLL FREE NUMBERS
-14% COMPARED TO 2015



19 December 2016
GO LIVE OF THE NEW ACEA WEBSITE - **www.acea.it** AND THE **MyAcea**, CUSTOMER AREA, ALSO AS AN APP: A SINGLE ACCOUNT FOR ALL WATER, ELECTRICITY AND GAS CONNECTIONS



236,000 customers AT THE COUNTERS OF THE HEAD OFFICE
-10% COMPARED TO 2015



Agreement protocol for ADR settlement (Alternative Dispute Resolution) SIGNED BY 19 CONSUMER ASSOCIATIONS AND ACEA ENERGIA, ARETI, ACEA ATO 2 AND ACEA ATO 5: THE FIRST IN ITALY IN THE WATER SECTOR



IN **Acea Energia** **62,000** CUSTOMERS CHOSE TO SWITCH TO WEB BILLS DURING THE YEAR
ABOUT **13 t/year** OF PAPER SAVED

Customer Care Policy

Customer focus is one of the **sustainability objectives of the Group** and a key element in numerous projects of the **Acea2.0 programme**. Acea thus gives the utmost attention to "customer care" activities, in order to raise the quality and effectiveness of the contact channels between company and customer. The **operating companies** supplying the services also engage in "customer care" activities, while the **Group Customer Care Unit** of the parent company endeavours to provide **consistent and integrated customer management to the maximum extent possible**, in compliance with

industry regulations and specific local conditions.

ACEA 2.0

During the year, the projects continued in the **Acea2.0 programme** concerning the **evolution of CRM - Customer Relationship Management** – (see the relevant box) and the **implementation of an evolved system for managing the Meter to Cash flow** (Measuring, Billing and Credit), for optimising the processes and reducing response times.

THE EVOLUTION OF THE SYSTEM OF CUSTOMER RELATIONSHIP MANAGEMENT - CRM

X

The project activities concerning CRM focus on the following areas of improvement:

- **360° knowledge of the customer:** improving the quality and availability of information, so that the history of each customer – including purchase habits and expectations – and their interactions with the company are easily useable in support of all the customer service processes in a single and integrated context, to manage each profile in a personalised manner.
- **Multi-channel capability:** developing the use of digital channels, such as website and App, with customer incentives.
- **Increasingly automated processes:** simplifying and standardising operating methods to increase their efficiency and reduce response times to customers.
- **Availability and transparency of data and information:** ensuring the traceability of each corporate activity concerning customer requests, improving reporting and monitoring Service Level Agreements (SLA).

During the course of 2016, **the new systems were made operational in Acea Ato 2 and introduced in Acea Ato 5**, the company managing the water service in Frosinone and province, in **Areti** and in **Acea Energia**, the companies involved respectively in the distribution and sale of energy. Thanks to the new technological applications, the system enables, for example, a cost estimate for a new connection to be requested, an appointment with the technicians to be made through the call center and exchanging the required documentation without going to the counter.

The company's customer focus policy has for many years included **listening to the questions raised by Consumer Associations**, which Acea supervises through a dedicated Unit within the **Institutional Affairs Function** of the parent company as well as the **input of its operating companies**. 2016 saw a succession of initiatives aimed at constructing a **virtuous pathway**, in the implementation of the best **customer protection methods**. In particular, activities were carried out to increase the **awareness of the Consumer Associations as regards the use of digital channels** – mainly the **web form for settlements** and the **call and e-mail channels dedicated to the Associations** – and action was taken by the Associations so that they can in turn effectively contribute towards reminding users to use the digital channels, as part of Acea2.0.

In July, a meeting was organised with the 19 Associations

on issues concerning the **RAI television licence fee included in the bill** to clarify disputed aspects on the matter and other meetings during the course of the year were useful in **reaching an important agreement on settlement**, described later on.

Acea has for some time activated the **joint settlement procedure**, an **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). The **joint settlement process** is available for Lazio-based household and non-household customers of **Acea Ato 2** and **Acea Ato 5** in the water sector, and **Acea Energia** and **Areti** in the electricity sector. In 2016, a total of 305 requests were received, of which **218 were eligible for the settlement procedure**: 130 for Acea Energia, 17 for Areti, 70 for Acea Ato 2 and 1 for Acea Ato 5.

On 17 November 2016, after a series of meetings, the **agreement protocol for ADR** (Alternative Dispute Resolution) **settlement** was signed by the **four operating companies** mentioned above and the **19 Consumer Associations** registered with the CNCU, following which the ADR Committee was set-up which, once activated, will represent an evolution in the settlement procedure (see relevant box).

FROM JOINT SETTLEMENT TO THE ADR PROCEDURE

X

With the aim of the best possible customer satisfaction and in their interests, the agreement protocol for ADR (*Alternative Dispute Resolution*) settlement was signed by the 19 Consumer Associations and Acea Energia, Areti, Acea Ato 2 and Acea Ato 5.

The agreement signed by the Associations and the companies in the Acea Group was the **first ADR protocol in the water sector in Italy** and, from an energy viewpoint, the first going beyond the sales sector and involving the **distribution of electricity as well**.

The **ADR Committee** set up after the agreement is composed of a **joint guarantor committee**, a **Settlement Committee** and a **Settlement Secretariat**:

- the joint guarantor committee, formed by three members designated by Acea and three designated by the Associations, has supervisory powers to ensure the transparency and impartiality of the process;
- the Settlement Committee, formed by two representatives, one from the companies and one from the Consumer Associations, has the duty of preparing a settlement proposal that the customer is free to either accept or reject;
- the Settlement Secretariat provides organisational, functional and operational support for the proper performance of the procedure in overall terms.

Access to the ADR procedure will be voluntary and cost free for all customers. Since 1 January 2017, for the sectors involved, such as the sale of energy, **attempted settlement will be a condition for continuing with legal action**. In order to start the settlement procedure, the consumer must in any event submit a complaint to the company supplying the service. Should this complaint not be considered within the deadlines envisaged, or if the reply given is deemed inadequate, the procedure can then be implemented and **must be concluded within 90 days of receipt of the request**.

As part of the activities envisaged in the tenders financed by the Equalisation Fund for the Electricity Sector (CCSE), in 2016, Acea also took part, as a relator, in courses for training the Sole Settler for the Consumer Associations, valid nationwide.

Litigations during the year between Acea and its customers are described in the relevant box.

With a view to protecting free market customers, Acea Energia in 2016 continued, until October inclusive, to implement procedures aimed at **preventing and countering the issue relating to unsolicited contracts**. To this end:

- After signing a contract, customers who subscribe to a free market offer through **door-to-door sales channels** should be contacted by phone (**Check Call**) to ensure **that the contents of the contract signed were clearly illustrated and that the agent's behaviour was fair**;
- Customers who subscribe to a free market offer through **teleselling** are contacted again (**Quality Call**) to establish the **customer's actual willingness to be signed up**.

Moreover, Acea Energia **plays back all of the telephone recordings produced by sales agents**. If the checks are not satisfactory, the new offer activation process will be prevented from being fed into the information systems.

As of November 2016, full regulatory compliance has been reached in the framework of the **discipline of contracts entered into outside the commercial areas** and, in particular, **the entire procurement process has been redesigned**, from the subscription proposal (PDA) to the contract proposal (PDC), **making the process of contract finalisation and the right of withdrawal consistent** as provided by the Consumer Code, **for both door to door sales and teleselling**. For **teleselling**, an **information platform has been realised for durable support**, capable of **offering customers all of the pre-contractual and contractual information before entering into the contract**; the Quality Call has been **replaced by the Confirmation Call**, in which the customer manifests express willingness to finalise the contract, after examining and understanding the contractual conditions of the offer,

or autonomously confirms their willingness to subscribe by interacting with a web page implemented on the platform. This platform also enables **voice recordings** to be available. The Check Call has also been **replaced by the Confirmation Call** in **door to door sales**, with the same objective.

As part of the **Agency agreement** governing the **relationship with the network of sales agents**, Acea Energia has continued to carry out **performance monitoring** activities, with the possibility of fines being applied in the event of

ascertained unfair trade practices, and **mandatory training for sales agents** (see the relevant box in the chapter on *Suppliers*, under *Evaluation of suppliers*). Since last year, **Acea Energia has included bonus-malus systems linked to the quality of acquisitions in the contracts with its own sales agents**. Lastly, during the year the company managed **43 requests for returning to the free market or the enhanced protection service from customers** who had been acquired by other wholesalers through unfair trade practices.

2016 LITIGATIONS WITH CUSTOMERS

X

Legal proceedings **brought by customers** against companies of the Acea Group mainly concerned disputes relating to **charges for service supply, refunds and service activation delays**.

Disputes at 31/12/2016 totalled **385**, 125 of which had already been resolved last year. This is an inversion of the trend with respect to the preceding three years, and a significant **reduction in customer litigations** (there had been 575 litigations in 2015 and 502 in 2014). However, as regards the numbers stated, it must be taken into consideration that refunds are no longer managed by the parent company but directly by the operating companies (Acea Energia and Acea Ato 2). Customer litigation continues to be the most rapid solution and less costly procedure.

Contact channels and performance

As already mentioned, **the Acea 2.0 programme has revolutionised Acea's strategy as regards the contact channels** for customers and, in late 2016, the **transfer to the single website** occurred, superseding the websites of the individual companies supplying water services and energy sales, and the **MyAcea** portal was activated, also in **App** form for mobile devices (see the relevant box later on in the *Communications* section). During the year, the **call center and over the counter** activities were enhanced, and now, thanks to systems integration, the customer is given more detailed information on the procedures to be undertaken for the main operations, through the available channels.

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 force⁶¹.

Acea8cento provides the management of some **remote channels** – telephones, faxes, web forms, mail, social networks – for the main operating companies in the Group, mainly for commercial use⁶². The service delivered by the contact centre aims to maximise operations in order to ensure quality, promptness and consistency in meeting customer's requests.

ACEA 2.0

The main activities of Acea 8cento in the framework of the Acea2.0 programme included:

- the development and production of the **new TwinsOn-SAP system** for the **management of the "enhanced protection" customers of Acea Energia**, which went live on 5 December;
- the **entry into operation of the SAP CRM system** for Acea Ato 2;
- the **start-up of the same system at Acea Ato 5** (go live on 18 April 2016) and gradually at the other companies in

the Group operating in the water sector.

It also gave its full support in the overall review, from a simplification viewpoint, of all the contact channels. In 2017, the process of digitalisation of the customer care activities of the Acea Group will continue, with particular focus on the development of the web channel (self-care) and the overall improvement of the customer experience, in which Acea8cento plays a central role.

The parent company regularly performs **checks on the quality of the telephone channels and physical helpdesk counters through mystery client surveys**. The results are shared with Service Managers and contact operators to **identify areas for improvement** in each contact channel and take the necessary corrective measures. An initial model was prepared in 2016 to enable the systematic correlation of the results of the surveys on perceived quality with the actual quality supplied, including the data from the mystery clients.

In 2016, **the Acea toll free numbers handled about 5 million calls, a reduction of more than 14%** compared to last year. The overall service level, represented by the replies to the total number of incoming calls handled, **was 87%**, and is stable compared to 2015.

The **reduction in the number of calls** was registered in the **energy sector** in particular – it accounted for 70% of the total number of calls in 2015, compared to 64% this year – where the improvement of the processes linked to billing has led to a reduced need to call the numbers than in the past. However, the impact of the commercial water services number of Acea Ato 2, the company which was the first to deal with the transfer to the new information systems, increased. Calls for reporting electrical faults decreased, due to improved climate conditions and the investments made on the networks (see charts 22 and 23 and table 2, at the end of this section).

⁶¹ Legislative Decree no. 196/2003 as amended.

⁶² In addition to the commercial channels, Acea8cento manages the numbers for reporting faults in the water service supplied by Acea Ato 5 and Gori and for cemetery lighting by Areti, and, in overflow, part of the traffic of the commercial channels of the Tuscan water companies Acque and Publicacqua.

CHART No. 22 – TOTAL TELEPHONE CALLS TO ACEA FREE-TOLL NUMBERS (2015-2016)

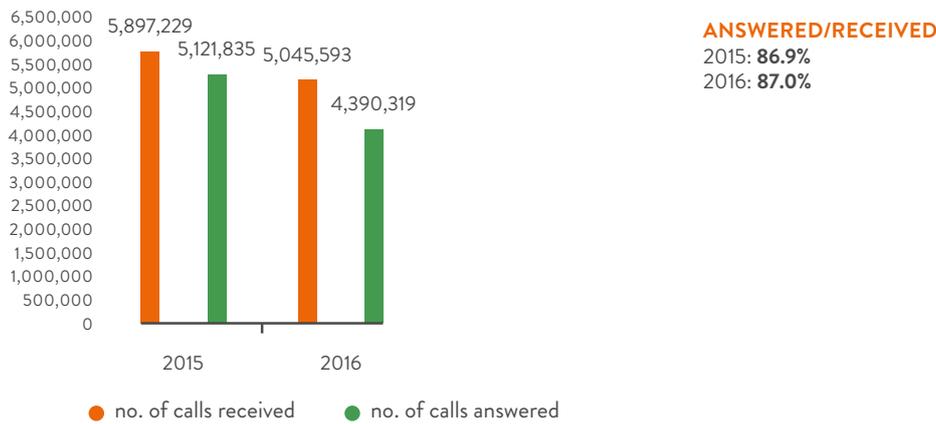
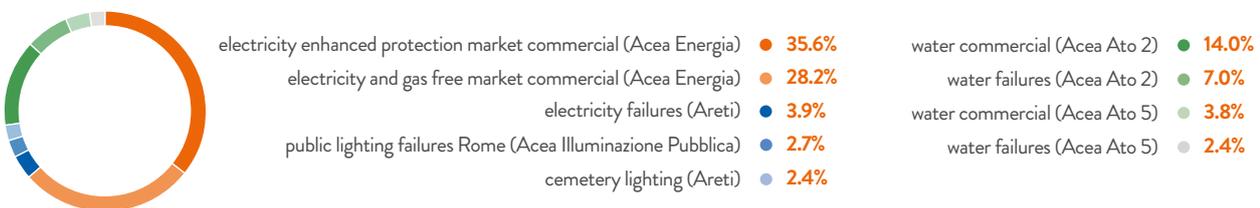


CHART No. 23 – PERCENTAGE BREAKDOWN OF INBOUND CALLS TO ACEA TOLL-FREE NUMBERS (2016)



The polling survey conducted by the Authority for Electricity, Gas and Water during the first half of 2016⁶³ showed, for the **Acea Energia toll-free numbers**, a reduction in overall CSI – Customer Satisfaction Index – (scale of 0-100) – from 89.2 out of 100 in the same period in 2015 to **84.1 out of 100**. However, the CSI improved significantly compared to the second half of 2015 (79.5), when a fall occurred in the factors of speed and clarity in solving customer issues.

The **overall service level of the toll-free numbers, represented by the percentage ratio of calls answered over total calls received**, remained **stable and high** for most of the toll-free numbers. There was a **significant improvement** in terms of performance for the **Acea Ato 2 toll-free numbers for reporting water faults**, which enhanced its portfolio of operators in 2016. However, the performance of the **Acea Ato 5 and Areti toll-free numbers worsened**; these numbers concern the management of perpetual lighting. In truth, **the lengthening of the time taken to handle the call is to be taken in relation to the increased possibility of performing operations directly over the telephone**, without forwarding the call to the back office. The main performance indicators in the last two years are illustrated in table 26, at the end of this section.

The **websites of the various service operators were active during the year, until 18 December 2016**; in fact, **19**

December saw the go live of the single completely renewed Acea website (www.acea.it, see the relevant box and the section on *Communications*). The data recorded during the year continues to bear witness to the **new habits and interest of customers in the use of this channel**: up to mid-December 2016, the **Acea Energia website was accessed 3,251,927 times**, a very high number in line with that for last year. The **Acea Ato 2 website was accessed 1,409,392 times (35% more than the 1,042,790 times last year)** and the **Acea Ato 5 website was accessed 304,728 times**, a decrease of 15% compared to last year, but still significant with respect to the number of users.

Until mid-December, customers accessed the websites of the operating companies, with **online helpdesk counters**, from which it was possible to carry out numerous **contractual and commercial operations**, request information, send self-metering results, update personal profiles and check the status of bills and payments. Today, **the single website enables customers to register and access the reserved My Acea area** – also in App version – and from there **manage the water, electricity and gas connections with companies in the Group in a single account**, with a view to **simplifying and at the same time expanding the operations available**, while the procedures will continue to be dealt with by the companies supplying the various services after the change to the unified portal.

⁶³ The Authority had not yet shared the results of the survey in the second half of 2016 when this document was published.

Since December 2016, **MyAcea** is the **new area dedicated to customers** – private individuals, condominium administrators and public administrations – where **all of their water, electricity and gas connections can be managed** in an integrated manner **in a single account**. Another important step towards the progressive digital transformation of Acea and a particular advantage for those – such as companies, PA and condominium administrators – who manage a high number of connections (including multi-company) in different areas.

After registering, quickly associating connection and contract to a single web account, customers can access the reserved My Acea area - <https://www.acea.it/myacea/it/login> – from where **they can**:

- easily **carry out** operations such as **transfer or takeover online**;
- **start the procedure for activating a new contract** or requesting specific **estimates**, for example for **moving a meter** or the **modification of the voltage or power supplied**;
- **activate the web bill, a free service** which enables the bill to be received **directly in your e-mail inbox**, viewed and downloaded from any device, avoiding the consumption of paper and respecting the environment;
- **pay the bill** using **home banking**, which can be activated directly on MyAcea, or using MyBank or **credit card**;
- **demonstrate the payment of a bill**, uploading the paid bill online, without having to send a fax or e-mail;
- **send their meter reading**, always keeping consumption under control;
- **change their home address or contact details** at any time;
- access documents in order to view the archive of consumption levels, bills, meter readings, billing changes or complaints;
- **monitor the status of progress of requests**.

MyAcea is also a new App for all mobile devices.

The **public hall is open at the head offices of Acea** in Rome, in Piazzale Ostiense, where **electricity, gas and water customers who prefer to use the helpdesk counters** managed by Acea Energia and Acea Ato 2 **are dealt with**. At the end of November 2016, during a brief and temporary closing of the Acea Energia helpdesk counters, which was necessary to install the new IT system for the enhanced protection service, and while the Acea Ato 2 helpdesk counter continued to work normally in an adjacent room, **some modernisation work was carried out in the hall**, rationalising the spaces and improving comfort levels, also providing **Wi-Fi coverage**. During the year, the previous treasury service was superseded and withdrawn from use, due **to the new payment channels** (POS at the helpdesk counters, website, agreement with the Post Offices) **available to customers**. Lastly, the “central island” gathering area in the public hall plays an increasingly important role in solving the simplest procedures, thereby saving customers futile waiting times.

During the year, **the public hall at the head offices was visited by 236,000 customers, a reduction of 10%** compared to the 262,467 customers visiting in 2015, confirming the positive **trend towards the reduction** of the number of customers using the helpdesk counter **highlighted in the last two years**. The reduced number of accesses involved the electricity service in particular, due to the enhancement of some processes, while the use of the helpdesk counter for the water service showed a slight increase, due to the introduction of the new systems implemented during the year.

There are other helpdesk counters at the branch offices in Ostia Lido and, for the water service, **Acea Ato 2 manages an additional 13 contact points in the province of Rome**; the latter received a total of 71,504 visits in 2016, also a reduction compared to the 78,656 in 2016.

With regard to the **performance of helpdesk operations, the service levels**, expressed as the percentage ratio of customers served and total tickets issued, improved for the helpdesk counters at the head office of **Acea Energia** and **Acea Ato 2**, while the helpdesk counters of **Acea Ato 5**, although showing a slight decline, **maintained very high service levels** (see table 26 at the end of the paragraph).

The helpdesk counters of Acea Energia showed a **significant reduction in waiting times**, favoured by the reduced number of visits and the support of the welcome point in solving the simpler issues. The **opening hours were also extended**, enabling a better distribution of visits during the day and the number of operators available was also increased, as was that of the multiskill operators, ensuring greater flexibility. **The waiting times at the helpdesk counters of Acea Ato 2** also reduced, due especially to some organisational changes made during the second half of the year. As regards **Acea Ato 5**, which operates in the Frosinone area, the data on **customers visiting the helpdesk counter** in 2016, totalling 72,843, **fell by about 17%** compared to 2015, also due to the increased number of issues being solved by telephone.

The operating companies also deal with **written complaints, with an information system enabling the relevant process to be followed throughout, from the time the complaint is filed up to its settlement**.

Regarding the **electricity service**, times and percentages of **response to written complaints/enquiries** by the **selling companies** represent **specific and general levels of commercial quality laid down by the National Authority (AEEGSI)**. In the event that the seller needs the **distributor to provide technical data** in order to reply to the customer, the distributor must – as per specific quality level – provide such data within 10 or 15 business days, depending on the type of data being requested. Replying to written complaints is also part of the **general quality levels** pertaining to the **distributor** (for performance data, see *The quality delivered in the electricity sector*, tables 12 and 13).

As regards the **public lighting service**, replies to **written complaints/enquiries** throughout 2016 were dealt with directly by **Acea Illuminazione Pubblica**⁶⁴. **A total of 814 complaints/enquiries were received** (an increase of about 7% compared to the 757 received in 2015) and, at 31 December, the company had **replied to 693 complaints**, amounting to over **85% of the total**. The average number of days taken to reply was about 8 and 99% of the replies were sent within 30 days, while the remaining issues will be dealt with in early 2017.

⁶⁴ It must be taken into account that, in December 2016, the new macrostructure of Areti SpA, the company managing the distribution of electricity in Rome and Formello, was approved, in acknowledgement of the proportional partial split-off of Acea Illuminazione Pubblica SpA in favour of Areti SpA. Therefore, a consistent part of the activities carried out by Acea Illuminazione Pubblica were merged into the distribution company.

There is no accurate data available this year for the process of managing complaints by the **companies in the water sector**, and they would not have been comparable to the previous year. In fact, 2016 was a **year of transition**: on one hand, the companies had to deal with the transfer to the **new SAP CRM information systems** and, on the other, **the specific and general contractual quality levels** as defined by the sector Authority in Resolution 655/2015/R/idr, Annex A, which also include the methods of management and the response times to requests for information, written complaints and requests for billing changes, came into force as of July. Regarding Acea Ato 2, the new process for the management of complaints in the CRM system, which was made fully operational during the course of the year, required some fine tuning interventions which caused delays. These issues were resolved over the course of a few months by a dedicated task force, and the company concentrated its efforts on realising organisational changes aimed at facilitating the full respect of the standards envisaged by the Authority, which effectively led to a 99% compliance level as regards the data for the second half of 2016. In Acea Ato 5, the migration to the new IT systems was carried out at the end of the first four-month period of 2016, and adjustments were also necessary in this case as well, which caused some slowdowns in operations. At the end of the year, some of these issues were still persisting, and are currently being resolved, with a view to

the commitment required in order to respond adequately to the standards envisaged by the AEEGSI.

In December 2016, the **new layout of the Acea Energia invoicing bill – bolletta 2.0** – was launched for customers on the enhanced protection market, as had been done for the water companies at the end of 2015. The bill has been completely renewed from both a graphic viewpoint and the organisation of the contents, with the aim of making it as clear and transparent as possible.

The Acea website – www.acea.it – contains the **guidelines for reading the bill, in both the electricity section** – for customers on the free and enhanced protection markets – and the **Water section**, for water sector customers.

Furthermore, in March 2016, Acea Energia launched a campaign called **“Bolletta WoW”**, aimed at **promoting the electronic bill**. Various prizes were put up for grabs for customers, including smart-phones, petrol coupons, etc., and a trip for two people to a destination of their choice as the final prize. **Over the course of 3 months** – the duration of the campaign – **about 30,000 customers chose to abandon paper bills** and change definitively to the digital bill. **In total, about 62,000 customers** chose the electronic bill option **during the course of the year**; in environmental terms, with regard to paper only, this corresponds to **about 13 tonnes of paper saved per year**.

TABLE No. 26 - SOCIAL INDICATORS: TOLL-FREE NUMBER AND HELPDESK COUNTER PERFORMANCE (2015-2016)

TOLL-FREE NUMBERS

ELECTRICITY SERVICE

COMMERCIAL TOLL-FREE NUMBER (Acea Energia) - ENHANCED PROTECTION MARKET			
	U.M.	2015	2016
Total calls received	no.	2,245,313	1,796,325
Total calls answered	no.	2,016,427	1,542,319
Service level (% of answers on calls received)	%	89.8%	85.9%
Average waiting time before answer	min. sec.	1'29"	2'7"
Average conversation time	min. sec.	4'16"	4'24"
COMMERCIAL TOLL-FREE NUMBER (Acea Energia) - FREE MARKET (energy, gas and offers)			
Total calls received	no.	1,905,065	1,421,298
Total calls answered	no.	1,617,945	1,240,060
Service level (% of answers on calls received)	%	84.9%	87.2%
Average waiting time before answer	min. sec.	1'41"	1'41"
Average conversation time	min. sec.	4'30"	4'18"
FAULT TOLL-FREE NUMBER (Areti) (*)			
Total calls received	no.	230,937	197,035
Total calls answered	no.	213,772	186,128
Service level (% of answers on calls received)	%	92.6%	94.5%
Average waiting time before answer	min. sec.	1'37"	1'23"
Average conversation time	min. sec.	2'16"	2'34'
LIGHTING SERVICE			
PUBLIC LIGHTING - FAULT TOLL-FREE NUMBER (Acea Illuminazione Pubblica) (*)			
Total calls received	no.	120,432	137,098
Total calls answered	no.	111,728	124,698
Service level (% of answers on calls received)	%	92.8%	91.0%
Average waiting time before answer	min. sec.	1'20"	1'42"
Average conversation time	min. sec.	1'47"	1'58"

	U.M.	2015	2016
CEMETERY LIGHTING - COMMERCIAL/FAULT TOLL-FREE NUMBER (Areti)			
Total calls received	no.	153,263	119,995
Total calls answered	no.	127,802	90,838
Service level (% of answers on calls received)	%	83.4%	75.7%
Average waiting time before answer	min. sec.	1'32"	2'06"
Average conversation time	min. sec.	3'38"	4'04"
WATER SERVICE			
COMMERCIAL TOLL-FREE NUMBER (Acea Ato 2 - Rome and provincial districts)			
Total calls received	no.	590,240	708,034
Total calls answered	no.	501,634	624,678
Service level (% of answers on calls received)	%	85%	88.2%
Average waiting time before answer	min. sec.	2'09"	1'34"
Average conversation time	min. sec.	4'49"	5'14"
FAULT TOLL-FREE NUMBER (Acea Ato 2 - Rome and provincial districts) (*)			
Total calls received	no.	358,255	352,388
Total calls answered	no.	280,660	332,211
Service level (% of answers on calls received)	%	78.3%	94.3%
Average waiting time before answer	min. sec.	4'19"	1'57"
Average conversation time	min. sec.	2'48"	3'33"
COMMERCIAL TOLL-FREE NUMBER (Acea Ato 5 - Frosinone and provincial districts)			
Total calls received	no.	190,510	192,588
Total calls answered	no.	160,995	150,154
Service level (% of answers on calls received)	%	84.5%	78.0%
Average waiting time before answer	min. sec.	1'10"	1'40"
Average conversation time	min. sec.	4'02"	4'15"
FAULT TOLL-FREE NUMBER (Acea Ato 5 - Frosinone and provincial districts)			
Total calls received	no.	103,214	120,832
Total calls answered	no.	90,872	99,233
Service level (% of answers on calls received)	%	88%	82.1%
Average waiting time before answer	min. sec.	0'42"	1'14"
Average conversation time	min. sec.	2'48"	3'55"
HELPDESK COUNTERS			
ELECTRICITY SERVICE			
ACEA ENERGIA – HELPDESK COUNTER FOR ENHANCED PROTECTION MARKET			
Tickets issued	no.	148,951	128,232
Customers served	no.	120,559	111,430
Service level (% of customers served/tickets issued)	%	81%	87%
Average waiting time	min. sec.	1h5'28"	49'34"
Average service time	min. sec.	14'42"	14'37"
ACEA ENERGIA - FREE MARKET HELPDESK COUNTER (energy, gas and offers)			
Tickets issued	no.	62,364	52,132
Customers served	no.	48,061	43,397
Service level (% of customers served/tickets issued)	%	77%	83%
Average waiting time	min. sec.	1h18'35"	59'23"
Average service time	min. sec.	17'31"	16'19"
WATER SERVICE			
ACEA ATO 2 (Rome – head office helpdesk counter)			
Tickets issued	no.	51,152	55,641
Customers served	no.	50,088	54,841
Service level (% of customers served/tickets issued)	%	98%	99%
Average waiting time	min. sec.	34'15"	22'58"
Average service time	min. sec.	10'28"	12'22"

	U.M.	2015	2016
ACEA ATO 5 (4 helpdesk counters in Frosinone and provincial districts) (**)			
Tickets issued	no.	87,341	72,843
Customers served	no.	85,191	68,570
Service level (% of customers served/tickets issued)	%	98%	94%
Average waiting time	min. sec.	1h11'09"	1h3'17"
Average service time	min. sec.	7'03"	9'24"

(*) Calls handled by the automatic system or terminated by the customer during navigation within the interactive voice responder are also considered as answers.

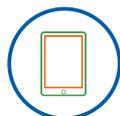
COMMUNICATION, EVENTS AND SOLIDARITY



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233 teachers INVOLVED



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1,800 participants
IN THE SECOND EDITION OF

Acea Olympic Camp



3.633 people

VISITED THE ACEA PLANTS

Communication

Acea deals with the different forms of external communications - **web, press office, communication campaigns, events, sponsorships**, etc. - through the **External Relations and Communications Function** of the parent company, which defines the *corporate identity* and operates in conjunction with other Group companies.

Communication initiatives are also dealt with by Special Projects of Communications and Relations with the Local Community, which is tasked in particular with **strengthening the bond between the Acea Group and the context it operates in**, with environmental education, solidarity, active citizenship or ethics initiatives aimed at **enhancing the reputational capital** of the Group in the eyes of customers and citizens.

The **Web, Social and Content Unit** coordinates the **development and management of the corporate website** - www.acea.it - and **in 2016**, together with the business companies and core corporate Functions, **prepared the restyling of the web & social identity of the Group for the go live of the new website**, which supersedes the websites of the water and electricity sales companies. The website was ac-

tivated online on **19 December** with a **completely renewed digital platform**, not only in its **graphic layout** but also with simple and clear **contents** and, especially, **functions**.

The new single website was conceived to **improve the quality and efficiency of information for customers on the water, electricity and gas services**. In addition to the single website, the **MyAcea reserved area** was also developed to enable customers to easily manage their utilities online. At the end of 2016, the **new MyAcea App for all mobile devices** was also launched (see also the *Customer care* section). Furthermore, **new services were planned** for the new single website, such as the possibility of checking in real time when scheduled maintenance work is planned or reporting faults and requesting interventions. The web platform is based on three concepts: **integrated system, mobility and real time**. The single website is available in Italian and English (the latter is still being published) and distributes communications within the Group, showing the full integration between the operating companies and services available to customers. The website (see the relevant box) is constituted by a **super homepage**, which is decidedly **customer oriented**, with direct access to new information, contents and functions.

The new website www.acea.it and **MyAcea**, the customer area through which **water, electricity and gas utilities can be managed from a single account** simply and quickly, were **presented on 21 December 2016 at a press conference by the Chairman and Chief Executive Officer of Acea SpA**.

More quality and efficiency, immediate access to information and real time intervention requests are the characteristics of the Acea web platform, **the final step in the digital transformation** and technological upgrading of the **Acea 2.0 programme**.

For the first time, a series of **operations managed via web and from PCs, tablets and smart-phones are a click away**: from signing contracts to requesting immediate fault fixing, from payment of bills to self-metering, and also the possibility of making an appointment directly with Acea technicians, using a shared calendar.

The website has been **completely renewed** in terms of graphics, contents and functions. Integrated system, mobility and real time are aimed at **highlighting the new methods of communication**, which are now available exclusively via web. The customer services are highlighted directly on the homepage, while the part concerning the Group is in the background. Clicking on My Acea enables web customers to access using a **unique digital identity** and a single account for on line services.

The new website constitutes a **change in perspective**: it will be possible to **carry out online 95% of the operations** that are currently managed by call center operators or at the helpdesk counter. Furthermore, **more than 1,800 Acea technicians will be automatically directed to the customer who has requested an intervention via web** on the basis of their geo-localisation at that specific point in time, recorded using GPS.

The other **novelties of the single website** include making available a **section entirely dedicated to public and artistic lighting**, with the possibility of **reporting faults directly on the digital platform**. The Web Social and Content Unit is also dealing with the aspects of its competence in the development of Acea communications on the main social networks and the **redefinition of the web identity**, with the launch of the new Acea logo, expected to occur in the first quarter of 2017.

In the area of the website dedicated to **the Group**, the **Investor Relations** section enables access to an area containing the Financial Statements and Presentations, Rating, Financial calendar, Price sensitive communications and Share performance. Sections have also been prepared dedicated to certain categories of stakeholder, such as **Suppliers**, and, in the area dedicated to **Consumers**, a **section for joint settlement ADR** can also be accessed, enabling entrance through a link to a mini website dedicated to sending the request for online settlement (see also the section on Customer Care).

Also during the year, the **section dedicated to the Water Houses** – the free distribution points for natural or sparkling water, which Acea is progressively installing in the central and peripheral areas of Rome and in the provincial districts

– **where the characteristics of the water distributed by each Water House**, video tutorials and clips can be viewed, has been restyled and developed further. At the end of June 2016, **the section dedicated to Areti**, the company managing the distribution of electricity, **was removed from the corporate website**, in fulfilment of that envisaged by the Area Authority. A Beta version of an ad hoc website was also created, the graphics, contents and functions of which will be completely renewed in 2017.

Of the news published online during 2016, particular significance was given to Acea's participation in **Maker Faire**, in October, the most important event showcasing innovation (see the relevant box). The initiatives undertaken during the year by the **Special Projects of Communications and Relations with the Local Community Function** were also highlighted in the new area dedicated to **media and events**. There was more online content, including **multimedia and social**, on the main projects, for example **the initiative for schools *L'ambiente che voglio da grande*** (The environment I want when I grow up), which in 2016 **saw the involvement of about 2,500 students** in "lessons" on water and energy (see the relevant box in the section *Stakeholders and their involvement*, in the paragraph on *Corporate identity*).

ACEA FOR INNOVATION MAKER FAIRE 2016

Great success, innovation, technology and entertainment are the elements characterising Maker Faire Rome, held from 14 to 16 October 2016 at the Fiera di Roma. The European edition of the event has the mission to **spread the digital culture**, giving space to **new ideas and inventions from all over the world**. A family friendly event rich in creativity celebrating the culture of "do it yourself" in a technological context on which "movement makers" are based.

Acea sponsored the initiative this year as well and set-up its own display stands. It presented the **Augmented Reality** solutions applied to the Energy industrial sector, with specific focus on the use of this technology in support of **individual protection devices** and training in a virtual, environment on **high risk technical manoeuvres**. It also displayed the **drone that it will use for monitoring high voltage overhead electricity lines**, in the House of Drones section dedicated to all the novelties in the sector. The presentation of the project was accompanied by a short film. **Acea is the first company to have an internal pilot recognised by Enac (the Italian civil aviation authority) to use the drone**.

In the Kids area of the Acea display stand, dedicated to "baby makers", the company offered the possibility of playing with a virtual reality App: a big nose with a water spout, a flower rising out of compost and a light bulb that illuminates were only some of the interactive drawings that came to life in 3D, enabling young children to interact with their personalised creations.

Maker Faire 2016 was also an opportunity, after the great success achieved in 2016 by ***L'ambiente che voglio da grande*** (The environment I want when I grow up), to launch ***Io mi impegno per l'Ambiente!*** (I am committed to the environment), the new project that Acea is proposing for schools for the next cycle of education.

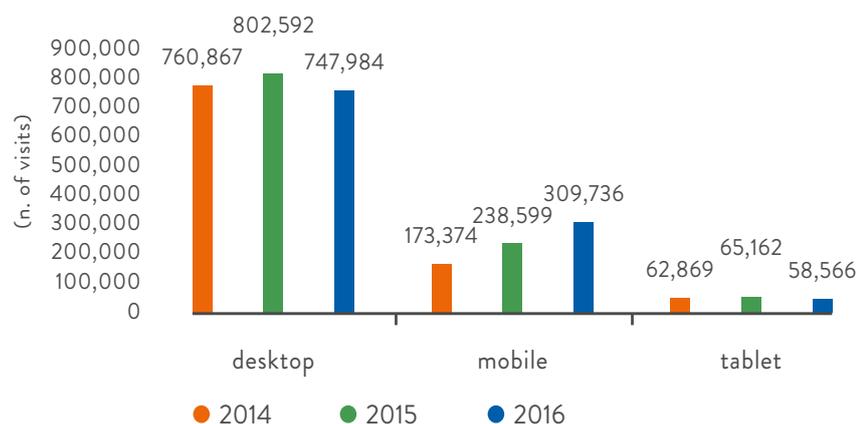
The **News** present on the website highlights news and initiatives linked to Group activities on innovative technology, energy saving, eco-sustainability and reducing environmental impact and protecting the local community, consistently with the **focus on sustainability**. Acea Ambiente makes the **emissions**, monitored in real time, **of the two waste to energy plants** available online and the main **quality parameters of the water supplied** by the companies in the water sector can also be consulted online.

During the year, **the contents of the website section** (in Italian and English) **dedicated to “Sustainability”** were updated, implemented and valorised by the periodical publication of “sustainable news”, and, during the Shareholders’ Meeting held at the of April, the **website areas dedicated to Financial Reports – Annual and Sustainability** – were **developed and published**, in a navigable and **interactive** version, in Italian and English, with some open data and multimedia contents.

As regards the environment portal dedicated to schools www.ambientandoci.it, which was still active in 2016, Acea has planned for it to be superseded, with the creation of a mini-site dedicated to the numerous initiatives of the *Acea per la scuola* (Acea for schools) project, to be implemented next year.

Up to 18 December 2016, there were an **overall total of 1,116,286 visits to the Acea website, in line with last year**

CHART No. 24 – ACEA WEBSITE: ACCESS METHODS (2014-2016)



Note: for 2016, the data refers to the period 1 January-18 December.

Relations with the media are handled by the **Press Office** Unit, whose daily tasks include **preparing a press review of the main national newspapers** and some local newspapers, making it available to colleagues **on the corporate intranet**, monitoring press agencies, singling out topics of interest, and preparing a **start-of-day abstract** and an **end-of-day focus** on the main national and international events.

Reports published in the newspapers regarding the different services managed by the Group are promptly **handled by the Press Office**. This activity is carried out in close cooperation with the relevant operating companies and in conjunction with the editorial staff of the newspapers willing to publish the company’s replies. Other reports are submitted by email, fax and direct phone calls and are likewise promptly dealt with.

During the year, the Press Office **highlighted the numerous projects aimed at schools**. Acea has set itself the target of **increasing the awareness of primary and secondary school students on the sustainable use of water and energy resources**, organising guided tours of the plants for them, with specific routes and the assistance of explanations provided by the technicians of the Group. The Office continued to give ample

(1,106,353 visits in 2015). There were also 329,391 visits to the new website from 19 to 31 December⁶⁵.

Up to 18 December 2016, **2,489,922 pages** on the website **were accessed** and, after the go live, **in only twelve days to the end of the year, 1,779,780 pages of the new website were accessed**.

The most viewed pages (up to 18 December 2016) were the toll free numbers (3.82%), the energy area (3.82%), troubleshooting (3.23%), working with Acea (2.56%) and Suppliers (2.38%); **of the more than 1,770,000 pages accessed in the last 12 days of the year, 51% (910,911 visits) were to the new MyAcea customer area**.

The methods of connecting to the Acea website, desktop computer, mobile devices and tablet, **confirm**, observing the **trends in the last three years, the marked increase in the use of mobile devices** recorded last year. They increased by **30% between 2015 and 2016** and by **about 79% between 2014 and 2016** (see chart 24).

For the data concerning the **websites of the companies managing the services**, active up to 18 December 2016 and then superseded by the new website, see *Customer Care*.

space to the **progressive installation of the Water Houses**, inaugurated in various areas of the city and provincial districts, of which there were **46 at the end of the year** (25 at the end of 2015). The Press Office again documented the initiatives linked to the new LED lighting, from the outskirts to the centre of Rome. In particular, in 2016, it emphasised the new lighting on the sixteen historical bridges in Rome, the installation of more than 1,000 lighting points, with energy savings of about 55%, and the lighting of the Imperial Forum using LED lighting, inaugurated on the anniversary of the foundation of Rome (see also *Quality in the water sector* and *Quality in the public lighting sector*).

Newspapers also placed emphasis on initiatives that have been tested over time, again aimed at the younger generation, such as **Acea Olympic Camp**, a summer sports camp attended by about 1,800 boys and girls. The Press office also placed particular emphasis on the involvement of the Company in **Roma Pride**, the realisation of the third edition of **Mai Più** (Never again) and involvement in the partnership **Parks, Più liberi-Più Uguali** (Freer-More Equal), embarking on a corporate training path on diversity and good practices of inclusion and valorisation of different skills. The Office also continued its communication on the steps of the **innovation and digitalisation process**

⁶⁵ Source: Google Analytics.

implemented in the Acea Group, called Acea2.0, in order to enhance the management processes and quality of the services supplied and **unveiled the new Group website to the press** at the end of the year.

As usual, **press releases** were issued to disclose the **most important corporate events of the year** and, in **conjunction with the Investor Relations Division, economic and financial reporting** was handled following shareholders' meetings and

meetings of Boards of Directors or on the occasion of financial disclosures.

Lastly, using information sheets circulated by the media or posted on the corporate website, the Press Office illustrated the main events, conferences and cultural, sports, social and environmental events in which Acea participated as a sponsor by fitting exhibition spaces or providing its own speakers (see *Events and Solidarity* below).

ACEA OLYMPIC CAMP 2016: 1,800 PARTICIPANTS AT THE PARCO DEL FORO ITALICO

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Acea Olympic Camp is one of the most important sporting initiatives in Rome dedicated to school and youngsters.

The event, started in 2015 and organised again in 2016, has set the target of promoting an educational summer of sports and wellbeing. All of the activities involved took place between 13 June and 22 July at the **Foro Italico sports facilities** and the youngsters – children and adolescents aged between 6 and 14 – had the chance to take part in **basketball, volleyball, rugby, soccer, baseball, fencing, tennis, athletics, swimming and dance courses**. The initiative, which had numerous guests from the sporting world, saw the involvement of **1,800 people**, 1,500 children and their accompaniers.

Acea Camp 2016 was realised thanks to the contribution of Acea, the support of CONI (the Italian Olympic Committee) and the sponsorship of the Departments of Roma Capitale: Educational and Schools Services, Family, Infancy and Youngsters Policies, Promotion of Sports and the Quality of life.

The organisation of Acea Camp 2016 was entrusted to Beside Management, a company managed by **Carlton Myers**, former captain of the Italian national basketball team and technical director of the Camp.

The campaign used the claim: “*Acea Distribuzione becomes Areti. Electricity, technology and innovation, which have always been at your service, now have a new name*” and was spread in the area of Rome by posters and billboards on the back of buses and through the daily press and radio from 28 July to 27 August.

A second campaign involved **Acea Ato 5**: the company believed it opportune to **communicate the main objectives achieved to its customers, its commitment towards the local community, future investments, the quality of water, focus on the environment and the new digital contact channels**. The campaign, comprising three advertisements and five advertising subjects, chose the payoff “*Water for families*”, which appears under the logo, confirming the corporate mission. Local television, cinema, press, posters and billboards were used to spread the campaign. The campaign went on air on 16 November 2016 and will continue in 2017.

Each year, **Acea's plants are visited by a diverse audience** – from schoolchildren to industry operators – relying on the **availability and skills of its own employees, who play host**, especially in recent years, **to a large number of visitors: in 2016, during 36 guided tours, 3,633 people visited the plants**, from both Italy and abroad. In particular, about 2,500 children were able to visit the Acea plants thanks to the projects involving schools.

Events and Solidarity

The **economic value allocated to the community** in 2015 stood at **2.9 million euros**⁶⁶ (3.2 million euros in 2015), of which about 2.7 million was used to sponsor cultural, social and sports events. Provisions for donations to social associations and non-profit organisations amounted to 277 thousand euros (360 thousand in 2015).

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. These services are known as “**technical sponsorships**” and were involved in numerous

events during the Roman summer and numerous social and solidarity events **in 2016, generating an overall economic counter-value of more than 193 thousand euros** (156 thousand euros in 2015).

Of the events sponsored or supported during the year, some of which have already been described in previous sections, the most important were the sponsorship of the **Energy Festival**, one of the main national energy-related events, and the **Maker Faire Rome**, the European initiative dedicated to technological innovation.

Acea also placed **special emphasis on youngsters**, organising or supporting some especially significant events, such as the the **L'ambiente che voglio da grande** (The environment I want when I grow up) project and the second edition of **Acea Olympic Camp**. Numerous cultural or sporting events were supported with widespread public participation, including the **traditional Rome Marathons** (see the relevant box).

The company has also given its support to some socio-humanitarian events, such as, for example, the **Parent Training** project, aimed at helping the parents of children with rare diseases, the **Familiari e figli di detenuti** (Families and children of prisoners) project at Rebibbia prison, and highlighted its commitment during occasions such as the **national prevention campaigns for women – Nastro Rosa (Pink tape) and Ottobre rosa (pink October)** – offering technical sponsorships, by lighting the Colosseum and the Lazio Region headquarters building and, during the **Race for the cure**, at the Circo Massimo, supplying water and electricity. Lastly, Acea and Roma Capitale have expressed their **solidarity towards the countries hit by terror attacks** during the year, projecting their flags onto the Senate building to commemorate the victims.

As it does every year, **Acea made available the atrium of its head office** in Rome to enable **Associations involved in social work** to organise **fundraising events in support of their activities**. The following were hosted in 2016:

- **Fondazione ANT Italia Onlus** – the association providing free social and health assistance for cancer suffer-

⁶⁶ This item also included costs incurred for “trade shows and conventions” but did not include “technical” sponsorships.

- ers and realising oncological prevention projects – for the sale of Easter eggs on 23 and 24.02.2016, of cyclamen plants on 25.10.2016 and of Poinsettia plants on 6.12.2016;
- ROMAIL Onlus – the Italian association against leukaemia lymphomas and myelomas which supports scientific research and home assistance – for the sale of Easter eggs on 9.03.2016 and the sale of Poinsettia plants on 7.12.2016;
 - UNITALSI – the Catholic association involved in home

assistance for the ill and taking them on pilgrimages to sanctuaries in Italy and abroad, for the sale of olive tree bonsai plants on 28.01.2016;

- Italian Red Cross – which provided information and promotional activities on donating blood, on 23.12.2016.

The following boxes describe the **main events supported by the Acea Group in 2016**, through sponsorships or donations, subdivided according to their purpose and specifying the companies participating.

2016: ACEA'S SUPPORT OF THE ENVIRONMENT AND YOUNGSTERS

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- megawatt sponsor of the 2016 edition of *L'energia spiegata. Festival dell'Energia* (Energy Explained. Energy Festival), the main national event uniting representatives of the scientific, academic, institutional and economic worlds with the aim of **expanding debate on energy-related matters** and promoting a new energy culture in the country. The event, centred on the theme *Energy to come – the right to the future*, was held in Milan, at the Unicredit Pavilion from 12 to 14 May 2016 (ALLEA Srl)
- title sponsor of the 2016 edition of the *Schools Volleyball Tournament – Acea Trophy*, for high schools in Rome and provincial districts organised by Fipav Lazio (Fipav Lazio)
- main sponsor of the second edition of *Acea Olympic Camp*, aimed at students aged from 6 to 14 attending schools in Rome and selected in collaboration with the Roma Capitale Department of Schools, Sports, Youth Policies and Participation, in order to increase awareness of and spread participation in 8 sports. The event was held in Rome in June and July 2016 (Beside Management Srl)
- contribution for rewarding some schools involved in the project organised by Acea for schools called *L'ambiente che voglio da grande* (The environment I want when I grow up). The event, aimed at increasing the awareness of primary school (2nd cycle) and 1st level secondary school students on the role and importance of water and energy, saw the involvement in 2016 of about 2,500 students, 33 schools, 113 classes and 233 teachers
- contribution to the school teaching project *Orto Didattico* (Teaching Allotment), aimed at increasing students' awareness on the rhythms and times of the natural environment and spreading awareness of the ecosystem (Orvieto Baschi comprehensive school)
- contribution to the first edition of the Schools-City Prize *La città e il fiume* (The city and the river) for primary schools in Rome (Roma Tre University, Roma Campus)
- official partner of the 5th edition of *Open House Roma*, aimed at research on themes related to the **sustainable development of the urban environment**, spread throughout the territory in the form of architectural projects (Associazione Open City Roma)

2016: ACEA'S SUPPORT OF CULTURE AND SPORT

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- silver partner in the 4th edition of *Maker Faire*, the most important European event dedicated to digital manufacturing, which was held in Rome in October 2016 (Azienda Speciale Asset Camera)
- sponsor of the inauguration of the **new lighting of the Roman Forum**, held on 21 April 2016 (Mondadori Electa SpA)
- main sponsor and promoter of an exhibition realised in collaboration with the Authority overseeing the Colosseum and the central archaeological area of Rome, dedicated to creativity and water *In Acqua, H₂O molecole di creatività* (In Water, H₂O molecules of creativity), a journey through the symbolism of water seen from a fashion viewpoint, held from 3 May to 12 June 2016 at the Aula Ottagona of the Terme di Diocleziano (Mariotto Srl)
- sponsor of the exhibition *Per non dimenticare la Shoah* (Never forgetting the Shoah), as part of the initiatives held on the Day of Remembrance, held in Rome on 30 September and 31 December 2016 (Creare, Organizzare, Realizzare)
- sponsor of the exhibition *Extraordinary Visions Italia* held on the 70th anniversary of the foundation of the Italian Republic, held in Rome from 2 June to 16 October 2016 (Fondazione Maxxi)
- sponsor of the 11th edition of the **Rome Cinema Festival**, held from 13 to 23 October 2016 (Fondazione Cinema per Roma)
- sponsor of the event *Cento Città in Musica* (A hundred cities in music), held in Rome and provincial areas in November and December 2016, with a programme of cultural events and entertainment with free or limited price entrance (Associazione Culturale Europa Musica)
- partner sponsor of *Alice nella Città 2016* (Alice in the city 2016), a separate and parallel section of the Rome Cinema Festival contributing towards promoting cinema for new generations; the films and events were presented in October at the new Parco della Muscia auditorium (Associazione Culturale Play Town)
- main partner in the organisation of the 9th edition of the *International Jewish literature and culture festival*, held in Rome from 10 to 14 September 2016 (Artix società cooperativa)
- sponsor of *Gay Village 2016*, the event held in Rome, at Parco del Ninfeo in EUR from June to September, involving numerous initiatives, including cinema, theatre, sport and concerts (Gavi E20 Srl)
- title sponsor of the **2016 edition of the traditional sporting event Maratona della città di Roma** (Rome marathon), the sporting event with the highest number of participants in Italy, held on 10 April departing from via dei Fori Imperiali (Atielle Roma Srl) and major sponsor of the **Rome-Ostia half-marathon** held on 13 March 2016 (Roma Ostia Srl), both certified as "IAAF Road Race Gold Label"
- contribution for the sporting activities in the 2016/2017 season of **S.S.D Santa Lucia**, a **wheelchair basketball** team which has been involved in the Rome sporting scene since the 1960s (S.S.D. Santa Lucia Srl)
- official partner of **A.S. Roma** and top sponsor of the **S.S. Lazio** sports club for the 2016/2017 season (A.S. Roma SpA and Soccer SAS of Brand Management Srl; Infront Italy Srl)
- official sponsor of the 2016 edition of *Giochi del mare* (Seaside games), involving about 400 athletes, including international stars, and thousands of amateurs, the event was held from 8 to 12 June 2016 in Fiumicino and Santa Marinella (FIDAL)

- contribution to the “**Parent Training**” project, aimed at assisting the parents of children with rare diseases (Fondazione Bambino Gesù Onlus)
- contribution to the organisation of the international Conference on “**Etica in riabilitazione tra esperienza e innovazione al servizio della persona**” (Ethics in rehabilitation, experience and innovation serving others), organised by the Istituto Vaccari, which is involved in the rehabilitation, training and social-working integration of handicapped people (Istituto Vaccari - Ente Pubblico Non Economico)
- contribution for a **support service for overcoming the social isolation of lesbian, gay, bisexual and transsexual adolescents and children** (Gay Center/Gay Help Line)
- contribution to the project “**Familiari e figli di detenuti presso il carcere di Rebibbia**” (Families and children of prisoners in Rebibbia prison), aimed at ensuring a better quality of life in prisons (Associazione Onlus Volontari in Carcere)
- contribution for the treatment of Chiara Insidioso, a girl who suffered life-threatening injuries due to her boyfriend’s violence (A.S.D. Elana Gym)
- contribution in support of the “**Angel Tree**” project, aimed at enabling families in economic difficulty to give Christmas gifts to their children (Esercito della Salvezza in Italia)
- technical sponsorship, by lighting up the Colosseum, during the **Giornata internazionale per l’eliminazione della violenza contro le donne** (International day for combating violence against women), held on 25 November 2016, and the initiative “**Sport e società per l’autismo**” (Sport and society in support of autism) held on 26 November 2016
- technical sponsorship of the various **solidarity events held during the year to commemorate the victims of terror attacks**.
- technical sponsorship of the event **Race for the cure**, held in Rome from 11 to 16 May 2016 at the Circo Massimo. This is an event which includes a 5 km solidarity race, which has now been repeated several times, and other sports 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, with the pink lighting of the Lazio Region head office building for all of October 2016. This was the symbol of the **Ottobre rosa** (Pink October) event, aimed at providing incentives for women to subscribe to programmes for the prevention of breast cancer (Regione Lazio)
- technical sponsorship, by lighting the Colosseum in pink, as part of the initiatives of **Nastro rosa 2016** (Pink Tape 2016) (LILT – Lega Italiana per la lotta contro i tumori)

Other activities of a cultural, social or sporting nature were supported by Acea in other municipalities outside Rome, located in the areas in which the company operates.

SUPPLIERS

 <p>510 million EUROS THE VALUE OF TENDER CONTRACTS 2016</p>	 <p>ABOUT 2,000 CONTRACTS STIPULATED WITH ABOUT 1,000 SUPPLIERS</p>
 <p>IN LAZIO 33% OF THE VALUE OF ORDERED GOODS/SERVICES AND 80% OF THE VALUE OF ORDERED WORKS</p>	 <p>THE «Safety Team» HAS CARRIED OUT ABOUT 5,500 inspections IN THE WORKSITES OF SINGLE TENDERS FOR THE MAINTENANCE OF WATER AND ELECTRICITY NETWORKS AND SERVICES</p>
 <p>697 REQUESTS FOR REGISTRATION IN ROLLS/ QUALIFICATION SYSTEMS DEALT WITH 467 REQUESTS APPROVED</p>	 <p>INCREASED USE OF Minimum Environmental Criteria (CAM) IN TENDER DOCUMENTS, FROM A GREEN PROCUREMENT VIEWPOINT</p>

CONSOLIDATED EXTERNAL COSTS

In 2016, the Group’s **consolidated external costs** totalled about **1.76 billion euros**, a reduction compared to 2 billion euros in 2015 (about -12%). The main costs, totalling about **1.35 billion euros** (1.61 billion in 2015), concerned the **purchase of energy, gas and fuels** and recorded a significant reduction compared to last year, amounting to a value of about 263 million euros (-16.3% compared to 2015).

The rest of this section describes the **procurement of goods, services and works** managed by the **Purchasing and Logistics Function** of the parent company for several companies in the Group. In 2016, procurement totalled about **510 million euros**.

PURCHASING POLICIES

The **Purchasing and Logistics Function** of the parent company 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 Planning, Control and Purchasing Marketing Unit**, which is part of the Purchasing and Logistics Function, supervises operations by **analysing internal requirements** and preparing the **Group procurement plan**, and monitors the evolution of the suppliers’ market, price performance and technological innovations.

The **Logistics Unit** manages the operations of the **Group's central warehouse** and the **peripheral warehouses** of the main operating companies. In 2016, the **new centralised management model** and correlated implementation of the WFM operations was **also applied to the resupply of materials from the peripheral warehouses to the operating workforce**. The project for the **transfer of the Group's central warehouse** was also started and completed, with the closure of the previous site and the **opening of the Logistics Centre in Santa Palomba**. The Logistics Centre is a **new construction**, completely **earthquake-proof**, equipped with the most **sophisticated surveillance and fire-prevention safety systems**, using the **most advanced logistics technologies**. The materials storage plant is capable of **holding more than 5,000 pallets**. The elevator trolley fleet was also renewed, **disposing of all of the motorised trolleys in favour of**

electrical ones. The transfer to the new Centre will enable a **significant improvement in safety levels** to be achieved at the head office, improve sustainability and **increase the effectiveness of the logistical activities**.

Dealings with suppliers and procurement management

In the **Code of Ethics of the Group**⁶⁷ article 16, paragraphs 1-7, covers the relations between **Acea and its suppliers**, orienting the conduct of the contracting station and the contracted and subcontracted firms according to the principles of **correctness, transparency and protecting competition**.

The **Code of Ethics** must be **signed and acknowledged** as a **vital condition for participating in tenders for the awarding of works, goods and services**, on penalty of exclusion from them, and, if the principles contained in the Code are violated, the offenders will, subject to prior investigation, **be banned from bidding procedures or forfeit any contract awarded** (art. 16, paragraphs 6 and 7).

CODE OF ETHICS OF THE GROUP (2012 EDITION): PROTECTION OF ETHICAL ASPECTS IN SUPPLIES

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Under Article 16, paragraph 2 of the Code of Ethics of Acea Group:

«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 accordance with the principles outlined in this Code of Ethics and the law. In supply contracts with at-risk countries, defined as such by recognised organisations, contractual clauses have been introduced that involve: self-certification by the supplier of the compliance 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».

The **procurement management process** is conducted by resorting to calls for bids as the main method of identifying suppliers, basing the awarding procedure on **criteria of transparency** and ensuring the **centralised management of tenders**. The Purchasing Function fulfils, for all the companies the Group, the obligation⁶⁸ of **disclosing on the corporate website** of Acea (www.acea.it) **all of the documentation containing all information concerning the purchases made in the framework of the Code for Tenders**⁶⁹.

In 2016, about **52% of the total procurement** was awarded through **tender procedures**. 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” section of the company website** www.acea.it – where the required forms and information are available. The web portal enabling tenders to be managed online – the **Pleiade** platform – is based on the same operational procedure as traditional tenders: it checks the adequacy of the supporting documents, acknowledges possession of the eligibility requirements, discloses the bids and displays the ranking.

All tenders for the awarding of works 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 cer-

tain **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 possession of **SA8000 certification**.

In particular, **during the course of 2016, in some tenders for works** (water, electrical and civil engineering) awarded on the basis of the most economically advantageous bid, **rewards were introduced** concerning: the number of skills **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 law⁷⁰, 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 in the Qualification system. 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 law⁷¹. 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, al-

⁶⁷ The *Code of Ethics of the Group* (2012 edition) is available online on the new website www.acea.it, Governance section.

⁶⁸ In respect of that required by the National Anti-corruption Authority (ANAC) and envisaged by the so-called “Anti-corruption Law” (Law 190/2012).

⁶⁹ Legislative Decree no. 163 dated 12 April 2006 – *Code of public contracts involving works, services and goods implementing EC Directives 2004/17/EC and 2004/18/EC* – then replaced by Legislative Decree no. 50 dated 18 April 2016 *Implementation of Directives 2014/23/EU, 2014/24/EU and 2014/25/EU on the awarding of concession contracts, on public contracts and on the tender procedures for service providers in the water, energy transport and post office sectors, and for reordering the laws in force on public contracts concerning works, services and goods*.

⁷⁰ Part III of the Code on Tenders – Legislative Decree no. 163/2006, then Part II, Section VI, Chapter 1 – Legislative Decree no. 50/2016.

⁷¹ Part II of the Code on Tenders – Legislative Decree no. 163/2006, then Part II, Sections III, IV and V – Legislative Decree no. 50/2016.

though not regulated by Legislative Decrees no. 163/2006 and no. 50/2016, comply with the **principles of free competition, equal treatment, non-discrimination, transparency and proportionality**.

In 2016, the companies in the Acea Group subject of this analysis **entered into almost 2,000 contracts** with **about 1,000 suppliers** (see table 27, at the end of this section). **These values, lower than** those for last year and, especially, those for 2014, **are explained by the long-term effects of two elements:**

- the launch and awarding – in 2015 – of **3 of the 5 lots concerning the 3 Single Tenders** envisaged for the **maintenance of the water networks**, managed by **Acea Ato 2** in its own territorial area, and **electrical networks**, managed by **Areti** (in Rome and Formello), followed in 2016 by the **Single Tender** for the **maintenance of water networks in Acea Ato 5**;
- the decision, made executive in mid-2016, to **decentralise at the requesting Units the purchasing procedures for small expenditures (OPS)⁷²**, in order to streamline the procurement process. **These Purchase Orders**, which are numerous albeit small in economic terms, are **no longer recorded by the Purchasing Function** and are not included in the considerations made herein.

It is worth recalling that the above Single Tenders for maintenance are **significant in economic terms** – about **340 million euros** have already been awarded – and **long-term** (three years with the possibility of a one-year extension and renewal for another year). Although they have been **formally awarded to the 4 winning suppliers**, a small number of the total number of suppliers, these are actually **Temporary Groupings formed by a significant number of firms**, including principals, agents and auxiliaries, the workforce of which is estimated to be several hundred individuals.

ACEA 2.0

As part of the Acea2.0 programme, the process of implemen-

friendly MV/LV transformers.

REFERENCE BOUNDARY

The information contained in this section pertains to the following Group companies: Acea SpA, Areti, Ecogena, Acea Illuminazione Pubblica, Acea Ato 2, Acea Ato 5, Acea Gori Servizi, Crea Gestioni, Acea Elabori, Acea8cento, Acea Ambiente (ex A.R.I.A., renamed Acea Ambiente in December, into which SAO, Kyklos and Solemme had merged by the same date), Aquaser (into which ISA was merged in November), Acea Energia, Acea Produzione, Elgasud (renamed Acea Liquidation And Litigation in October 2016) and **Acea Energy Management**.

Note: companies whose tenders were managed for the first time in 2016 are shown in bold.

PROCUREMENT OF GOODS, SERVICES AND WORKS

The contracts awarded during the year had an **overall economic counter-value** of almost **510 million euros⁷⁴**, compared to about 906 million euros last year, a **reduction of about 44%**. As expected, **this fall is correlated to the awarding in 2015 of 3 of the 5 Lots of the Single Tenders for the maintenance of networks which, effectively,**

tation of the **new SAP Supplier Relationship Management/ Supplier Quality Management procurement platform (SAP SRM/SQM)** continued in 2016, with the objective of transferring all procurement activities to the corporate ERP (Enterprise Resource Planning). **During the course of the year, the supplier qualification and catalogue procurement processes were progressively integrated**, enabling the disposal of the previous non-integrated management systems. This has led to a general streamlining of procurement activities and a reduction in the procedures using paper in the processes not previously managed by SAP.

Green procurement

Also in 2016, Acea pursued its objectives of sustainability in the supply chain, inserting in the tender documents, as binding parameters or reward schemes, the regulatory references to the Minimum Environment Criteria (CAM) adopted by Decree of the Ministry for the Environment and Protection of Land and Sea, in compliance with that envisaged by the **Action plan for the environmental sustainability of consumption in the Public Administration sector** (i.e. the National Action Plan on Green Public Procurement **NAP GPP⁷³**).

In 2016, the procedure was prepared for the awarding of the **supply of office furniture** envisaging minimum requirements for eligibility – and rewards for the determination of the technical score – based, among other aspects, on: level of formaldehyde emissions, painting products without phthalates and admissible under Directives 67/548/EC and 99/45/EC and limited amounts of VOCs (Volatile Organic Compounds) in both paints and in the end product. This is a further use of CAM, **in addition to those implemented in past years** as regards **the purchase of electrical equipment and relevant consumables, paper for printers, light bulbs used for public lighting, services for cleaning working environments and green maintenance services**. Lastly, Acea has brought itself in line with the new European Regulation 548/2014 and, as of 2015, purchases **environmentally**

concentrated the effects of the majority of the amounts concerning maintenance for three years into that year and consequently led to a reduction in the number of orders for 2016 and also, foreseeably, for the next two years as well. In partial compensation of this, **as already described, another maintenance Lot was awarded in 2016**, for the activities in Acea Ato 5 which, although of a limited amount compared to the previous lots, concentrates the triennial value of

⁷² Expenditure totalling less than 5,000 euros.

⁷³ The GPP NAP was recommended by the European Commission in 2003 and adopted by Italy with Law 296/2006, article 1, paragraph 1126 and Ministerial Decree dated 11 April 2008 (MATM). The Ministry for the Environment defines the “Criteri Ambientali Minimi” (CAM) (Minimum Environmental Criteria), which act as a national benchmark for Green Public Procurement; they may be used by the contracting authorities to enable the Action Plan on Green Public Procurement to maximise economic and environmental benefits. “GPP” (Green Public Procurement) is defined by the European Commission as «(...) the approach by which Public Authorities integrate environmental criteria into all stages of their procurement process, thus encouraging the spread of environmental technologies and the development of environmentally sound products, by seeking and choosing outcomes and solutions that have the least possible impact on the environment throughout their whole Lifetime».

⁷⁴ The amount refers to tenders awarded during the year, without any distinction between investments and operating cost, annual and multi-annual contracts. Almost all commodity purchases are excluded.

the tender in 2016. These hypotheses were confirmed by the fact that **the reduction** in the values awarded in 2016

compared to 2015 **essentially concerned works contracts** (from 519 to 133 million euros, while **the amounts for the**

purchase of goods and services remained in line (see table 27 for the data comparison).

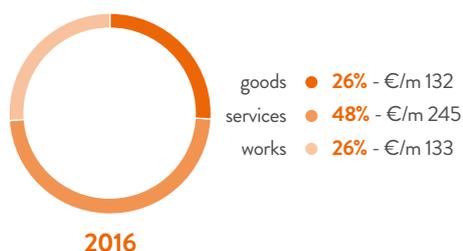
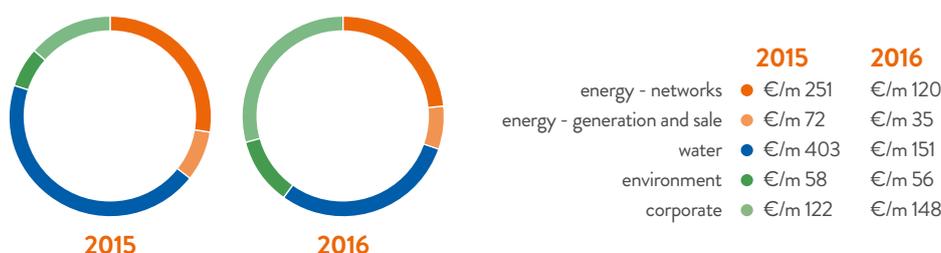


CHART No. 25 – VALUE OF PROCUREMENT OF GOODS, SERVICES AND WORKS AND PERCENTAGE ON TOTAL (2016)

Note: figures are rounded off to the nearest unit.

It can be seen that the value of procurement in the four business macro areas, **energy** (networks, generation and sales), **water, environment** (waste to energy and environmental services) and **corporate**, provide further evidence of

the impact of the data on maintenance tenders. The figures for 2016 have reduced only in the Water and Energy areas, involved in the Single Tenders in 2015, while the figures for the other macro areas are in line with last year, or have increased (see chart 26).



Note: figures are rounded off to the nearest unit. The energy networks business includes companies engaging in distribution, public lighting and added-value energy services: Areti (ex Acea Distribuzione), Acea Illuminazione Pubblica and Ecogena. The **energy generation and sale** business includes the companies engaging in the production and sale of energy: Acea Energia, Acea Produzione, Acea Energy Management and Acea Liquidation and Litigation (ex Elgasud). The **Water** area comprises the following companies: Acea Ato 2, Acea Ato 5, Acea Elabori, Acea Gori Servizi and Crea Gestioni. The **Environment** area includes: all the companies that merged into Acea Ambiente (i.e. A.R.I.A., SAO, Kyklos and Solemme), and also Aquaser and ISA (merged into Aquaser). The **Corporate** area, as part of group-wise services, includes Acea SpA and Acea8cento.

CHART No. 26 – TOTAL ORDERS (GOODS, SERVICES, WORKS) BY BUSINESS AREA (2015-2016)

During the course of 2016, the companies in the Group included in the reference boundary expressed requirements which translated into **1,981 purchase orders**, compared to 2,978 in 2015. About 90% of the purchase orders involved amounts below the EU threshold. The **top ten suppliers of goods and services** used up together about half of the total value of the goods and services procured (this percentage was about one-third of the total in 2015). The percentage of the **top ten suppliers of works fell from 69% to 56%** of the total value of the work contracts awarded (about 75 million compared to 358 in 2015), given that the 3 Single Contracts recalled above were missing.

During the year, the **geographical distribution of the suppliers was in line with previous years, with more than 90% being concentrated in the central-northern area.**

The **number of suppliers in Lazio, although falling⁷⁵** (445

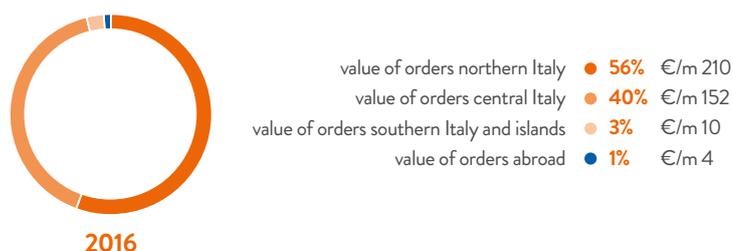
compared to 683 in 2015) to the advantage of suppliers in the north, **is still consistent** and amounts to about 45% of the total (see table 28).

The **geographical distribution of the amounts** (between north, centre, south, islands and overseas) shows **an increase** of about 8 percentage points compared to last year **in value ordered from companies in the north – or the goods and services component** – to the detriment of those in central Italy. Contrarily, **as regards the works component**, the percentage of the amounts attributable to the north falls drastically, from 45% to less than 7%, while **that for the central area almost doubles**, reaching 82% from 45%. In the works sector, the amounts in terms of absolute value change markedly (from 234 to 9 million euros in northern Italy and from 235 to 100 million euros in central Italy), due to the Single Tenders in this case as well, given that the leading companies in the successful bidders in 2015 originated from Lazio and Emilia-Romagna. In terms of both the purchase of goods and services and the awarding of works contracts, **Lazio maintains a significant weight in overall**

⁷⁵ However, it should be taken into consideration that the reduction in numbers is partly due, as already mentioned, to the exclusion – by the Purchasing and Logistics Function – of Orders for Small Expenditures, charged directly to the Group companies/Functions, which generally invest in local suppliers.

value, with about **33% of the goods/services ordered** and about **80% of the works ordered**.

CHART No. 27 - GEOGRAPHICAL DISTRIBUTION OF THE AMOUNTS USED FOR THE PURCHASE OF GOODS AND



SERVICES IN ITALY AND ABROAD (2016)

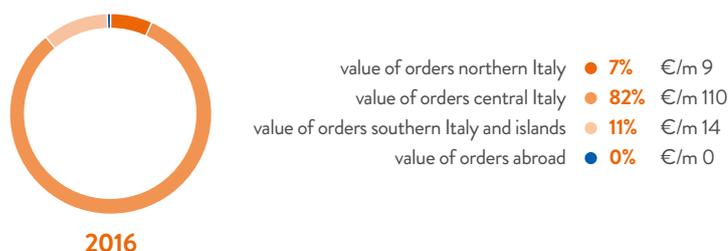


CHART No. 28 - GEOGRAPHICAL DISTRIBUTION OF THE AMOUNTS OF WORKS AWARDED IN ITALY AND ABROAD (2016)

TABLE No. 27 - SOCIAL INDICATORS: PROCUREMENT DATA (2014-2016)

	U.M.	2014	2015	2016	Δ % 2016/2015
VALUE OF CONTRACTS					
goods	€/m	89	133	132	-1%
services	€/m	279	254	245	-4%
works	€/m	165	519	133	-74%
total	€/m	533	906	510	-44%
GOODS, SERVICES AND WORKS AS A PERCENTAGE OF TOTAL ORDERS					
goods	%	17	15	26	73%
services	%	52	28	48	71%
works	%	31	57	26	-54%
VALUE OF ORDERS BY BUSINESS AREA					
Energy	€/m	169	323	155	-52%
- networks	€/m	132	251	120	-52%
- generation	€/m	37	72	35	-52%
Water	€/m	158	403	151	-62%
Environment	€/m	118	58	56	-2%
Corporate	€/m	88	122	148	21%
NUMBER OF PURCHASE ORDERS MANAGED					
POs for goods, services and works	no.	3,545	2,978	1,981	-33%

Note: all the figures shown in the table are rounded off to the nearest unit.

TABLE No. 28 - SOCIAL INDICATORS: PROCUREMENT NATIONWIDE (2014-2016)

	U.M.	2014	as % of total/year	2015	as % of total/year	2016	as % of total/year
NUMBER OF SUPPLIERS OF GOODS, SERVICES AND WORKS NATIONWIDE							
suppliers in northern Italy	no.	490	27%	453	31%	340	34%
suppliers in central Italy	no.	1,186	66%	873	60%	579	57%
suppliers in Lazio	no.	933	52%	683	47%	445	44%
suppliers in southern Italy and islands	no.	96	5%	102	7%	70	7%

suppliers abroad	no.	29	2%	28	2%	16	2%
total suppliers	no.	1,801	100	1,456	100	1,005	100

	U.M.	2014	as % of total/year	2015	as % of total/year	2016	as % of total/year
TOP 10 SUPPLIERS OF GOODS, SERVICES AND WORKS (amounts awarded)							
TOP 10 suppliers of goods	€/m	34	38% (on total amounts of goods 2014)	47	35% (on total amounts of goods 2015)	74	56% (on total amounts of goods 2016)
TOP 10 suppliers of services	€/m	106	38% (on total amounts of services 2014)	96	38% (on total amounts of services 2015)	127	52% (on total amounts of services 2016)
TOP 10 suppliers of works	€/m	82	50% (on total amounts of works 2014)	358	69% (on total amounts of works 2015)	75	56% (on total amounts of works 2016)

GEOGRAPHICAL BREAKDOWN OF AMOUNTS FOR GOODS AND SERVICES

value of orders northern Italy	€/m	181	49%	183	47%	210	56%
value of orders central Italy	€/m	169	46%	183	47%	152	40%
<i>value of orders Lazio</i>	€/m	136	37%	138	36%	125	33%
value of orders southern Italy and islands	€/m	13	4%	14	4%	10	3%
value of orders abroad	€/m	5	1%	7	2%	4	1%
total value of orders for goods and services	€/m	368	100	387	100	376	100

GEOGRAPHICAL BREAKDOWN OF AMOUNTS FOR WORKS

value of orders northern Italy	€/m	58	35%	234	45%	9	7%
value of orders central Italy	€/m	96	58%	235	45%	110	82%
<i>value of orders Lazio</i>	€/m	93	56%	219	42%	107	80%
value of orders southern Italy and islands	€/m	11	7%	26.5	5%	14	11%
value of orders abroad	€/m	-	-	23.5	5%	0	0%
total value of orders for works	€/m	165	100	519	100	133	100

Note: all the figures shown in the table are rounded off to the nearest unit. The “northern Italy” geographical distribution 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, Puglia, Calabria, Sicily and Sardinia.

SELECTION AND EVALUATION OF SUPPLIERS

Acea has implemented and regularly updates various **Qualification systems for suppliers of works, goods and services**. The unit responsible for **Supplier Qualification**, in respect of the principles of **correctness and equal treatment**, sets up **Qualification systems** of European significance⁷⁶ 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. Lastly, the unit supervises the **monitoring activities** of suppliers through direct controls and/or with the support of qualified auditors.

A project was launched in 2015 for the review and optimisation of the existing product groups, sharing with the Group companies a **single product tree** (including 460 product groups in 2016). The **analysis of the existing qualification Lists/Systems continued in order to rationalise them** and keep only the most significant ones.

At 31 December 2016, **91 Suppliers’ Lists** were managed by

the unit; there was a List/Qualification system in place for 23% of the product groups.

The new supplier qualification portal was activated in June 2016, completely **integrated with the suppliers’ details** already in the SAP system and common to all companies in the Group, and a process of **standardising the requirements** for the current Lists/Systems and methods of attestation of the requirements was started, through the disclosure of a Single Regulation for works and one for goods and services. Companies intending to be qualified **insert their qualification application online** for the product groups of interest, **accessing the Vendor Management (VM) portal directly from the Acea institutional website** (www.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 “works” product groups and, since January 2016, also for “goods and services” qualification systems);
- possession of ISO 14001 certification (for example for registration in the Qualification System for special non-hazardous waste);
- possession of Registration of the National Environmental Managers Register or authorisation to manage a plant for

⁷⁶ Pursuant to art. 134 of Legislative Decree no. 50/2016 as amended.

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 **Community-wide** qualification systems, availability must be stated to undergo an **inspection visit 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 2016, following the aforementioned rationalisation of the number of existing qualification Lists/Systems, **a total of 697 applications for registration in Qualification systems/lists were processed**, with a total of **467 successful applications**.

In detail:

- **234** qualification applications processed for “works” Qualification systems;
- **463** qualification applications processed for Qualification Systems/Suppliers’ Lists for “goods and services”.

The evaluation of suppliers, performed by the Supplier Qualification Unit, involves different types of checks which are activated according to the list in question and the different “status” (in the qualification phase, qualified, or qualified with tender ongoing) acquired by the supplier with regard to Acea. Two initial cognitive tools have been included in the qualification phase, through which Acea obtains basic information on the level of maturity of the Quality, Safety and Environmental management systems of the supplier and the level

of sensitivity towards the themes of corporate sustainability. With the aim of making suppliers increasingly aware of the themes of **quality, environment and safety**, as of 2015, Acea has made it **compulsory to complete the QAS self-assessment questionnaire** for registration in the Qualification Systems for water and electrical works. The Supplier Qualification Unit acquires the questionnaire completed by the supplier from the Vendor Management platform (accessible on the Acea website) and, with the support of the Integrated Certification Systems Unit, analyses the information and gives a score, inserting it in the Supplier Evaluation database. Feedback is sent to the supplier, in which the QAS assessment rating is notified (reliable, adequate, partially adequate, critical, inadequate) on the basis of the statements made.

Furthermore, Acea – **a partner in the Sustainable Supply Chain Work Group of the Global Compact Network Italia Foundation** – in conjunction with A2A, Ansaldo STS, Edison, Eni, Italcementi and Nestlé Italia, produced during the course of 2014 a **self-assessment questionnaire on sustainability performance** for the suppliers, called “**TenP**” (a reference to the **ten Global Compact principles** of the United Nations). Since January 2015, **Acea has made it compulsory to complete this questionnaire** for registration in the Qualification Systems for water, electro-mechanical and electrical works and, since January 2016, also for registration in the new Qualification Systems for goods and services (see the relevant box for details).

Lastly, after beginning experimentation last year, in conjunction with the Corporate Social Responsibility

THE TENP PLATFORM

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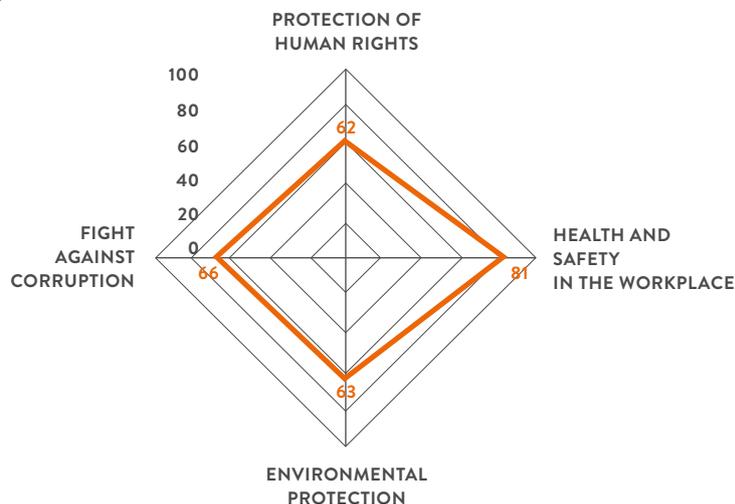
In 2016, the Suppliers’ Qualification Unit, in conjunction with the Corporate Social Responsibility and Sustainability Unit, once again continued to contribute to the **Sustainable Supply Chain Workgroup** established in 2014 as part of **Global Compact Network Italia**.

After defining a **supplier self-assessment questionnaire**, in conjunction with the other companies involved in the initiative, based on the **ten principles of the Global Compact** of the United Nations (TenP), and after supporting the **implementation of an IT platform**, shared among the companies involved, for collecting information on the sustainability practices of its suppliers, Acea **made it compulsory**, in January 2015, **to complete the TenP Questionnaire** in order to be registered in the **Qualification Systems for water, electro-mechanical and electrical works**, and **from 1 January 2016**, this has become a requirement for **registration in the new Qualification Systems for goods and services as well**.

During the course of these first two years of operation, the TenP Platform has seen the registration, voluntary or by invitation, in Acea’s case compulsory, of **more than one thousand suppliers**. **Additional updates were made to this tool in 2016** for more accurate data extraction and analysis. **A check of the suppliers common to various partners** was also conducted during the course of the year, aimed at implementing a Global Audit Plan to check the reliability of the statements made and the relevant documentation and also to increase the awareness of economic operators on sustainability.

374 TenP questionnaires have been completed by Acea suppliers at 31/12/2016 (of which 348 are registered in a single List, 25 are registered in two Lists and one is registered in three Lists): 49.6% for water and civil engineering works, 48% for goods and services and 12% for electrical works. The average results by self-assessment area was 81/100 for “Health and safety in the workplace”, 66/100 for “Fight against corruption”, 63/100 for “Environmental protection” and 62/100 for “Protecting human rights”.

AVERAGE SCORE OF ACEA SUPPLIERS BY SELF-ASSESSMENT FRAMEWORK



In 2015, Acea carried out an **in-depth review of the level of implementation of sustainability along the supply chain**, distributing an *ad hoc* questionnaire to a panel of suppliers of the Group to investigate their commitment to environmental topics, such as energy consumption volumes, described in the section *Environmental relations*, and **social topics**, such as the adoption of tools to promote ethics and integrity, employment protection and the respect of health and safety in the workplace.

With reference to **social topics**, on a **sample involving 102 suppliers** (63 representing goods and services and 39 representing works), **48 firms** replied (11 for goods and services and 37 for works).

The analysis of the information provided shows that, with regard to the topic of **ethics and integrity**, 30% of the suppliers adopt tools for the promotion of virtuous behaviour, including the Code of Ethics, the Organisation, Management and Control Model pursuant to Legislative Decree no. 231/01 and anti-corruption guidelines. As regards **employment protection**, it emerged that **85% of the workforce of the suppliers is employed under permanent contracts** and that trade unions are present in 33% of the firms. As regards **health and safety in the workplace**, **35% of the suppliers have safety management systems (for example OHSAS 18001)**, 77% have provided safety-related training courses for more than 50% of their staff and 73% of the suppliers working for Acea have not had any injuries to their staff.

and Sustainability Unit, in 2016, Purchasing and Logistics sent a sample of a questionnaire prepared *ad hoc* on social and environmental themes to 102 suppliers, to obtain more details on the level of spreading of sustainability along the supply chain, obtaining replies from 48 suppliers (see the relevant box for details).

Once qualified, a supplier may be subjected to a **second stage Quality Environment and Safety Audit to check**, at the supplier's head office, **the real application of the Management Systems certified** or, in any event, the methods Safety and Environmental management methods with respect to the laws in force. Should the supplier **be awarded a contract** (in the Works Qualification System), **checks are carried out on the worksite**, more than once if necessary, to verify the compliance of the documentation present on location, compliance with the Health and Safety laws in force and the Quality of the works compared to the tender specifications. The **Quality Environment and Safety (QAS) audits at the head offices of the suppliers** continued in 2016. These audits are performed by the Supplier Qualification Unit of the Purchases and Logistics Function, with specialist support from the Integrated Certification Systems Unit of the Staff and Organisation Function. The **QAS** audits of the suppliers are conducted by **qualified internal Auditors** who, by using a standard check-list, identify and assess in person the information provided in the QAS self-assessment questionnaire completed during the qualification phase. The checklists are fed into the system for further processing and analysis. The supplier is provided with feedback on the QAS assessment rating (reliable, adequate, partially adequate, critical, inadequate) resulting from the audit and a summary report highlighting both strong points and the aspects which require improvement/correction. An "inadequate" rating may imply **suspension from the Qualification Systems** should the operator in question not adopt suitable corrective action aimed at overcoming the non-compliances encountered. **17 audits were performed in 2016**, on the basis of which the suppliers in question were rated as "adequate" on 14 occasions and "partially adequate" on the remaining three occasions.

With regard to **worksite audits**, partly performed by the operating companies themselves and, for the Single Tenders, by a dedicated team in Acea Elabori - the Supplier Qualification Unit of the parent company is responsible for performing checks on the contractors registered with the Qualification Systems for works.

The worksite inspections, coordinated by the **Supplier Qualification Unit**, were conducted by **Accredia certified Auditors** using a **checklist to acknowledge the safety, envi-**

ronmental and quality requirements of the works, in compliance with the dispositions in the contractual documents. The audits are also aimed at **performing a census of the skills and work tools** present on the worksite at the time of the inspection. The findings, in addition to being reported to the competent project management, are notified by the Supplier Qualification Unit directly to the companies, which are asked to formalise the methods of dealing with or closing the non-compliances found and managing the minor findings reported. The truthfulness of that stated is then verified in subsequent audits. Any **serious non-compliances** encountered, concerning the failure to comply with the Environmental and/or Safety laws in force, on the basis of the **internal guidelines in force since July 2016**, any measures taken by the project management in the framework of managing the contract holding firm, **may imply suspension from the Suppliers' List**. In 2016, following the entry into force of the guidelines, **three suppliers were suspended** for a three-month period, **on the basis of 27 audits carried out**.

Following the awarding of the Single Tenders in 2015, the monitoring of which on the worksite was done by an Acea Elabori team, a progressive reduction of the tenders for Works awarded through Qualification System tenders was recorded. The inspections conducted by the Supplier Qualification Unit therefore mainly concerned residual works tenders (within the frameworks of the Single Tenders) or those awarded using the methods previously in force. In 2016, in **114 audits conducted, 4,020 of the 4,527 parameters applicable** were found to be **in compliance**, with a **compliance rate of about 89%**, a significant improvement on past years. As regards the 507 parameters that were reported ("comments", "observations" or "non-compliance"), the two sectors most affected were "safety and legality of the worksite", in 77% of cases, and "quality of the works", in 23% of cases.

In the water sector, pursuant to the **Memorandum on Water Tender Contracts** signed a few years ago by Acea SpA and Acea Ato 2, the Federal Trade Unions and Industry Federations **held a series of meetings in 2016 as part of the Joint Committee set-up for the purpose**. It must be noted that with respect to the reference context which caused the Parties to stipulate the Memorandum, characterised by the fragmented nature of tender contracts, the awarding in 2015 of the Single Tender for the maintenance of networks and the services of the integrated water service has led to the **elimination of most of the original criticalities**. This was undoubtedly favoured by the implementation of technologically advanced systems in the Acea2.0 project, with

benefits in terms of efficiency, organisation of work and resources, and traceability and transparency of information. During the course of 2016, the Parties thus discussed the evolution of the Single Tender, confirming their reciprocal **willingness to hold further meetings** on topics that are still central and significant, such as **the organisation of work** and **the health and safety of the staff involved in the Tender**.

Since 2015, **Acea Elabori has set up a “Safety Team”** with the task of **managing Safety-related issues during the Executive phase** in relation to **Single Tenders for network maintenance and services**, initially with **Acea Ato 2**, and with **Acea Ato 5 and Areti since 2016**, with the aim of **ensuring compliance with the highest safety standards** and the laws in force on safety in the workplace⁷⁷, also checking the compliance of the relevant documents produced during the bidding phase⁷⁸. In 2016, the Safety Team intervened through **13 Coordinators of Safety during the Executive phase (CSE)**, **appointed from time to time for specific workites**.

Activities are differentiated between works requiring Safety Coordination during the Executive phase and works in which the safety standard adopted is assessed and verified through sample inspections, which were conducted during the year by **16 Safety Inspectors**. A **Safety Manager was appointed for each lot** of the Single Tenders, who uniforms and coordinates the activities of the various CSEs. The **Planners** complete the Team and are responsible for ensuring the planning and monitoring of the operations within the territory and the process supervised.

During 2016, technical and professional checks were carried out **on 124 firms** (29 contractors and 95 subcontractors) and a positive opinion of the execution of the works and services contracted was given for 94 firms (9 contractors and 85 subcontractors). The Team also carried out and completed the **Safety Coordination in the Executive phase for 39 work orders** and **carried out about 5,500 inspections relating to worksite safety, reporting on compliance with the laws in force on Health and Safety in the Workplace or deviations from these laws (non-compliances)**, according to four categories established beforehand in the contractual documentation: compliant or not applicable, breach of a minor entity (in general corrected on the spot), breach of a medium or serious entity. A score is

associated to each non-compliance encountered and is deducted from the total of 300 points/year available to each contractor following the visit and reporting. **Corrective actions and penalties** are associated to non-compliances, and **breaches of a serious nature may imply the suspension of the works**. During the course of the **5,513 inspections**, the Team **encountered a total of 748 non-compliances**, **554 of a “minor entity”, 137 of an “average entity” and 57 in the “serious entity” category**. It must be added that, during the year, **during the course of the repeated audit visits, the Team noticed a trend of progressive reduction in the number of non-compliances**, further proof of the **improvement process generated in the Worksite Safety Management System**.

From the viewpoint of customer protection, in 2016, **Acea Energia continued monitoring the quality of the sale service provided by the Agencies for door to door sales and/or teleselling** in the “household” and “micro business” segments of the free market. The **Agency Agreement** requires **mandatory training for staff members** who operate on behalf and in the name of Acea to **ensure that they provide accurate information to the customers, with fines also being applicable** (starting from 1,000 euros) in the event of unfair commercial practices. During the year, Acea **provided training programmes for 624 vendors, for a total of 2,600 hours training**. With 146,648 new connections acquired (electricity and gas), **492 complaints** received from customers were **analysed and investigated** and **43 instances of improper conduct were sanctioned**.

Areti has maintained its **vendor rating model** for works in the energy sector, applied since 2008 and based on **142 quality, safety and environmental parameters**. The system envisages **worksite inspections** and the preparation of **merit standings based on the reputation of the contractors**, and also the possibility of applying fines and suspending the activities of contractors. **During the course of 2016, 16 workites were temporarily closed due to “non-compliances”,** after a total of **523 inspections**. The system has shown that it can increase the reliability of operators, ensuring excellent performance levels and generating positive effects along the supply chain: the **average reputation index** during the year, **which was 95.78**, confirms the good

DISPUTES WITH SUPPLIERS IN 2016

x

The two main areas of litigation between the company and suppliers are **the failure to pay invoices** for goods, works and services and legal action concerning **tender contracts**.

In 2016, continuing the trend in previous years, there was a **reduction in the number of disputes arising**. With regard to the failure to pay invoices, there were only 7 cases (there had been 13 in 2015 and 18 in 2014), of which 4 were settled during the course of the year. In general, there are injunctions concerning invoices that were not paid for reasons of a formal nature and were quickly resolved by settlement proceedings. 4 proceedings were settled in 2016.

As regards legal action concerning tender contracts, 6 litigations were started during the year and in this case as well, there has been a reduction in the number of cases compared to the previous two years (12 in 2015 and 15 in 2014).

At 31 December 2016, there had been a **significant reduction in the number of pending litigations with suppliers**, which totalled 62, including legal action taken in past years, and excluding the 22 cases settled during the year (there had been 80 in the two previous years): 19 appeals filed before the Regional Administrative Court concerning awards and 43 filed before the ordinary law courts, mainly concerning reservations on the part of the contractors, contract terminations and compensation for damages.

⁷⁷ Legislative Decree no. 81/08 “Consolidated Act on Safety”, as amended.

⁷⁸ Safety and coordination plan for the worksite/ DUVRI/ Safety Operating Plan.

results now being achieved. **The firms supplying works**, consistently with the adoption by Areti of the integrated Safety, Environment, Energy and Quality Management System, **are also bound to sign the Integrated System Policy, with specific reference to health and safety in the workplace and environmental protection.**



98.5% OF ACEA PERSONNEL
HAVE OPEN-ENDED CONTRACTS



155 people
HIRED IN 2016



2016 INJURIES:
INDEX OF SERIOUSNESS **0.57%** AND
INDEX OF FREQUENCY **13.88%**



31% WOMEN
IN THE CORPORATE
GOVERNANCE BODIES



THE ARETI **Training Camp**:
THE INFORMATIVE SPACE FOR SAFETY
IN THE WORKPLACE

HUMAN RESOURCES

ACEA'S EMPLOYEES

The **Group workforce** at 31.12.2016, **consolidated by percentage, numbered 4,968**, substantially the same

also continued, and was more limited for the former (-1.8%) and more marked for the latter (-9.9%).

compared to 2015. Analysing the breakdown, there was a significant increase in the number of employees working in the Environment area (+8.8%) and in the engineering and services company, Acea Elabori (+36.3%); the workforce of the companies operating in the generation and sale of electricity also increased (+3.2%). The reduction in the number of employees in the Networks and Corporate areas

TABLE No. 29 - HUMAN RESOURCES IN GROUP BY MACROAREA (2015-2016) (year-end balance by consolidation percentage)

business area	2015 (no. employees)	2016 (no. employees)
water	2,251 of which	2,296 of which
Lazio - Campania	1,812	1,796
Tuscany - Umbria	-	-
Overseas and Acea Elabori	439	500
energy	1,689 of which	1,677 of which
networks	1,315	1,291
generation and sales	374	386
environment	227	247
corporate (Acea SpA+Acea8cento)	811	748
total	4,978	4,968

TABLE No. 30 - GEOGRAPHIC LOCATION OF RESOURCES (2015-2016) (*)

location	2015		2016	
	n.	%	n.	%
centre north (Tuscany-Umbria)	236	4.7	236	4.7
centre south (Lazio-Campania-Puglia)	4,474	89.9	4,465	89.9
overseas	268	5.4	267	5.4

(*) For head office of the enterprise to which they belong.

REFERENCE BOUNDARY

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The information and data given in the section *Composition and turnover* pertain to: Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Energia, Acea Produzione, Acea8cento, Acea Ato 2, Acea Ato 5, Acea Elabori, Acea Gori Servizi, Crea Gestioni, Gesesa, Acea Ambiente (into which Kyklos, SAO and Solemme merged at the end of December) Aquaser (into which ISA merged in November) and Ecogena.

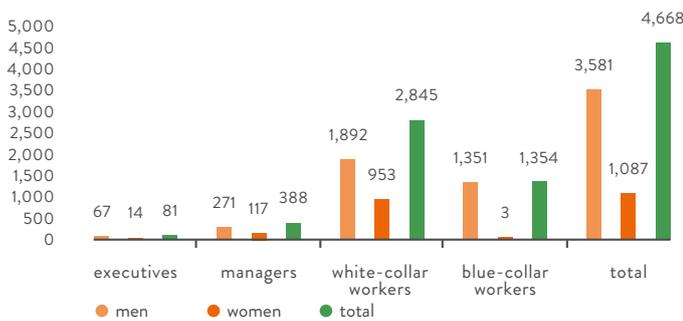
Composition and turnover

Acea SpA's **Human Resources and Organisation Division** sees to the **administrative management of human resources**, both for itself and on behalf of subsidiary companies. Subsidiaries entrust this management to the parent company or outsource it to other companies on the market, to raise the efficiency of the process and rationalise costs.

In 2016, **4,668 people worked in the company** (compared to 4,677 in 2015), of whom **1,087 women** (compared to 1,077 in 2015): **60.9% white-collar**, **29.1% blue-collar**,

(see chart 29 and table 31 for all of the above data).

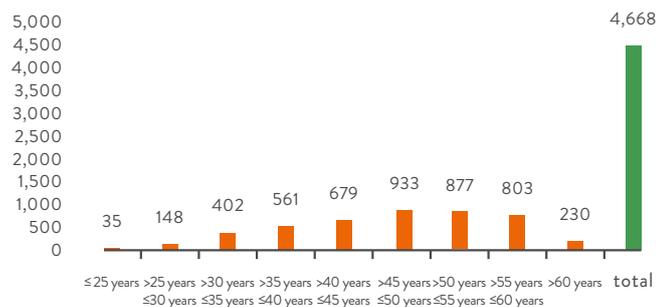
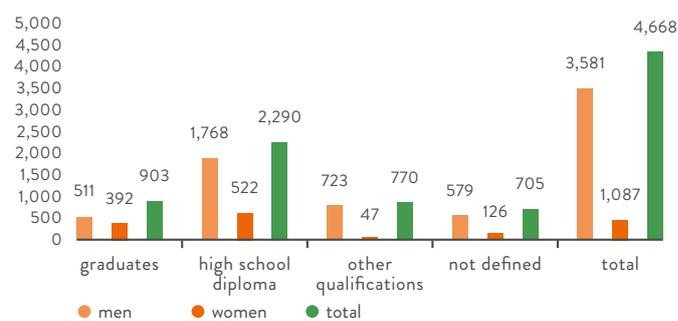
CHART No. 29 - THE COMPOSITION OF PERSONNEL: EMPLOYMENT CATEGORIES, GENDER, LEVEL OF



8.3% managers and **1.7% executives**.

With reference to the **level of education**, there was a slight **increase in the number of people with university degrees**, **19.3%** (compared to 18.5% in 2015) and the **number of those with high school diplomas was substantially the same** at 49% (49.5% in 2015). The incidence of employees with other academic qualifications remained steady at 16.5%.

The **age of employees** is in line with the previous year: **60.9% of personnel are over the age of 45**, **35.2% are aged between 30 and 45** and **3.9% are aged 30 or less**. The **average age** remains the same as in 2015, and is **47.4 years**



EDUCATION AND AGE (2016)

98.5% of the Group personnel, or **4,599 resources**, have **open-ended contracts** (99.5% in 2015) (see chart 30 and table 31).

The **duration of employment relations**, referring to employees who leave the company each year, confirms the **stability of the workforce**: in 2016, **30.7%** of resources had been employed in the Group for up to 20 years and **67.5%** had served in the companies for between 20 and 40 years (see also chart 30 and table 32).

Looking solely at companies operating in the energy sector, **14.6%** of leaving personnel have been employed in the Group for up to 20 years and **83.3%** have been working in

Note: the workforce total shown in the table differs, due to reporting boundaries, from the figure for the consolidation perimeter.

the companies for between 20 and 40 years (see table 33).

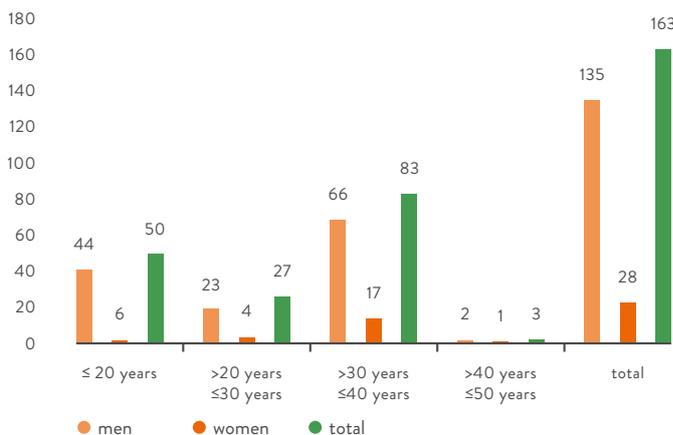


CHART No. 30 - CONTRACT TYPES AND DURATION OF EMPLOYMENT RELATIONS (2016)

During the year the **turnover** of personnel entering and leaving the Group recorded **significant changes**.

In particular, **personnel entering the company increased by about 14% compared to last year**: **155 new recruits** (136 in 2015), of whom **114 men and 41 women**, were mainly due to 110 persons hired from the external labour market and 25 through stabilisations (see chart 31 and table 31).

Acea has enhanced the processes of **recruitment and insertion of younger people with a high level of digital skills**, activating numerous recruitment channels from Universities, Research Centres and Start-up Incubators. After the

completion of the insertion and training process, some of the younger people selected will undergo an evaluation of the skills they have acquired with a view to possibly developing their professional careers. The companies most affected by the entry of new recruits are Acea Elabori, with 23 new recruits, Acea SpA with 21 new recruits, Acea ato 2 with 20 new recruits, Acea Ambiente with 18 new recruits, Acea Ato 5 with 17 new recruits and Acea Elabori with 13 new recruits. Overall, in 2016, **51.6% of the new recruits were hired on open-ended contracts**. 46% of incoming personnel were

aged between 20 and 30 years.

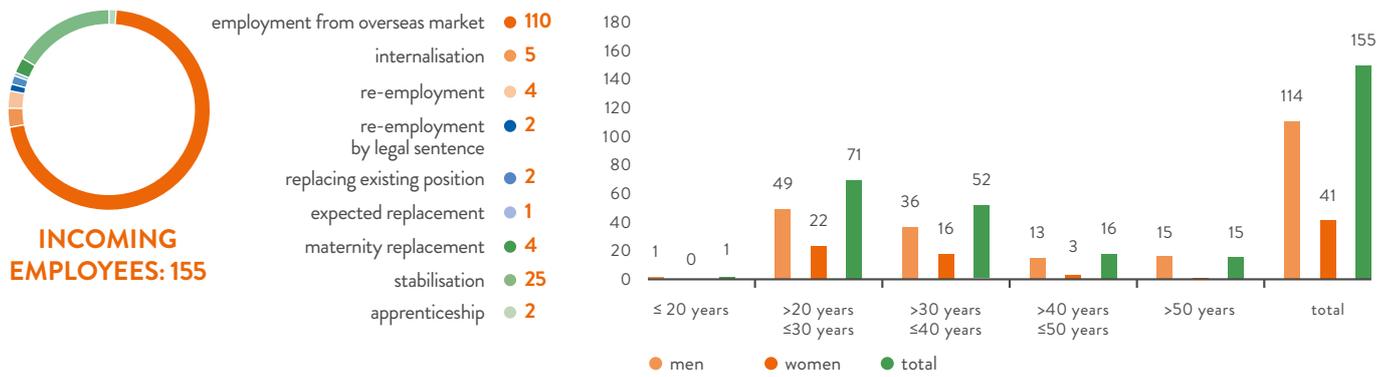
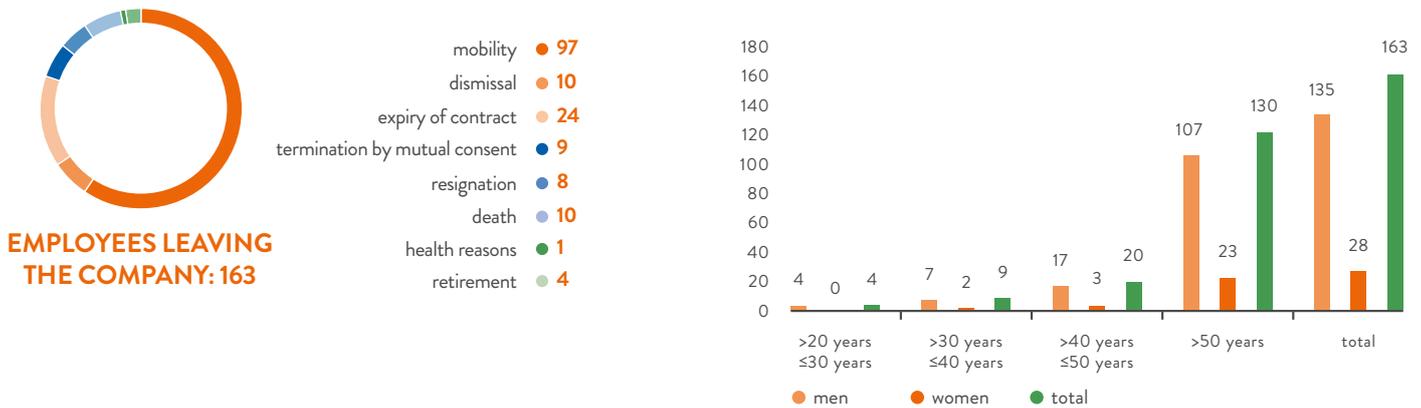


CHART No. 31 - REASONS FOR ENTERING AND AGE OF PERSONNEL (2016)

The number of persons leaving the company was 163 (135 men and 28 women), an increase of 26.3% compared to 2015 (129 persons). Specifically, 97 employees were

“placed in mobility”, or laid off, a form of voluntary and subsidised early retirement - 49 from Acea Ato 2, 32 from Areti, 10 from Acea SpA, 3 from Acea Produzione, 2 from Acea Energia and 1 from Acea Illuminazione Pubblica – and 10 resources were part of facilitated voluntary redundancy plans, with the voluntary and subsidised termination of their employment contract – 3 from Gesesa, 2 from Acea

SpA, 2 from Acea Elabori, 1 from Areti, 1 from Acea Ambiente and 1 from Acea Gori Servizi (see chart 32 and table 31).



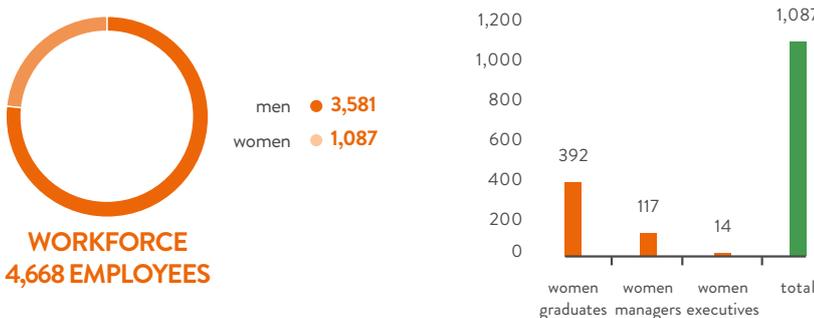
About 79.8% of personnel exiting were aged over 50 years old.
CHART No. 32 - TYPES OF EXIT AND AGE OF PERSONNEL (2016)

women), the recruitment rate reached 3.3% (3.2% for men and 3.8% for women), while the exit rate rose to 3.5% (3.8% for men and 2.6% for women) (see table 32 later on in this document).

In 2016, the indices indicating the turnover rate of personnel increased compared to the previous year. Specifically, the turnover rate was 6.8% (6.9% for men and 6.3% for

Women in Acea
In 2016, 23.3% of the workforce, a total of 1,087 people, were women, in line with the previous year (23% in 2015).

The low percentage of women present in the Group compared to men depends upon the operational nature of the

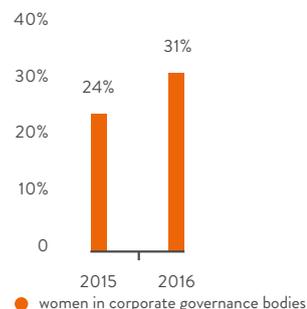


processes managed: in Italy, professional positions of a technical and specialist nature are still prevalently covered by men (chart 33).

CHART No. 33 - BREAKDOWN OF PERSONNEL BY GENDER (2016)

During the year, the number of women decreased by just

of women consequently has an effect on the structure of the Board committees – the Control and Risks Committee, the



Related Parties Operations Committee, the Remuneration and Appointment Committee and the Ethics Committee - in which the position of Chairman is filled by a female executive.

CHART No. 34 - PRESENCE OF WOMEN IN CORPORATE GOVERNANCE BODIES (2016)

TABLE No. 31 - SOCIAL INDICATORS: GENERAL DATA REGARDING HUMAN RESOURCES (2014-2016)

	2014			2015			2016		
	men	women	total	men	women	total	men	women	total
COMPOSITION OF PERSONNEL (*)									
number									
executives	82	18	100	75	17	92	67	14	81
managers	268	107	375	264	107	371	271	117	388
white-collars	1,869	952	2,821	1,907	949	2,856	1,892	953	2,845
blue-collars	1,382	4	1,386	1,354	4	1,358	1,351	3	1,354
total	3,601	1,081	4,682	3,600	1,077	4,677	3,581	1,087	4,668
WOMEN IN ACEA									
%									
women out of total workforce			23.1%			23.0%			23.3%
women executives out of all executives			18.0%			18.5%			17.3%
women managers out of all managers			28.5%			28.8%			30.2%
women graduates out of all graduates			41.6%			42.6%			43.4%
LEVEL OF EDUCATION OF PERSONNEL									
number									
graduates	445	317	762	496	368	864	511	392	903
diploma holders	1,730	514	2,244	1,781	533	2,314	1,768	522	2,290
other qualifications	731	59	790	720	52	772	723	47	770
not defined	695	191	886	603	124	727	579	126	705
total	3,601	1,081	4,682	3,600	1,077	4,677	3,581	1,087	4,668
years									
AVERAGE AGE OF PERSONNEL									
average age total	47.4	43.9	46.6	47.9	44.6	47.1	48.2	44.7	47.4
average age executives	52.0	50.4	51.7	52.6	50.5	52.2	53.5	49.8	52.9
average age managers	49.5	47.0	48.8	50.0	47.6	49.3	50.4	47.8	49.6
average age white-collars	47.4	43.4	46.1	47.9	44.0	46.6	48.1	44.2	46.8
average age blue-collars	46.7	54.5	46.8	47.3	55.3	47.3	47.5	48.7	47.5
AVERAGE SENIORITY OF PERSONNEL									
average seniority workforce	15.9	13.2	15.3	18.7	15.4	17.9	18.9	15.5	18.1
average seniority executives	17.2	20.2	17.7	19.2	19.3	19.2	19.5	17.7	19.2
average seniority managers	16.8	12.7	15.4	20.5	17.8	18.3	20.8	18.0	19.9
average seniority white-collars	14.2	18.0	14.3	19.9	15.0	16.7	20.0	15.1	18.4

average seniority blue-collars	18.3	16.0	17.6	16.7	24.3	19.7	16.8	27.0	16.8
average seniority workforce	15.9	13.2	15.3	18.7	15.4	17.9	18.9	15.5	18.1

	2014			2015			2016		
	men	women	total	men	women	total	men	women	total
CONTRACT TYPE									
number									
permanent workforce with open-ended contract	3,581	1,077	4,658	3,578	1,075	4,653	3,531	1,068	4,599
<i>(of which) part-time personnel</i>	20	93	113	25	80	105	25	83	108
personnel with fixed-term contracts	16	1	17	18	1	19	23	14	37
personnel with professional apprenticeship contracts	4	3	7	4	1	5	27	5	32
total	3,601	1,081	4,682	3,600	1,077	4,677	3,581	1,087	4,668

(*) The workforce total shown in the table differs, due to reporting boundaries, from the figure for the consolidation perimeter.

TABLE No. 32 - SOCIAL INDICATORS: TURNOVER (2014-2016)

number	2013			2014			2015		
	men	women	total	men	women	total	men	women	total
ENTRIES: CONTRACT TYPE									
open-ended	42	13	55	73	16	89	60	20	80
fixed-term	19	3	22	20	1	21	26	15	41
professional apprenticeship	2	0	2	3	0	3	24	5	29
acquisition of business segment	0	0	0	21	2	23	4	1	5
total	63	16	79	117	19	136	114	41	155
<i>(of which) acquisitions of personnel from Public Bodies</i>	9	0	9	1	0	1	0	0	0
EXITS: REASONS									
mobility (lay-offs)	91	23	114	51	7	58	81	16	97
redundancies	6	0	6	11	2	13	8	2	10
retirements	2	0	2	1	-	1	4	0	4
dismissals	6	1	7	13	6	19	18	6	24
other reasons (*)	34	11	45	34	4	38	24	4	28
total	139	35	174	110	19	129	135	28	163
TURNOVER, RECRUITMENT AND EXIT RATES (**)									
%									
turnover rate			5.4			5.7			6.8
recruitment rate			1.7			2.9			3.3
exit rate			3.7			2.8			3.5

(*) Includes: 10 deaths, 8 resignations, 1 health-related and 9 contract expiries.

(**) The turnover rate is the sum of workers entering and leaving the company during the year as a ratio of the workforce at year end; the companies to which the figures refer are situated chiefly in Lazio, the **2016 data broken down by gender is as follows:** turnover rate women 6.3%, men 6.9%; recruitment rate women 3.8%, men 3.2%; exit rate women 2.6%, men 3.8%.

TABLE No. 33 - SOCIAL INDICATORS: AGE CLASSES, DURATION OF EMPLOYMENT RELATIONSHIP (2015-2016)

years	2015			2016		
	men	women	total	men	women	total
AGE CLASSES						
≤ 25 years	9	2	11	33	2	35
> 25 and ≤ 30 years	102	58	160	87	61	148
> 30 and ≤ 35 years	278	157	435	266	136	402
> 35 and ≤ 40 years	396	158	554	374	187	561
> 40 and ≤ 45 years	533	184	717	506	173	679
> 45 and ≤ 50 years	747	216	963	715	218	933
> 50 and ≤ 55 years	694	170	864	716	161	877
> 55 and ≤ 60 years	693	107	800	683	120	803
>61 years	148	25	173	201	29	230
total	3,600	1,077	4,677	3,581	1,087	4,668
AGE CLASSES FOR PERSONNEL ENTERING						
≤ 20 years	0	0	0	1	0	1
> 20 and ≤ 30 years	32	3	35	49	22	71
> 30 and ≤ 40 years	40	11	51	36	16	52
> 40 and ≤ 50 years	26	3	29	13	3	16
>50 years	19	2	21	15	0	15
total	117	19	136	114	41	155
AGE CLASSES FOR PERSONNEL LEAVING						
≤ 20 years	0	0	0	0	0	0
> 20 and ≤ 30 years	5	1	6	4	0	4
> 30 and ≤ 40 years	13	2	15	7	2	9
> 40 and ≤ 50 years	10	2	12	17	3	20
>50 years	82	14	96	107	23	130
total	110	19	129	135	28	163
DURATION OF EMPLOYMENT RELATIONS FOR PERSONNEL LEAVING						
≤ 20 years	56	6	62	44	6	50
> 20 and ≤ 30 years	17	4	21	23	4	27
> 30 and ≤ 40 years	33	7	40	66	17	83
> 40 and ≤ 50 years	4	2	6	2	1	3
total	110	19	129	135	28	163
COMPANIES IN THE ENERGY SECTOR: DURATION OF EMPLOYMENT RELATIONS FOR PERSONNEL LEAVING						
≤ 20 years	56	6	13	6	1	7
> 20 and ≤ 30 years	6	0	6	4	2	6
> 30 and ≤ 40 years	21	2	23	30	4	34
> 40 and ≤ 50 years	2	1	3	1	0	1
total	40	5	45	41	7	48

WORKING HOURS, SALARY AND PENSION FUNDS

REFERENCE BOUNDARY

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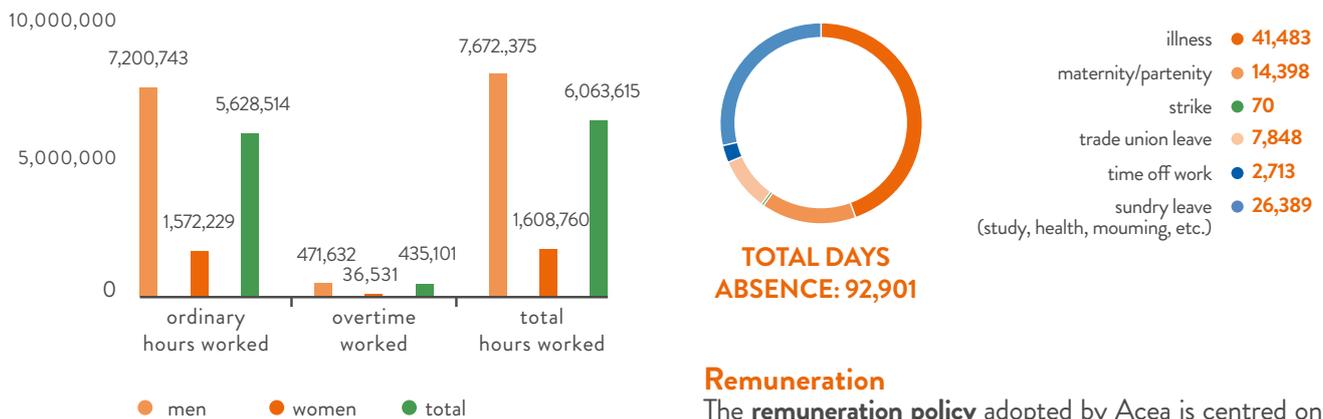
The information and data given in the section *Working hours, salary and pension funds* pertain to: Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Energia, Acea Produzione, Acea8cento, Acea Ato 2, Acea Ato 5, Acea Elabori, Acea Gori Servizi, Crea Gestioni, Gesesa, Acea Ambiente (into which Kyklos, SAO and Solemme merged at the end of December), Aquaser (into which ISA merged in November) and Ecogena.

Hours worked in Acea

The total number of hours worked during the year, excluding executives, was **7,672,375**, 79% of which was by men.

There were **92,901 days of absence** from work, due in the main to illness, permits (study, health, etc.), maternity/paternity leave and for Trade Union related reasons (see chart 35 and table 34).

CHART No. 35 - ACEA EMPLOYEES: HOURS WORKED AND ABSENCES (2016)

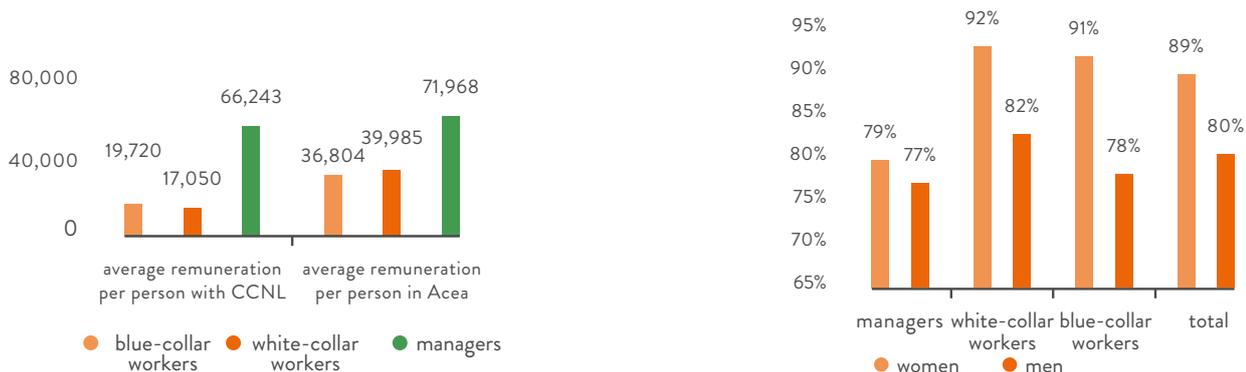


Employees may be granted different types of leave, and the company makes available various **forms of flexibility**: the use of **part-time** work, for example, which in 2016 applied to **2.3% of employees**, **trust-based** working hours for managers and 3rd level white-collar workers, enabling the “personalised management” of work time, providing the work requirements set forth in the employment contract are met, and **flexitime** for starting and finishing work for 1st, 2nd and 3rd level white-collar workers; lastly white-collar and blue-collar workers have a **monthly number of hours of leave** to be recovered within the same month.

Remuneration

The **remuneration policy** adopted by Acea is centred on an **increasing application of the merit-based principle** and selectivity of remuneration measures, both fixed and variable. Employees’ **remuneration** is based on the application of the relevant **National Collective Labour Contracts**, excluding executives and top management. In 2016, the **average gross per-head remuneration** increased for all professional categories, by about 3 percentage points. The **total average gross per-head remuneration increased by 3.2%**, reaching **41.6 thousand euros** (40.3 in 2015); including the executives, this amounts to **43.8 thousand euros** (42.7 thousand euros in 2015) (see table no. 34).

CHART No. 36 - AVERAGE REMUNERATION AND RATIO OF BASE SALARY TO REMUNERATION (2016)



Looking in **gender terms at the ratio of “base salary” to gross effective remuneration** – i.e. considering the presence of “fixed” and “additional” elements in determining the amount of the total salary – in **2016 this ratio was 89% for women** (90% in 2015) **and 80% for men** (79% in 2015). The difference between the two values can be explained by the fact that **activities compensated by higher additional pay**, such as on-call, shift work, allowances, overtime, are **often covered by men** (e.g. work performed by emergency technical service workers, involving shifts to cover 24-hour periods).

Defined contribution pension funds

The main reference supplementary pension funds for employees of the Group are **Previndai**, reserved for executives, and **Pegaso**, for non-executive personnel employed under the CCNLs undersigned by Utilitalia for public utility companies in the electricity, gas and water sectors. The Pegaso fund is managed jointly by Utilitalia – the Federation uniting the Companies operating in public services in the water, environment, electricity and gas sectors - and the

Trade union organisations for workers, Filctem-Cgil, Femca-Cisl and Uiltec-Uil, which created the fund. In 2016 Group **employees⁷⁹ belonging to the Pegaso fund numbered 2,434** (2,547 in 2015). Acea paid in to the Pegaso fund approximately 4.5 million euros in employee leaving indemnity (TFR) and 1.27 million euros as a supplementary company contribution. Looking at the distribution of Acea’s Pegaso Fund population by gender, there is an **incidence of 78.6% men and 21.4% women**. The net Pegaso fund assets designated for benefits reached 915 million euros in 2016 (840 million in 2015), an increase of about 9%. The **Balanced, Dynamic and Guaranteed** segments all closed the year positively, by 3.46%, 3.73% and 0.55% respectively. The return on the TFR, considered as a benchmark for the Guaranteed segment, was 1.49% in 2016. The Balanced segment, which includes 82% of the assets, had a “composite” accumulative return since management started (August 2002 inclusive) amounting to 86.24% (average annual composite return of 4.41%). During the same period, the accumulated revaluation of the TFR amounted to 39.18% (average annual composite return of 2.32%)⁸⁰.

⁷⁹ For the companies: Acea SpA, Acea8cento, Acea Ato 2, Acea Ato 5, Areti, Acea Illuminazione Pubblica, Acea Energia, Acea Produzione, Acea Elabori, Crea Gestioni, Sogea, Gesesa, Acea Gori Servizi, Aquaser and Acea Ambiente (including Kyklos, Solemme and SAO).
⁸⁰ The data and information for the Pegaso Fund were prepared in collaboration with Andrea Mariani, CEO of the Fund.

TABLE No. 34 - SOCIAL INDICATORS: HOURS WORKED, DAYS OF ABSENCE, REMUNERATION AND SUPPLEMENTARY PENSION FUND MEMBERS (2014-2016)

	2014			2015			2016		
	men	women	total	men	women	total	men	women	total
ACEA EMPLOYEES' HOURS WORKED									
hours									
ordinary	5,208,923	1,467,127	6,676,050	5,605,847	1,531,902	7,137,750	5,628,514	1,572,229	7,200,743
overtime	393,345	28,039	421,384	413,547	32,936	446,483	435,101	36,531	471,632
total hours worked	5,602,268	1,495,166	7,097,434	6,019,394	1,564,839	7,584,233	6,063,615	1,608,760	7,672,375
TYPE OF ABSENCE									
days									
illness	25,155	10,679	35,834	26,466	11,283	37,749	29,087	12,392	41,483
maternity/ paternity	782	12,993	13,775	775	13,318	14,093	1,663	12,735	14,398
strike action	481	109	590	1,562	388	1,950	62	8	70
trade union leave	5,511	1,014	6,525	5,834	884	6,718	6,924	924	7,848
sabbatical leave	1,282	555	1,837	1,874	635	2,509	1,919	794	2,713
sundry leave (study, health, mourning, generic)	12,875	6,407	19,282	12,981	6,770	19,750	17,535	8,854	26,389
total days of absence (excluding holiday entitlement, accident and injury)	46,086	31,757	77,843	49,492	33,277	82,769	57,190	35,711	92,901
AVERAGE GROSS REMUNERATION BY GRADE									
euros									
managers			68,900			69,500			71,968
white-collar workers			39,600			38,700			39,985
blue-collar workers			38,000			35,800			36,804
AGE CLASSES AND GENDER OF ACEA EMPLOYEES REGISTERED WITH PEGASO FUND									
years	2014			2015			2016		
	men	women	total	men	women	total	men	women	total
≤ 25 years	1	0	1	3	0	3	1	0	1
> 25 and ≤ 30 years	28	12	40	35	11	46	24	8	32
> 30 and ≤ 35 years	99	36	135	102	39	141	99	33	132
> 35 and ≤ 40 years	182	50	232	188	53	241	173	55	228
> 40 and ≤ 45 years	253	75	328	262	76	338	245	71	316
> 45 and ≤ 50 years	427	133	560	433	132	565	414	132	546
> 50 and ≤ 55 years	413	120	533	420	114	534	430	107	537
> 55 and ≤ 60 years	443	88	531	438	90	528	414	95	509
>61 years	129	28	157	125	26	151	112	21	133
total	1,975	542	2,517	2,006	541	2,547	1,912	522	2,434

INDUSTRIAL RELATIONS

REFERENCE BOUNDARY

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The information and data given in the section *Industrial Relations* relate to Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Reti e Servizi Energetici, Acea Energia, Acea Produzione, Acea8cento, Acea Ato 2, Acea Elabori, Crea Gestioni, Acea Ambiente (into which Kyklos, SAO and Solemme merged at the end of December) and Aquaser (into which ISA merged in November).

Acea's industrial relations system operates within the framework of rules and provisions defined for the sector by the national collective labour contract (CCNL), with a second bargaining level in place between the company and in-house worker representations, through which agreements can be reached based on particular company needs.

Acea applies the **Consolidated agreement for the electricity sector**, **Consolidated agreement for the gas and**

water sectors and, within Acea8cento, an *ad hoc* contract specifically drawn up with pertinent national associations.

All employees are accordingly covered by **collective bargaining agreements**. In 2016 the level of unionisation was 71.4%. The number of employees with **management or Trade union representation** roles totalled **312, 22** of whom were **Workers' Safety Representatives (RLS)**, designated on the basis of a Trade Union agreement.

During the year the **Industrial Relations Unit** and the **Trade Unions (OO.SS)** discussed and defined all areas of worker-employer dialogue: regulatory, economic (productivity bonus) and work organisation.

In particular, the **procedures for the reduction of Group personnel** were started, **new productivity indicators for the results-based bonus** were defined, with an increase in the technical indicators to which to correlate productivity increases, and a **specific mechanism of individual incentives** was implemented, related to the start of the **new opening hours of the commercial customer counter** at the head office in piazzale Ostiense.

ACEA 2.0

In line with the *business transformation* process currently ongoing and with the objectives of the Group industrial plan, various phases of meetings were started with the Trade Unions concerning **extraordinary operations of a corporate nature**, including the partial proportional split-off of Acea Illuminazione Pubblica into Areti, the merger by incorporation of the company **Innovazione Sostenibilità Ambientale (ISA)** into Aquaser, the transfer of the business unit that was the Engineering and Services function of Acea SpA to Acea Elabori and the merger by incorporation of the companies SAO, Solemme and Kyklos into Acea Ambiente (formerly A.R.I.A.).

ACEA 2.0

THE MERGER BY INCORPORATION OF THE COMPANY INNOVAZIONE SOSTENIBILITÀ AMBIENTALE (ISA) INTO AQUASER

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Following the end of the preliminary consultation phase of the operation for the merger of ISA into Aquaser, bargaining began for the identification of the first and second level treatment applicable to the workers transferring to Aquaser and already regulated by Environmental Hygiene CCNLs. Bargaining ended with a draft agreement defining the following in overall terms:

- the gas-water CCNL as the reference collective contract for the workers of the company, superseding the Environmental Hygiene CCNL, with a view towards adjustment to the CCNL applied in the production sector;
- the definition of the second level treatment: the start-up of the results bonus and tickets, with subscription to the Staff Recreational Association (CRA) as of 2017;
- the integration of specific typical disciplines for the vehicular transport of personnel subscribing to the initiative.

In the water sector, by force of the **Water Tender Contract Memorandum** signed in 2012 by Acea SpA, Acea Ato 2, federal trade unions and industry associations, some meetings were held as part of the joint Committee concerning **the evolution of the Unified Tender Contract** for the maintenance of networks and services in the integrated water cycle (see also the chapter *Suppliers*).

With regard to **the prior disclosure to employees regarding possible organisational changes or corporate restructurings having a possible impact on employment relations**, the company acted differently according to the cases described below:

1. **organisational changes:** in the event of the creation of new Units or mission changes, the Parent Company's Human Resources and Organisation Division will issue the Organisational provision and transmit the disclosure to the relevant offices, which will publish it on the bulletin boards and company intranet. Usually, for changes

affecting workers, union representatives are given the pertinent information; if changes affect individual employees (e.g. changes to place of work, working hours, etc.) they will receive a specific communication;

2. **corporate restructurings:** in the event of restructurings resulting from significant organisational and production changes, having an impact on working conditions and employment, the disclosure of information to employees and their Trade Union organisations is governed by the CCNLs implemented within the Group and by Industrial relations protocols;
3. **Company transformations** (e.g. transfers, mergers, takeovers, transfer of business segments): in the case of company transformations, disclosure to employees is governed by current legislation⁸¹, which includes the duties of informing worker representatives, so as to enable them to gauge the industrial reasons for such operations, the adoption of correct procedures and the impact they will have on employment relations.

DISPUTES WITH EMPLOYEES AND WITH TRADE UNIONS

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Disputes lodged by employees against Acea mainly relate to **grade reviews, remuneration differences and indemnities not received** (for example hourly rate of shift workers), but also to **demotion and mobbing**.

In 2016, there were **32 new cases** concerning employment, while the total number of pending disputes – including those from previous years – totalled 144 cases. During the year, 12 disputes were settled (6 of them started in the same year and 6 in previous years). In detail, it should be noted that the outcome of 7 of these cases were favourable to Acea, 3 cases were favourable to the plaintiff and 2 cases were settled without the need to resort to legal proceedings.

⁸¹ Art. 2112 of the Civil Code and art. 47 of law 428/90, as amended, implemented following Legislative Decree no. 276/2003.

SAFEGUARDING HEALTH AND SAFETY IN THE WORKPLACE

REFERENCE BOUNDARY

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The information and data given in the section *Safeguarding health and safety in the workplace* relate to: Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Ato 2, Acea Ato 5, Acea Gori Servizi, Acea Elabori, Acea Energia, Acea Produzione, Umbria Energy, Acea8cento, Crea Gestioni, Gesesa, Acea Ambiente (into which Kyklos, SAO and Solemme merged at the end of December), Aquaser (into which ISA merged in November) and Ecogena.

Each company in the Group, in compliance with existing legislation (Legislative Decree no. 81/08, as amended), is directly responsible for the management of safety aspects.

Coordination and policy activities are the responsibility of the Human Resources and Organisation Division of the parent company, which has the task of monitoring companies to ensure compliance with guidelines and policies issued and with current legislation.

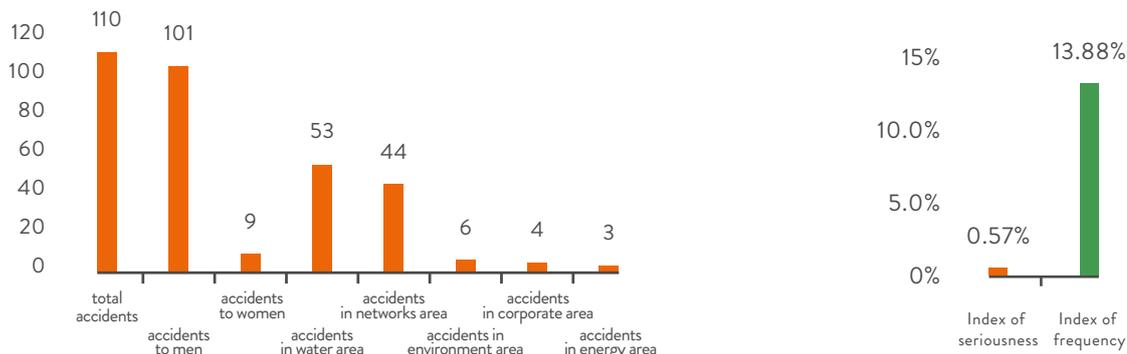
Most Group companies have implemented Certified management systems (OHSAS 18001) on the matter of health and safety in the workplace (see also *Corporate identity*, chapter *Corporate governance and management systems*).

With regard to the process of evaluating worker risks and monitoring accidents and injuries, each company shall act in accordance with existing legislation, drafting the Risk Assessment Document (DVR). Following these independent

activities, the Health, Safety and Asset Protection Unit, under the Human Resources and Organisation Division, draws up at a central level each year the accident report for Group companies. The method adopted to analyse accidents complies with the Guidelines for classifying accidents, drafted by Federutility, and with standard UNI 7249/95, with reference to INAIL criteria and ESAW (European Statistics of Accidents at Work) recommendations. In 2016, the number of accidents occurring during the performance of working activities was 110 (70 in 2015) and 37 accidents occurred while travelling (i.e. while commuting between home and the workplace), one of which was fatal (there had been 27 accidents while travelling in 2015).

The number of days absence in 2016 due to injuries occurring during working activities fell to 4,524 (9,974 in 2015). Compared to the previous year, the index of frequency increased and the index of seriousness decreased (see graph 37 and table 35).

CHART No. 37 - ACCIDENTS AND INDICES (2016)



Note: the injury indices by gender are: male index of seriousness 0.65 and female index of seriousness 0.26; male index of frequency 16.12 and female index of frequency 5.41.

Analysing the breakdown of accidents by gender (excluding those occurring while travelling), it emerged that 101 accidents (66 in 2015), amounting to 92% of the total, involved male workers in the blue-collar segment (79), in the white-collar segment (20) and managers (2), while 9 accidents (4 in 2015), amounting to 8% of the total, involved female workers in the white-collar and administrative segment (8) and blue-collar segment (1).

The breakdown of injuries by company - grouped by business area, consistently with the organisation of the company - highlights, compared to the previous year, an increase in injuries in the water sector (53 during the year and 37 in 2015), in the networks sector (44, 26 in 2015), in the environment sector (6 injuries, 2 in 2015) and in the energy sector (3, none in 2015) and a slight reduction in the corporate sector (4, 5 in 2015) (see chart 37).

Specifically, the highest number of accidents occurred in Acea Ato 2 (47) and Areti (41), the two largest operating companies in the Group, working in the water sector and electricity distribution sector respectively, which physiologically have a greater exposure to injury risks due to the type of activities

carried out. During the course of the year, regular advisory meetings were held with the Workers' Safety Representatives (RLS), guaranteeing the involvement of the workers according to that envisaged by art. 35 of Legislative Decree no. 81/08.

The reduction in the injury risks is achieved especially through the proper and adequate training of the operating personnel. To this end, Areti has set-up a structure dedicated to the education, information and training of personnel on health and safety in the workplace: the Training Camp (see the subparagraph *Personnel training and development*).

The company is alert to evaluating and managing the risks associated to work-related stress. In 2016, it continued the survey campaign on possible stress factors associated with the performance of work, which involved 234 employees (subdivided into 6 qualification groups), who compiled a questionnaire and attended specific focus groups.

In particular, on the basis of the results of the evaluation of work-related stress, Acea8cento carried out improvement plans regarding the criticalities that emerged (see the specific box).

Acea8cento carried out a specific procedure for evaluating work-related stress, using a methodology, in line with that stated in the manual drawn up by the INAIL Department of Work-related Medicine (formerly ISPESEL), which envisages the breakdown of the evaluation process into various phases:

- I. **preparatory phase:** with the aim of planning the entire evaluation procedure; involves the setting-up of an evaluation management group in which the employer or person authorised by them participates with the RSPP, ASPP, RLS, a psychologist, the Personnel Manager and other corporate figures;
- II. **preliminary evaluation:** a compulsory phase involving the recording of objective and verifiable indicators concerning factors of a corporate nature, (or sentinel activities), context and work content by compiling a check-list;
- III. **detailed evaluation:** optional in the case of low risk emerging from the check list and required in the event of a medium or high risk, involving all personnel or a sample representative of workers (according to the size of the company) being given a questionnaire and conducting focus groups and/or semi-structured interviews;
- IV. **corrective measures and improvement action:** these are interventions that are aimed at reducing or eliminating the criticalities emerging from the check list, questionnaires and focus group in order to prevent the workers being subject to stress;
- V. **drafting and discussion of the DVR-stress:** the results and scores obtained during the preceding phases are grouped together in a single document;
- VI. **checking and monitoring:** the last phase, involving the application of the tool after a gap of two years to monitor the situation in the company and ensure that the criticalities that emerged have been eliminated or reduced.

The personnel of the company, consisting of **180 people**, was subdivided into four similar groups on the basis of the duties they perform: call center staff, back and front-office staff, administrative staff and coordinators.

The evaluation of the work-related stress risk was carried out in two separate sessions. In the first session, conducted in March, the call center staff and back and front-office staff were evaluated; in the second session, in May, the administrative staff and coordinators were evaluated; four separate check lists were compiled.

The analysis of the results showed that the **stress risk is medium to low**, and the company thus decided to **adopt corrective measures**, in order to reduce or eliminate completely the initial symptoms of work-related stress identified during the evaluation. The action taken included: participation in the Safety Day with a film (transmitted on line) on the exact posture in front of video terminals and the restructuring of the break room with a relax area being made available for personnel during breaks and leisure time. The evaluation will be repeated with the aim of monitoring the risk over time and/or the progress made in the improvement actions undertaken, by the end of 2017 for the call center staff and back and front-office staff and by the end of 2018 for the other similar groups.

The focus on ensuring health and safety in the workplace which **strongly characterised 2016** is witness to initiatives, such as the creation on the corporate intranet site of a section called **Il Gruppo Acea SiCura di te** (The Acea Group looks after you), which will include the initiatives undertaken by the Group to ensure the health of employees

and improve organisational wellbeing and will also contain links to websites and blogs by professionals in the sector and the **Safety Day Acea**, an event to increase awareness of the theme of safety, which involved all the companies in the Group (see also the sub-paragraph *Internal communication*).

TABLE No. 35 - SOCIAL INDICATORS: HEALTH AND SAFETY (2014-2016)

number	2014	2015	2016
BREAKDOWN OF ACCIDENTS BY BUSINESS AREA AND GEOGRAPHIC AREA			
water (Lazio, Molise and Campania)	37	37	53
networks (Lazio)	16	26	44
energy (Lazio, Abruzzo and Umbria)	0	0	3
environment (Lazio, Umbria and Tuscany)	3	2	6
corporate and services (Lazio)	7	5	4
total	63	70	110
total days of absence (*)	2,786	9,974	4,524
index of frequency (FI) (no. acc. x 1,000,000/h work.)	8.31	9.20	13.88
index of seriousness (SI) (days absence x 1,000/h work.)	0.37	1.31 (**)	0.57

Note: the water area includes 5 companies, the network area 2, energy area 5, environment area 9 and corporate and services area 2. Table data does not include accidents occurring while travelling to and from work.

(*) Figures include days of absence due to the continuing or returning effects of accidents occurring in previous years.

(**) The higher index of seriousness is due to the fatal accident, resulting in 7,500 extra days absence.

Health monitoring

REFERENCE BOUNDARY

The information and data given in the section *Health monitoring* relate to: Acea SpA, Areti, Acea Ato 2, Acea Elabari, Acea Energia, Acea Produzione, Acea8cento, Acea Ambiente (into which Kyklos, SAO and Solemme merged at the end of December), Aquaser (into which ISA merged in November), Crea Gestioni and Ecogena.

Beyond regulatory compliance, Acea sets out to raise employee awareness of the culture of safety in the workplace and wellbeing at work, providing specific training courses (see also the paragraph *Internal Communication and Training and development of human resources*) and realising specific initiatives. The corporate intranet site also provides the opportunity to inform personnel on procedures, regulatory documents and details on the matter.

Health monitoring is managed by an internal structure that operates in compliance with existing legislation (art. 41 of Legislative Decree no. 81/08) and in collaboration with external professionals. Workers' health is monitored with the assistance of formally-appointed qualified physicians, who subject employees to the following types of medical examinations:

- pre-employment;
- preventive or following changes to work duties;
- regular, based on the risk assessment plan;
- at the worker's request;
- in the event of termination of employment relations, if required by existing legislation;
- prior to resuming work, following a period of absence for health reasons of longer than sixty consecutive days.

For workers exposed to specific risks, there is a targeted programme of medical check-ups.

As part of the activities to safeguard the psychological and physical health of workers, qualified physicians work with

employers and with Protection and Prevention Service Officers to assess the risks to which workers are exposed. This activity is necessary for drawing up the health monitoring plan.

In 2016 a total of 2,633 check-ups were carried out; relative costs⁸² amounted to approximately 230,000 euros.

The presence of a First-aid medical centre also provides company personnel and visitors with first aid treatment in the event of ailments that do not require hospital treatment. Health monitoring activities also include the prevention of occupational diseases, which workers may contract while working due to prolonged exposure to risk factors present in the workplace.

As part of the activities performed by Group companies, to which Acea provides the health monitoring service, there are no risk profiles such as to be able to cause occupational pathologies. In any event, it is the duty of the qualified physician, with the employer, to define the preventive measures, health protocols for the risk profiles related to specific duties and monitor any damage to the health of workers. The qualified physician, in giving an opinion as to the workers fitness for work, also applies limitations and prescriptions to prevent possible occupational illnesses. There were no reports of suspected occupational illnesses in Acea in 2016.

HUMAN RESOURCE EMPOWERMENT AND COMMUNICATION

REFERENCE BOUNDARY

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The information and data given in the section *Human resources empowerment and communication* relate to: Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Ato 2, Acea Ato 5, Crea Gestioni, Gesesa, Acea Elabori, Acea Energia, Acea Produzione, Acea8cento, Acea Ambiente (into which Kyklos, SAO and Solemme merged at the end of December), Aquaser (into which ISA merged in November) and Ecogena.

The human capital, consisting of the skills of the resources working for Acea, is at the centre of the ongoing cultural and organisational transformation. The model adopted by the Group is open and reticular and encourages the active participation of people in the initiatives in support of the change.

ACEA 2.0

In particular, the Acea2.0 programme involves all the companies in the Group, coordinated by a governance structure, and sees the active involvement of people, supported through training and engagement plans, in the realisation of *La Grande Opportunità (the Great Opportunity)* (Steering coalition team, Urgency Team,

acceleration team and local action team).

2016 saw the launch of the 2nd Group steering coalition team and the renewal of the members of the Urgency Team. The two bodies were both prepared for the promotion of the change through courses for the development of communication skills and the planning, realisation and sharing of ideas (storytelling and design thinking) and through training initiatives aimed at enhancing the entrepreneurial spirit and self-empowerment.

Numerous initiatives were based on the engagement activity, including 17 projects created by the acceleration team, 25 initiatives by the local action team and 8 proposals by the Steering coalition team, involving a total of 2,000 employees directly and with 4,000 colleagues also involved (also see *Corporate identity*, paragraph on *The Acea2.0 programme*).

Training and development of human resources

REFERENCE BOUNDARY

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The information and data given in the section *Training and development of human resources* relate to: Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Ato 2, Acea Ato 5, Acea Gori Servizi, Crea Gestioni, Gesesa, Acea Elabori, Acea Energia, Acea Produzione, Acea8cento, Acea Ambiente (into which Kyklos, SAO and Solemme merged at the end of December), Aquaser (into which ISA merged in November) and Ecogena.

⁸² The costs of regular and pre-employment check-ups refer to the reporting boundary for the paragraph.

Acea's competitiveness is very much dependent on the quality and **professionalism of its human capital**, and accordingly **training**, designed to raise personal skill levels, **is a key element** for improving the performance and solidity of the company.

Training provided to human resources is financed in part through membership of **inter-professional bodies for continuing education**. The Group's core companies in particular (Acea SpA, Acea Distribuzione, Acea Reti e Servizi Energetici, Acea Ato 2, Acea Ato 5, Acea Elabori, Acea Energia and Acea Produzione) **are members of the FOR.TE Fund** (National Inter-Professional Joint Fund for Continuing Education in the Service Sector), which provides financing for the development of employee skills and the competitiveness of enterprises.

Acea SpA's **Human Resources and Organisation** Division draws up the parent company's annual training programme, oversees the attainment of general training goals, defines **policies, guidelines and tools** for Group companies, manages **managerial training** at a central level, creating training courses aimed at top and middle management, constructs paths for **advanced cross training**, focusing on topics of common interest to all Group areas, with highly specialised content, organised with highly specialist partners, including universities.

Operating companies have independent responsibility for training in safety matters, prevention of risks arising from technical-operational work and legislative obligations. Individual companies are also responsible for **technical-specialist training** to develop special competences and skills in the reference business area. Both types of training come under the annual Group training plan, and complement the parent company's training programme.

The **training process** originates from the **study of educational needs**, carried out **digitally** on the Pianetacea platform. Training is **experiential** - through experiences that might be acquired outside the workplace - **traditional** - in

the classroom with face-to-face or "side-by-side" teaching - or in **e-learning** mode.

The process concludes with the **evaluation** of the learner's **level of satisfaction** concerning the event organisation and teaching quality, and **regular internal reporting** on participation in training.

The **main training goals pursued in 2016** were: **making it easier** for personnel **to understand the strategic vision of the Acea 2.0 programme** and **support the process of change**; favouring **cultural integration**, through meetings and exchange between the companies in the Group; **increasing the level of motivation and satisfaction** of people, through listening and follow-up initiatives; **spreading a culture of preventive safety**, increasing the responsibility of those in charge.

ACEA 2.0

The full implementation of the Acea 2.0 programme has led to significant organisational changes. In 2016, it was therefore necessary to implement **training interventions** aimed at **spreading the new working methods, enhancing personal digital and procedural knowledge and skills** and managing the impact caused by the changes on the **psychology and motivation of individuals** (social, relational and emotive factors).

In general, the training initiatives were aimed at constructing a base of knowledge and trust around the ongoing organisational dynamics (such as Workforce Management, which uses digital tools, new organisational roles and new working methods) and consolidating the sense of being in a team, favouring the experiential method and the use of metaphors (*dragon boat, cooking and survival learning, etc.*) (see the relevant box for more details).

ACEA 2.0

EXPERIENTIAL TRAINING IN SUPPORT OF CHANGE

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In 2016, the main **training courses of an experiential nature**, for the operating companies in the Group, in support of the **process of business transformation** were:

- **Food Distribution Acea**, aimed at personnel of the operating company Areti which, through the cooking metaphor, explored the fundamental aspects of the change, such as the new method or work organisation, the capacity to operate individually and in collaboration, etc.;
- **Make Future With...Acea**, centred on the format of the change, which involved 154 people of the company Acea Ato 5;
- **Acea Distribuzione2.0**, 142 people involved in two days of training, aimed at presenting the new organisational structure of Areti, enhancing the sense of being in a team and promoting awareness of the role;
- **Areti...siamo noi (Areti...that's us)** 174 technicians involved in experiential activities conceived to search, in a training context, for the operating dynamics among the various figures in WFM, also by using tablets;
- **In volo verso...Acea 2.0 (In flight towards...Acea 2.0)**, dedicated to the "customer care" business segment and carried out in partnership with the Alitalia Training Academy, involving a total of 233 people from Acea Energia, Acea Ato 2, Areti and Acea8cento, with the aim of developing awareness of their role, attitude towards inter-functional collaboration and indicating a new way of perceiving the customer.

As regards **the protection of health and safety in the workplace**, the main training courses, also provided through the Pianetacea e-learning platform, concerned compulsory training on **basic safety** and training for **first aid personnel** and **those responsible for the fire prevention service**.

Again concerning safety, Acea organised a course on **safe driving**, carried out with the collaboration of the ACI Vallelunga Safe Driving Centre, which enabled the

participants to enhance their driving skills, thanks to practical exercises carried out with the support of trainers; the experience involved **155 people**, mainly **dispatched personnel**, who use company vehicles widely.

Areti has also set up a dedicated structure for information, education and training activities on health and safety in the workplace: the **Training Camp** (see the relevant box).

THE ARETI TRAINING CAMP

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The **Training Camp** is a **training area dedicated to safety in the workplace**, located inside a building that is part of the primary station of Collatina, in which **theoretical education sessions** (laws, company regulations) and **practical training** (application and exercises on safety, fire prevention and first aid procedures) are carried out for the operating personnel of Areti. The area has also been made available for use by the other companies in the Group and, on request, by external companies/bodies.

In the structure, **simulations of the operating interventions** that the personnel carry out during their everyday work in the management and maintenance of the electricity distribution and public lighting networks are conducted.

The training subjects include the prevention of the electrical risk (the main risk in this sector of work), compulsory training on **individual protection devices** and the **measures of collective protection**, the **management** of the electrical network and **working** the equipment, **safely mounting/dismounting** from medium and low voltage electricity **pylons**, safely climbing/getting down from extendable **portable ladders**, **safely accessing confined spaces** underground, practising using the work/safety tools (for example the cable selector, cable cutters, gas/oxygen detectors) and the **execution of joints**, the basics of firefighting, first aid and individual/team training in dealing with emergencies in a hazardous environment simulator (so-called labyrinth). On the basis of requirements, courses are also organised on specific activities, such as compulsory training in driving and using bucket trucks or on temporary worksite signage.

Training in emergency situations in hazardous environments is particularly important and appreciated, and gives some interesting suggestions and ideas on the theme, which is very current, of psychology in emergencies. **More than 1,300 people were trained** in 2016 in more than **670 hours of training**.

Compulsory training through the Group multimedia platform, **Pianetacea**, continued during the year, focusing on: The Group Code of Ethics, the Administrative Responsibility of Bodies (Legislative Decree no. 231/01) and anti-corruption, the Privacy Code (Legislative Decree no. 196/03) and basic safety. The course on the new **energy environment and safety management system** (QASE) was started in 2016. A total of about 2,800 hours of online training were carried out.

The **disclosure of the ethical values of the Group** and some relevant regulatory frameworks is done by publication on the intranet portal and on the institutional website. With regard to newly hired personnel, in the framework of entrance level training, modules dedicated to the corporate mission, the **Code of Ethics** and the **Privacy Code** are still envisaged.

In 2016, Acea Energia intended to develop the knowledge of the Organisational Management model and the Code of Ethics with all company personnel, through training meetings held by the Audit Function of the parent company, organised

for the offices that are most exposed to the risk of corruption/conflict of interest; these include the course carried out for 130 employees of Acea Energia on Legislative Decree no. 231/01 and anti-corruption.

As regards **technical and specialist training**, courses were organised for personnel with specific skills in: **financial statements analysis**, **energy management**, for employees involved in periodical energy diagnosis and who take the exam required by the certification, the **new Code of tenders** and **environmental law** (see the relevant boxes). Furthermore, in line with the **updating of the operating systems**, the **Twins of SAP** course was held for the start-up of the new operating system for the management of the enhanced protection service and that for perpetual lighting and **SAP HCM** courses were organised for the management of human resources and those concerning the procedure for purchases on the **SAP SRM** and **SAP IDM** systems.

PUBLIC WORKS TENDERS: LAWS AND REGULATIONS FOR EXECUTION

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The **public works Tender** is a training project defined following the entry into force of the Code on public contracts. It was organised in collaboration with **LUISS Business School** and involved **96 people**, examining, from the viewpoint of both the legal system and its practical application, the new dispositions concerning the phase of awarding the contract, the numerous institutes involved, the guidelines on which the new Code is based, the elements of innovation for the above and below threshold operations and the delicate problems concerning the management of the transitory period.

ENVIRONMENTAL LAW

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In 2016, the **2nd edition** of the **training course on environmental law** was held, organised in collaboration with **Roma Tre University** – Department of Law, with the goal of increasing the awareness of personnel as regards the respect of the social fabric and the surrounding environment, focusing on specific themes including: **waste**, **defence of the soil**, **the tariff of the water service** and **electromagnetic pollution**. The course was held on six days and involved **172 people**.

The **traditional** and **experiential training activities** involved a total of **681 courses** (577 in 2015), in **1,723 sessions** (1,439 in 2015) and involved **all personnel**. The **e-learning platform** also provided **10 courses**, attended by **139 employees**, of whom 49% were women.

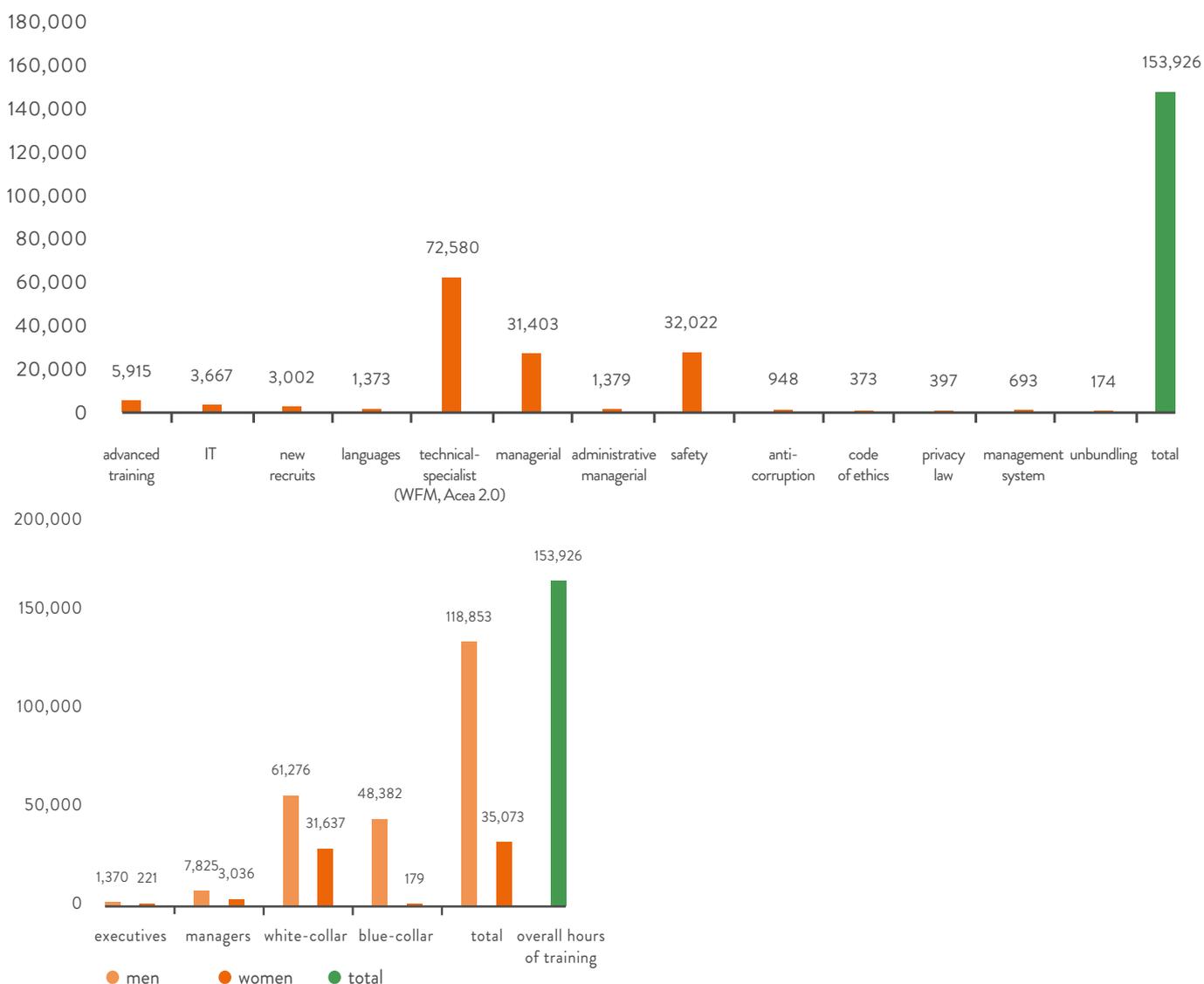
The **153,926 hours of training** provided during the year (in traditional, experiential and e-learning form), although a slight reduction compared to about 170,100 hours in 2015, remained at a high level (see chart 38 and table 36).

The **hours of training per head⁸³** totalled **33** (36.4 in 2015); furthermore, analysing the data from a gender viewpoint, the hours of training per head for men amounted to 33.2 and those for women amounted to 32.3.

Overall, the **costs incurred** for providing the courses, net of the training planning activities and setting up of the areas to be used for training, amounted to **1,206,685 euros** in 2016 (see table 36).

⁸³ This indicator was constructed as a ratio of the number of hours attended (153,926 in 2016) to the overall number of employees (4,668 in 2016).

CHART No. 38 - TRAINING HOURS: BREAKDOWN BY TYPE OF TRAINING AND GRADE (2016)



Note: the breakdown of training hours by grade is as follows: 20 hours for executives, 20 for managers, 33 for white-collar workers and 36 for blue-collar workers.

TABLE No. 36 - SOCIAL INDICATORS: TRAINING (2015-2016)

TRADITIONAL AND EXPERIENTIAL TRAINING COURSES AND COSTS

course type	courses (no.)		sessions (no.)		training (hours)		costs (euros)	
	2015	2016	2015	2016	2015	2016	2015	2016
advanced training	8	3	16	11	6,696	5,803	65,274	71,954
information technology	87	12	296	152	32,416	3,667	21,652	1,360
new recruits (*)	13	24	15	40	1,047	3,002	520	6,240
languages	9	14	14	17	1,164	1,373	10,200	16,751
technical-specialist	212	415	357	1,094	33,397	72,580	226,902	364,946
managerial	28	17	118	66	41,122	31,374	762,865	431,645
administrative-operational (*)	6	12	9	55	3,959	1,379	21,570	2,160
safety	214	102	614	288	49,534	31,688	321,066	311,628
anti-corruption	0	1	0	9	0	232	0	0
total	577	681	1,439	1,723	169,335	151,098	1,430,049	1,206,685

COURSES AND COSTS OF TRAINING PROVIDED THROUGH THE PIANETACEA E-LEARNING PLATFORM

course type	courses (no.)		training (hours)		costs (euros)	
	2015	2016	2015	2016	2015	2016
advanced training	1	1	154	112	2,086	360
managerial	1	2	13	29	2,086	720
safety	2	2	200	334	2,086	720
privacy code (L.D. 196/03)	1	1	138	397	2,086	360
code of Ethics	1	1	113	373	2,086	360
anti-corruption (L.D. 231/03)	1	1	110	716	2,086	360
unbundling	1	1	54	174	2,086	8,000
QASE management systems	-	1	-	693	-	360
total	8	10	782	2,828	14,600	11,240

BREAKDOWN OF TRAINING HOURS BY GRADE AND GENDER

grade/position	2015			2016		
	men	women	total	men	women	total
executives	3,293	614	3,907	1,370	221	1,591
managers	9,244	2,966	12,210	7,825	3,036	10,861
white-collar workers	68,423	35,713	104,136	61,276	31,637	92,913
blue-collar workers	49,653	211	49,864	48,382	179	48,561
total	130,613	39,504	170,117	118,853	35,073	153,926

(*) Training provided to new recruits and administrative-operational training is usually given through teaching provided by resources within the Group.

Collaboration with universities and high schools

Acea develops **partnerships and collaborations with universities**, takes part in study and research activities, makes itself available for **meetings between companies and students**, and enters into **agreements** for the promotion of work experience and internships.

The main initiatives in 2016 were:

- **Career Day Luiss, “I giovani e il lavoro (Youngsters and work)” 20th edition**, an event aimed at matching supply and demand on the labour market, providing students with the tools to combine the knowledge from their university courses with the actual opportunities provided by the labour market;
- **Job Meeting 2016**, organised at the faculty of engineering of La Sapienza University in Rome and aimed at graduates and undergraduates from all disciplines, a chance for youngsters to come into contact with leading exponents of the worlds of work, training and career guidance;
- **Career Day AlmaLaurea**, an event organised by AlmaLaurea with the scope of organising meetings between the human resource managers of companies and university students. AlmaLaurea conferred the *We Hired Better* award to Acea for having implemented **the best policies of hiring youngsters in the companies in the Group**;
- **Placement UniClamOrienta**, an initiative organised by the University of Cassino to guide youngsters towards the labour market and enable companies to meet candidates suited for internships.

In 2016 Acea made a financial contribution to the **Master's course in Management and corporate social responsibility** given by the Faculty of Social Sciences of St Thomas Pontifical University (Angelicum), granting two scholarships, covering the enrolment fee, and offering this opportunity to the children of employees in the Group's companies. The company also makes available **the professional expertise** of its personnel for university and postgraduate courses, also helping students to draft their final dissertations, and as part of **technical projects** conducted in the areas of energy-environment and water

resources.

Specifically, in 2016, qualified **company personnel** were involved as teachers or providing company presentations as part of **post graduate courses** dealing with subjects linked to **corporate social responsibility, lighting technique innovation and cyber security, the resilience of urban contexts, governance and corporate fraud.**

In 2016, the companies in the Group implemented a total of **14 apprenticeships** and **hired 18 youngsters** previously working on apprenticeship, internship or work experience contracts.

Incentive systems and evaluation of human resources

As at 31.12.2016 the amount of the balance sheet liabilities for severance indemnity (TFR) and other defined-benefit plans to be paid to employees on termination of their employment with the company amounted to 109.5 million euros, almost unchanged compared to 2015 (+0.9%).

The remuneration policy adopted by Acea is aimed at ensuring **the application of the merit principle** in evaluating personnel and, consequently, seeking selectivity of remuneration measures, both fixed and variable. There are many evaluation systems, defined consistently with this choice and following on from the review of management tools conducted in past years, and they are defined on the basis of company profiles. For the **Chief Executive Officer and top management**, comprising the **Group executives with strategic responsibilities and roles**, a system of **long-term incentives (triennial)** is applied, the **Long Term Incentive Plan (LTIP)**. The structure of the 2016-2018 LTIP mirrors that for the previous three years, as it has been deemed by the Appointment and Remuneration Committee to respond to the objectives defined by the governance body for institutes of this nature (resolution 22/2016). The choice of accrual of the bonus, in a **three-year cycle**, intends to ensure continuity in company performance, guiding the management's actions towards **medium and long-term** results and triggering virtuous mechanisms for creating added value for the stakeholders.

The LTIP is calculated as a percentage of Gross Annual Remuneration (RAL) and is subordinate to the achievement of economic and financial objectives identified by the Appointment and Remuneration Committee (MOL and ROIC), and of those linked to the appreciation of the company shares on the stock market (*Total Shareholder Return* – measuring the performance and appreciation of the value of Acea shares compared to those of comparable companies). At the end of each three-year period, a bonus is paid out, if due, on the basis of the extent to which the economic and financial and productivity objectives have been achieved, in other words measuring the corporate performance throughout the three-year period.

For the **top and middle management** (executives and managers), a **system of short-term incentives (annual)** is applied: **Management by Objectives (MBO)**.

In order to create a synergic connection between the company's strategy and operational management, the **MBO** system involves the payment of variable remuneration based on the **achievement of individual and Group objectives** assigned at the start of the year, and the **evaluation of their organisational behaviour** with respect to the expected model of Leadership. The system of incentives in force therefore focuses on the global evaluation of the individual (*Performance* and *Leadership*) and the achievement of the individual qualitative and quantitative objectives.

For the effective payment of the bonus, the mechanism connected to the **MBO** system entails a system of “access gates” constituted by **four Group objectives**, three of an economic and equity nature and one linked to the quality of the services provided (MOL, Net Profit, Net Financial Position and **QUALITY AWARD**). A new catalogue of Group objectives was prepared in 2016, simplified and reduced in number, containing a set of indicators to be assigned to the managers to transform the strategic guidelines into tangible results.

The personnel in service qualified as **managers, white-collar workers and blue-collar workers** – even if working part-time or with fixed-term or apprenticeship contracts – **are paid an annual results-based bonus**: an economic payment made to employees as recognition of and **sharing in the good results achieved by the company**. The criteria for the payment of the bonus are defined in the light of the principle of merit, using a system of **valorisation of the individual contribution** (achievement of the objectives assigned and behaviour) and the economic payment is calculated on the basis of parameters concerning productivity, profitability and health and safety in the workplace.

In Acea8cento, the Group company dealing with telephone channels for customer relations, the reward system takes into account the **quality delivered** indicators deriving from the surveys conducted using the mystery calling technique, in other words by simulating telephone calls from customers to the Acea call centers.

The business transformation has redesigned customer relations in order to improve their satisfaction levels and the customer experience. Acea Energia has thus changed the system of incentives for front-end operators which entails the preparation of an evaluation sheet by the operators based on **qualitative and quantitative performance indicators** and the payment of a bonus differentiated on the basis of the individual evaluations and paid on a four-monthly basis.

Some **benefits** are also provided for employees – including those on part-time, fixed-term and apprenticeship contracts – such as **extra months' pay, meal vouchers** (tickets), a discount on the electricity rate (only for personnel hired

before 9 July 1996), the facilitations recognised through the Staff Recreational Association (CRA), **supplementary health policies**, the Previdai Fund for executives and the supplementary pension fund for the sector – Pegaso Fund – for employees. The executives also have additional benefits, such as the use of a company car and the reimbursement of fuel expenses.

The human resources management system, **applied to the entire company workforce**, entails a process of **individual evaluation (Performance Management)** measuring the **performance** achieved – i.e. the achievement of the objectives assigned – and **leadership** – the ability of each individual to guide others and act in favour of change, in respect of the reference system of values.

The process has the following aims:

- to create a culture increasingly based on **merit, value** and the **involvement** of persons working in the Group;
- to raise awareness of each person's **role** and **contribution**;
- to raise the **motivation**, drive and recognition of persons;
- to bring persons into line with corporate values, involving them in the targets set and results achieved.

ACEA 2.0

In 2016, the innovation introduced by the Acea 2.0 programme also affected the applications of the **human resources management system**, to better support the assessors in managing the process (assignment, monitoring and reporting of the objectives). Specifically, **the IT system has been completely redesigned**, with the introduction of the *Success Factors* application, an application comprising integrated management forms for Recruiting, Performance, Learning and Compensation. The cloud nature of the application enables it to be accessed from any place and at any time, giving the manager more management flexibility.

Internal communication

In Acea internal communication helps to develop among human resources a **knowledge of the Group and its objectives**, spread the **corporate culture**, promote and maintain a **good internal climate** and develop a **sense of belonging to the company** and **closeness to its principles and values**.

ACEA 2.0

Continuing the process started last year, the main objective of the **Internal Communication Unit** in 2016 was that of favouring the ongoing change, supporting the **Acea 2.0 programme** and **raising the awareness** of the human resources **of environmental and social sustainability**, with campaigns aimed at reducing energy consumption and solidarity. In general, the communication campaigns were conceived with the intention of making the **messages conveyed more effective, involving and emotional**, using, in addition to the classical tools (e-mail and pop-ups), teasers, videos, also made with the involvement of the employees, and visual installations (forex, adhesive vinyl boards and panels). The main tools for communication to human resources are sending e-mails and the **corporate intranet**, a portal that **conveys daily news and notifications** of interest to the employees, highlighting the most significant ones using pop-ups and teasers, and has **in-depth sections** on Safety, Management Systems, Training, IT-related matters, Reference Regulations (such as Legislative Decree no. 231/01), Mobility Management, Diversity, etc.

Specifically, through the intranet it is possible to:

- obtain **basic information about Group companies and personnel**;
- access the internal telephone agenda;
- consult official documents (financial statements, Code of Ethics, policies, etc.);
- view company procedures and rules;
- access the organisational provisions of all Group companies;
- read the daily press review, press releases and the institutional press review;
- download and view videos and photo galleries (teasers) regarding company events.

In 2016, the portal was enhanced by a new in-depth section called **Il Gruppo Acea SiCura di Te** (The Acea Group takes care of you), created with the objective of demonstrating **the commitment of the Group on the theme of safeguarding and safety in the workplace**. The section has also been used to convey the updates and information concerning the **Safety Day**, the company day organised in order to raise the awareness of the human resources in the Group as regards the theme of safety in the workplace, involving simulations of operations, workshops and seminars. The **4 you service desk** section has also been updated, improving the operating system of ICT customer assistance and support, which has been made quicker and digital.

ACEA 2.0

Three themed events were planned with the objective of stimulating the **involvement of human resources in various corporate activities**, which saw widespread involvement: **The Human Capital**, an initiative planned to recount the ongoing change through the realisation of 16 short 3-minute films: **the Roma 2016 sporting event**, during the course of which, simultaneously to the various games being played, the first Villaggio2.0 was set-up, a common area where employees of the Group organised **16 stands** on the theme of change and digitalisation, challenging each other to prepare regional food from their own regions of origin; **Acea open day**, during which **Acea opened its doors to the families of its employees**, involving more than 300 people. After a tour of the head office, the guests voted for the best Christmas tree from those made by the companies participating and displayed on the various floors of the head office. A vernissage of the photographic exhibit by the employees on the theme of change was then held, with games and snacks in the special children's area. The event ended in the public hall with digital entertainment and the goodbyes and Christmas greetings by the top management to the guests.

ACEA 2.0

In compliance with the new digital Acea, the Internal Communication Unit also realised **campaigns** in support of the projects created to make the **services and work tools** used daily by the employees **more interactive**, including: the **Cambiare passo, insieme possiamo** (Changing pace, together we can) campaign, linked to the introduction of paperless meal vouchers and pay slips, easier to consult and with less environmental impact, and the launch of the new website with **Ti presento acea.it** (Introducing acea.it).

Two communication campaigns were carried out to convey and valorise **the principles linked to corporate wellbeing: Valore**, the internal job posting created to make employment possibilities more visible, consistently with organisational needs, and offering employees the chance to apply, valorising their skills and professional aspirations and the campaign in support of the **E.L.E.N.A.** pilot project for experimenting with smart working in the company (see also the paragraph *Diversity and Equal opportunities*).

Safeguarding the environment and the promotion of solidarity have characterised other **communication campaigns** organised thanks to the active involvement of personnel.

The solidarity initiatives during the year include: **Roma adotta Amatrice** (Rome adopts Amatrice), for the collection of funds organised by Roma Capitale, in collaboration with the GSI consortium (caterers of the company canteen), in favour of those affected by the earthquake. The traditional **handing over of Christmas gift packs to employees** was also a chance to **valorise the support of Acea to the areas hit by the earthquake**, with the choice of products from local companies and the devolution to the Ricostruire Subito non-profit-making organisation of 5% of the value of each pack. With regard to the theme of environmental sustainability, the **Spegniamo lo spreco** (Let's stop wasting) campaign was organised in partnership with ENEA (the national agency for new technologies, energy and sustainable economic development) as part of the energy efficiency initiative **Italia in Classe A** (Italy in Class A), with the aim of raising the awareness of personnel on the proper use of electrical and electronic devices, lighting systems and office air-conditioning.

In 2016, **Acea received the ASCAI 2016 – Internal communication award, as second placed company, from Aretè Comunicazione Responsabile**, for the quality of the internal communications linked to the aggregation and **strengthening the sense of belonging to the Group**, through the **use of innovative contents and techniques** such as theatrical and cinematographic language.

DIVERSITY AND EQUAL OPPORTUNITIES

REFERENCE BOUNDARY

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The information and data given in the section *Diversity and Equal Opportunities* relate to: Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Energia, Acea Produzione, Acea8cento, Acea Ato 2, Acea Ato 5, Acea Elabori, Acea Gori Servizi, Crea Gestioni, Gesesa, Lunigiana, Acea Ambiente (into which Kyklos, SAO and Solemme merged at the end of December), Aquaser (into which ISA merged in November) and Ecogena.

Acea, in compliance with the provisions of the law⁸⁴, includes and integrates in the company **personnel belonging to protected categories** (disabled persons, orphans etc.), providing, thanks in part to the activity of the National Association for Disabled and Invalid Civilians (ANMIC), support services, assistance and equipment, in order to facilitate the performance of their work duties. Personnel belonging to protected categories numbered

243 employees at 31.12.2016 (154 men and 89 women). There is an **Equal Opportunities Commission (CPO)** in the company, and *Rules to safeguard the dignity of men and women*. In 2015 a **Diversity Committee** was set up, in compliance with principles laid down in the *Code of Ethics* and with the contents of the *Diversity Management Charter*, approved in 2014 by the Board of Directors (see box on this subject).

DIVERSITY AND EQUAL OPPORTUNITIES

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In 2016, the Diversity Committee continued to raise the awareness of personnel with regard to the policies of diversity management e gender equality.

In particular, in advance with respect to the recent Law 76 dated 20 May 2016, Acea extended the right to benefit from a **period of paid leave to the employees who, independently of their sexual orientation, contract marriage or civil union recognised by a member state of the European Union**, also in the absence of transcription in the Italian civil status registers, equalising this type of leave to marital leave.

In implementation of art. 24 of Legislative Decree no. 80/2015, as part of the Employment Reform called “Jobs Act”, the company recognised the right to **paid leave for women who are the victims of gender violence** included in the protection courses, duly certified by social services in the municipality of residence or anti-violence centres or refuge houses.

Also, in line with the laws in force, it granted the **benefit of paid leave due to mourning or the documented serious illness of immediate family members, even if not living with them, independently of their relationship**.

In November, Acea became the **first Italian multiutility to subscribe to the Parks Free and Equal foundation**.

The ongoing initiatives include the implementation in the Diversity section on the company intranet site of a health area, with links to the main centres of social and health protection and anti-violence centres operating nationwide.

In 2016, Acea realised two important initiatives to favour the spreading of more sustainable work models: the **setting-up** in the Human Resources and Organisation Function of Acea SpA, of the **People Care Unit** to systematically

promote the valorisation of diversity, inclusion and life-work balance and the experimentation of the **pilot project E.L.E.N.A.**, aimed at assessing the effects of work-life balance policies on individual productivity.

THE E.L.E.N.A. PROJECT

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In October, Acea subscribed to a European project, **E.L.E.N.A.** (Experimenting flexible Labour tools for Enterprises by e Ngaging men And women), coordinated by the Presidency of the Council of Ministers and the Equal Opportunities Department of the Presidency of the Council of Ministers and with the scientific collaboration of Bocconi University of Milan, **for the experimentation and scientific monitoring of the effects of work-life balance policies on individual productivity and the wellbeing of people and the organisation**.

200 people were selected to begin the experimentation, belonging to 9 companies in the Group (Acea SpA, Acea Ato 2, Areti, Acea Illuminazione Pubblica, Acea Energia, Acea8cento, Acea Elabori, Acea Gori and Acea Ato 5) and with family care requirements.

The project will last for 9 months, during which the 200 people involved may work from any location, even from home, for one day a week, through the use of technological work tools such as tablets.

The project entailed a phase of awareness of the organisational context, with meetings aimed at illustrating the contents and purposes, and a training phase for the 200 employees involved and the 130 people in charge, with specific focus on the safety profiles.

The innovative nature of the project lies in the de-structuring of the limitations concerning workplace and times, recognising to each individual person responsibility in defining their methods of work and focusing on the objective.

During the year, Acea promoted and supported initiatives of social relevance, organising events which, in addition to being visible externally, involved the employees. In particular, as part of the International Day for the eradication of violence against women, organised by the UN, the company **organised the third edition of the event Mai più** (Never Again) for **combating all forms of discrimination, inequality and abuse**, raising the awareness of employees and valorising, through the press, the position of the Group in combating gender violence. The event dealt with the theme of “mis-education in love”, because, as has now been demonstrated, the inability to manage sentiment is often the cause of femicide or persecution. Acea also participated in the **Roma Pride event** again, confirming its commitment against any form of prejudice, violence and discrimination and in favour of LGBT (Lesbian, Gay, Bisexual and Transgender) rights, with the motivation that “Acea embraces every type of family”.

Acea participates in **institutional events for reflection and comparison on gender aspects**. During the year, it was involved, with a statement by the Chairman, in the meeting “**Insieme contro la violenza sulle donne: prevenzione, contrasto, recupero**” (Together against violence against women; prevention, combating and recovery), promoted by Roma Capitale, and took part in the initiative launched by the Corriere della Sera on the Facebook page “**What would you do if you weren't afraid?**” where female personalities, including the Chairman of Acea, told of their own experiences of success and the obstacles encountered to overcome the stereotypes that limit the female presence in the top management of organisations and institutions. Acea, with some of the main listed Italian companies led by women, also participates in working groups set up with the objective of driving reflection on themes concerning sustainability and diversity and inclusion, in order to **promote the spreading of best practices**.

⁸⁴ Law 68/99.

COMMUNITY LIFE IN ACEA

REFERENCE BOUNDARY



The information and data given in the section *Community life in Acea* relate to: Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Ato 2, Acea Ato 5, Acea Elabiori, Acea8cento, Acea Energia and Acea Produzione.

The Staff Recreational Association (CRA), Gold Medal Association, National Association for Disabled and Invalid Civilians (ANMIC) and the Italian Christian Workers Association (ACLI) are the main organisations that perform social activities within the company, directly involving employees.

In 2016, there were 4,620 members of the Staff recreational association, including executives.

The CRA continues to manage the company's **day care service**, open to the children of employees and to residents in District I. In 2016, it cared for 34 infants in the first half of the year and 36 in the second.

The Staff Recreational Association **proposes quality cultural, sporting, tourism, social wellbeing, economic and commercial initiatives** at modest prices for the purpose of

offering leisure time benefits to members, without losing sight of social utility activities. One of the important tools for employee solidarity is the **Aid Fund**, an initiative **in support of the families of employees who have died**, retired, or may still be in service. Every employee can join through simple submission of a form to the Human Resources and Organisation Division or CRA (Staff Recreational Association). Members thus authorise a small pay-packet deduction in order to contribute to the Fund.

The Staff Recreational Association is also responsible for agreements with institutions offering further services to employees and their families, such as healthcare, dentistry and legal advice services, as well as commercial agreements, including the sale of tickets for sporting, theatre and music events, available online (www.cra-acea.it).

CHART No. 39 - MEMBERS' USE OF CRA SERVICES (2016)



The Acea branch of the Italian Christian Workers Association (ACLI) works in support of employees, promoting **social, solidarity and support initiatives**. Valid examples of this are both the presence of a Chaplain, who the employees may contact, and the organising of meetings and discussion groups for families and parents, also with

the intention of creating a personnel support network. The association also deals with **providing services**, such as advice on mortgages and loans, education assistance for the children of employees who attend secondary schools and high schools, language courses and other activities for employees.

SHAREHOLDERS AND INVESTORS

As a listed company, Acea ensures that the financial community has a flow of **timely, complete and transparent information**, through the **Investor Relations Division**. Information is conveyed both through direct relations with current and potential analysts and investors and through press releases and presentations,

available on the company website. The Legal and Corporate Affairs Division also manages the flows of information between the company and the Supervisory Authorities (Consob and Borsa Italiana) and the fulfilment of obligations required by law for listed companies.

ECONOMIC FLOW TOWARDS SHAREHOLDERS AND INVESTORS

Shareholders received, partly as profit for the year and partly as reserves, **132 million euros in dividends** (106.5 million euros in 2015), corresponding to 62 euro cents per share, with a **pay-out of 50%** on the net profit. The profits accruing to third parties amounted to 10.2 million euros. At the close of the last trading session in 2016, the

value of **Acea shares** amounted to 11.55 euros per share (capitalisation 2,459.7 million euros), down by 18.7% compared to the previous year. The highest value of 14.25 euros was reached on 21 March, while the lowest value of 9.84 euros was reached on 27 June.

TABLE No. 37 - ACEA SHARE VERSUS SHARE INDEX PERFORMANCE (2016)

	% change 31.12.16 (vis-à-vis 31.12.15)
Acea	-18.7%
FTSE Italia All Share	-9.9%
FTSE Mib	-10.2%
FTSE Italia Mid Cap	-8.0%

Investor stakeholders were allocated **128.8 million euros** (111.3 million euros in 2015). During the year, the buyback of two tranches of Acea bonds present on the market is worth mentioning, as it had a determining effect on the performance of this item, while there was a significant and generic reduction in the costs of both the medium/long-term debts and the commissions on receivables transferred, due to the reduction in interest rates. The global “all in” average cost of the debt of the Acea Group at 31/12/2016 was 2.94%.

As regards the composition of its debts, at 31/12/2016, approximately 75% of the total amount was due to operations on the capital market (corporate bonds). As regards the banking sector, Acea mainly operates through entities that have as part of their mission the financing of strategic infrastructures, such as the Deposit and Loans Account (CDP, 11.5% of the debt) and the European Investment Bank (EIB, 16% of the debt). These institutions ensure to entities with credit merit such as that of Acea loans with multi-annual expiry dates in excess of 10 years, in line with the duration of the concessions (water and electricity) that the companies in the Acea Group are the holders of, called upon to make significant investments.

TABLE No. 38 - 2016 RATINGS

Agency	Long-term rating	Short-term rating	Outlook
Moody's	Baa2		stable
Fitch	BBB+	F2	stable

Moody's confirmed the rating of the previous year, indicating that the composition of Acea's activities show **low risk profiles**, thanks in part to the 80% EBITDA guaranteed under business regulations, with low exposure to price and volume risks. Therefore, the agency, despite the fact that it changed the sovereign outlook from stable to negative, estimates that the Acea Group is capable of fulfilling the requirements of a stable outlook thanks to the diversification of its activities and its modest exposure to cyclical activities (23% of the EBITDA).

Fitch confirmed Acea's rating and stressed that the development plan, concentrating on the digitalisation of activities, may reach the 2020 targets thanks in part to the efficiency of operating costs. It also stressed, positively, the greater visibility of the activities in the water service, which contributes for 40% to the gross operating margin of the Group and the new 2016-2019 regulatory cycle for electricity distribution (35% of the MOL). Both of these elements will ensure a greater visibility of the expected future flows of the Group.

FINANCIAL DISCLOSURE

During the course of 2016, Acea intensified its relations with the financial community. **Numerous meetings, wide-ranging presentations, roadshows and reverse roadshows** were organised **with about 210 equity investors, buy side analysis, investors and credit analysts**. The roadshows, organised in

To adequately support the cash flow risk, Acea has available approximately 800 million euros in call-back credit lines granted by banks.

In identifying the institutes, Acea pursues a strategy of diversification which ensures the plurality of assignments and minimises the potential uncertainty as to the continuity of the loan, deriving from possible restructuring of the banking system and aggregations.

From this viewpoint, during the year in question, more than ten credit institutes granted credit lines to Aces for cash and credit on signature (in other words guarantees).

AGENCY RATINGS

A **rating** is a summary opinion on the creditworthiness of a party based on its ability to reimburse capital and interest within established deadlines. In its interactions with the financial markets, Acea voluntarily submits to independent assessments made by the leading international rating agencies.

collaboration with the main investment banks, were held in the **most important national and international locations**: Rome, Milan, London, Paris, Boston and New York. Conference calls were also held with the market, on the occasion of the approval of the company's annual and interim results and **2016-2020 Industrial Plan**.

The company participated in various Utilities Conferences held by Borsa Italiana and primary brokers. In addition to direct relations with analysts and investors, managed on a daily basis, economic and financial communications (price sensitive press releases, corporate presentations, credit market ratings, share performance, highlights, etc.) are constantly updated in the **Investor Relations section of the company website**. For the new website, on line since December 2016, activities have been started for the further enhancement of the specific contents. **More than 190 studies/notes on Acea shares** were published during the year in question. There are seven **investment banks** which continuously analyse Acea shares, five of which expressed a positive opinion and two a “neutral” opinion. No negative comments were made on the shares in 2016.

In the **Webranking by comprend 2016-2017** research, the most accredited and comprehensive analysis, examining listed companies on the quality and innovation of corporate digital communication, with respect to communication trends and the stakeholders' needs, Acea has maintained its position com-

pared to last year: 52nd place out of a total of 70 companies, and was classified with a score of 30.4/100 (28.6/100 in 2015).

Trends for sustainable and responsible investments

In 2016, the report on the **evolution of ethical retail funds in Europe - Green, social and ethical funds in Europe**⁸⁵, edited by Vigeo-Eiris – describes the **slight reduction** (-5%) between June 2015 and June 2016 in the **number of active funds** as a foreseeable **period of consolidation** with regard to the significant and continuous growth of recent years, with a **constant increase in the value of the assets managed**.

In June 2016, there were **1,138 active SRI funds**, domiciled in Europe and destined for the broad market (1,204 in June 2015). The most significant reduction was registered in Belgium, and can be traced to a rationalisation of the range of SRI funds, and very limited reductions were registered in Switzerland, Germany, Spain and Italy (the latter reduced from 19 to 17 SRI funds), while, contrarily, the growth in the number of funds is continuing in France, Netherlands, Sweden, Norway, Ireland, Denmark, Finland and Liechtenstein.

The **value of the assets** reached **158 billion euros** during the course of last year, **an increase of 16%** compared to approximately 136 billion in June 2015. France, United Kingdom, Switzerland and Netherlands remain the most active countries and alone represent 68% of the assets managed.

ESG analysts evaluate Acea

Acea maintains a continuous strategy of cultivating relations with the ESG (Environmental, Social and Governance) sphere. In 2016, the company observed its position in analysts' assessments, ratings and benchmarks, as illustrated below.

oekom research

Oekom Research confirmed in 2016 the intermediate rating of the previous year, attributing a rating of C+ (scale D-/A+).



The **Carbon Disclosure Project (CDP)**, an international organisation supported by more than 800 international investors, whose mission is to encourage focus on the management of the risks and impacts of climate change by the major companies in the world, publishes an annual ranking of the Italian companies working to achieve this goal. Acea has been involved in this evaluation for many years now, and again obtained excellent evaluation scores in 2016, **entering the leadership class (A-)** (for details see the section *Environmental issues*, paragraph *Reduction of carbon dioxide emissions*).



Acea was also selected for inclusion in the Ethibel Excellence investment register in January 2015. Analysts have stated that “this selection on the part of the Ethibel Forum indicates that the company is an above-average operator in its sector in terms of corporate social responsibility”.

Acea shares are also present in some ESG investible universes, including Green Impact of **Kepler Chevreux**, which includes the European companies which balance the exposure of their business to environmental aspects with the positive management of the impacts in favour of mitigating climatic effects, and the **ECPI** investable universe.

There were further chances for meetings and interaction between Acea and the sustainable and responsible financial operators during the year, encouraged by requests for more details for assessment and data model purposes, with **Evaluerve (FTSE Low Carbon Economy)**, **Vigeo Eiris** and **Sustainalytics**.

INSTITUTIONS AND THE COMPANY



Acea manages interactions with the institutional and economic stakeholders across the areas in which it operates, adopting an engagement-oriented approach fostering a common dialogue for the purpose of creating benefits to be shared by all the parties involved, primarily for local communities and areas.

RELATIONS WITH INSTITUTIONS

Relations between Acea and government institutions concern both the economic dimension (the payment of duties and taxes) and the social dimension (dealings with local institutions and sectoral Authorities; dialogue with Consumer Associations and other representatives of the general public; professional and institutional cooperation). Acea conducts these affairs

⁸⁵ The report *Green, social and ethical funds in Europe, 2016 Release*, presents an analysis of the trends of socially responsible retail funds (SRI) that use ethical, social and environmental selection criteria, operating at 30 June 2016 and domiciled in Europe. The scope includes: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Liechtenstein, Lithuania, Luxembourg, Norway, Netherlands, Poland, Portugal, United Kingdom, Slovenia, Spain, Sweden and Switzerland.

on a basis consistent with current legislation and the Group's *Code of Ethics*.

The economic value distributed to public administrations in the form of taxes in 2016 totalled 143.5 million euros (114.8 million in 2015). The applicable tax rate for the year was 34.5% (38.7% last year).

Acea regularly pays in contributions and membership fees to public and private bodies, such as chambers of commerce, independent administrative bodies, industry associations and representative organisations. In 2016, the overall amount of this item was approximately 2.03 million euros, down on the approximately 2.2 million euros for the previous year. In greater detail, about 1.38 million euros was paid to regulatory authorities (AEEGSI, AGCM, Consob and other public service authorities), 52 thousand euros as mandatory charges to chambers of commerce and 640 thousand euros as contributions to confederate bodies and sundry membership fees (Utilitalia, Unione Industriali).

The **institutions** are a preferential partner with which to collaborate in realising **initiatives that produce positive outcomes for the regional, social and economic fabric and the local quality of life**, also because of the essential nature of the Group's services and their significant impacts on the community (see *Customers and Community, Human resources and Environmental issues*).

Acea interacts with the various institutional parties in observance of the principles and regulations stated in the Group's **Code of Ethics**, which in **Article 19** defines the parameters of relations with political parties and trade unions, establishing that:

«Acea shall not contribute in any manner to the financing of parties, movements, committees and other political or labour organisations, even if an association or foundation essential to same, or their representatives or candidates.

The relations between the company and political and trade union organisations, as regards issues of interest to the company, are based on mutual respect and cooperation.

Every relationship must be authorised by the competent structures, paying particular attention to avoid situations in which there may

be conflicts of interest between Acea and the figure authorised to establish relations with the political or trade union organisation.

In any event, Acea shall abstain from conduct designed to exert pressure, either directly or indirectly, on political and trade union figures in order to obtain advantages».

The supervision of institutional relations is defined by a detailed organisational model which attributes specific duties and responsibilities to the various corporate divisions:

- **Acea SpA's Chairman** ensures the **legal representation** and the **definition of the institutional strategies**;
- the **Institutional Affairs, External Relations and Communication Division** ensures the overall representation of the Group positions with the local, national and European bodies and institutions, monitors the developments in the legislative scenario pertinent to corporate businesses and co-ordinates, within the sphere of dealings with the Consumer Associations, coordinates the activities correlated to joint settlement procedures within the sphere of dealings with Consumer Associations;
- the **Legal and Corporate Affairs Division** provides its assistance for all legal issues that may arise during Acea SpA business activities and for the functioning of the Group, favouring from a preventive viewpoint the creation and spread of a corporate culture that abides by relevant legislation and policies related to Group activities, and sees to communications and notifications to the **Supervisory authorities** on companies and the stock market (Borsa and Consob);
- the **Regulatory Division** oversees dealings with the **Regulatory Authorities** in the reference sectors, representing the positions of the Group companies in the participative procedures for the formation of the regulations launched by authorities, bodies and institutions, and acts as coordinator and steering body for the implementation of Authority decisions in order to minimise exposure to regulatory risks.

Operating companies in the Group, working in concert with the parent company, manage the **“technical-specialist” aspects** of the water, electricity, public lighting and environmental services, in part through **consultations** with the various administrative, regulatory and control bodies.

REGULATORY AUTHORITIES AND ACEA: PRELIMINARY INVESTIGATIONS, AWARDS AND SANCTIONS

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The **Authority for electricity, gas and the water system** (AEEGSI) has established a mechanism of **bonuses and penalties** for companies managing the services it regulates. The Authority sets standards to be met, on the basis of which it evaluates the performance of the distributors. In 2016, as regards to the management performance in the previous year, the AEEGSI awarded Areti an incentive of approximately 670 thousand euros for improved service continuity in the regulatory framework for LV users. Also as regards electricity service continuity in 2015, Areti paid out as indemnities to the users and fines paid to the Equalisation Fund for the Electricity Sector approximately 1.5 million euros with reference to the prolonged interruptions and approximately 236 thousand euros for exceeding the standards set for MV users. Furthermore, during the year, following the first six months of the quality standards (specific and general levels) being in force for the water service (resolution 655/2015), the Technical Operating Secretariat (of the reference EGA) recognised to Acea Ato 2 a bonus of 23 million euros for the improvements made in terms of the quality parameters.

Some proceedings were started before the **Antitrust Authority** (AGCM) concerning Acea Energia and Acea Ato 2.

In January, the AGCM notified to Acea Ato 2 a sanction of 1.5 million euros (PS9916) concerning the violation of the Consumer Code in carrying out some activities concerning billing, credit recovery and the management of complaints and, in June, notified a sanction of 3.6 million euros to Acea Energia, regarding proceedings that were started in 2015 (PS9354) and concerning the violation of the Consumer Code in carrying out some activities involving billing and credit recovery.

After following up the fulfilment phase and adopting measures aimed at overcoming the aspects censured by the AGCM, the companies **appealed** against the aforementioned sanctions **before the Lazio Regional Administrative Court**. Lastly, it should be noted that in February, Acea Energia appealed before the Lazio Regional Administrative Court for the annulment of the sanction notified by the AGCM in December 2015 (PS9815) concerning the violation of the Consumer Code in the finalisation of supply contracts not requested and the activation of unrequested supplies of electricity and gas.

ANAC conducted an inspection of the Acea and Acea Ato 2 head offices in April to gather information concerning the judicial and non-judicial disputes regarding the execution of works, services and supply contracts functional to the management of the Integrated Water Service. In the framework of these proceedings, information was also requested on the failure to finalise some of the tender identification codes (CIG) referring to the two companies.

As regards the litigations ongoing concerning environmental matters with the relevant public authorities (Arpa, Forestry Corps, etc.), see *Environmental issues and the Environmental accounts*.

Cooperation to safeguard the common heritage

Acea works in concert with the competent national institutions and research institutes in undertaking **social, environmental and safety-related initiatives and projects for safeguarding the common heritage**.

With regard to **environmental protection**, in 2016, Acea Ato 2 continued the activities of the **multi-institutional committee** for handling the drinking water resources in ATO 2, composed of Roma Capitale, Lazio Region, Arpa Lazio, the local health authorities, City Council and Technical Operating Secretariat of ATO 2 Central Lazio, as well as the companies. From this viewpoint, the realisation of the **updated mapping of the threats found in the territories in question** (illegal disposal sites, production activities, private wells, illegal construction, etc.) is envisaged according to the “**Water Safety Plan**” model (European Directive 1787/2015). In 2016, a Memorandum of Understanding was drawn up to define the governance rules for the committee, governing its functioning and increasing its capacity to deal with emerging problems. The protocol was subscribed by Roma Capitale, with the approval of a specific Council note (see the in-depth box on *Environmental matters*, paragraph *Territorial protection*).

Also, in the framework of monitoring river waters, Acea Ato 2 subscribed with Lazio Region and Roma Capitale **the protocol for the river Tiber contract** for the urban area of Rome, an agreement for the proper preservation of the ecological status of the river system and surrounding areas.

With regard to the protection of **security** and the **prevention and management of emergencies and critical situations**, Acea makes available its technical and specialist skills in **working groups** formed of experts.

The company **regularly participates in the work of the Computer Emergency Response Team (CERT)**, coordinated nationally by the Ministry for Economic Development (MISE), and guarantees its support to the Authorities responsible for public health, defence and civil protection and public safety in **alarm situations**.

Acea has also collaborated, together with other companies and institutions, in the **Panoptesec** project, financed by the European Community and aimed at **increasing the level of surveillance and, where necessary, reaction to cyber threats**. A prototype was realised during the year, on conclusion of the project (see the relevant box).

Again regarding critical infrastructures, Areti started two pilot projects, in response to European calls: the **DROMOS project** (Interconnecting Disaster Risk Managers and Operators through Multi-Sectorial Decision Support Systems), based on the definition and realisation of tools useful in increasing the **resilience of cities in the event of disturbances or significant alterations to normal conditions**, and the **CIFERM project**, aimed at dealing with **the physical and IT security risks to critical European energy infrastructures**, enhancing their resilience and mitigating the impact of cyber-attacks.

PANOPTESSEC: PROTOTYPE REALISED FOR THE PROTECTION OF CRITICAL INFRASTRUCTURES

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The **Panoptesec project** was **completed in October**, in which Acea was involved with the aim of improving action to **combat IT threats**.

The project led to the creation of a **prototype applicable to the protection of critical infrastructures, networks and sensitive data** and the more efficient management of emergencies. The prototype was **submitted for the approval of experts of the Auditors Committee of the European Union** and the final review concluded with the **full appreciation of the innovations introduced and the results achieved**.

Specifically, during the phase of divulging the prototype, **110 qualified stakeholders participated in the interactive demonstrations**, expressing their widespread appreciation of the model in a questionnaire, with an average score of 4.48 points (on a 1-5 scale)

The project was **unveiled during a series of national and international conferences and events** and Acea was involved in CyberTech Europe 2016 in Rome, with a box and live demo, and CPX 2016-Check point Experience in Nice.

With the objective of ensuring **maximum levels of security in the provision of company services**, Acea avails itself of operating instruments that **permit rapid restoration of normal network and equipment functions** in case of critical events (system breakdowns, severe weather conditions, etc.). Each operating company also has **Emergency management plans and intervention procedures** and, through **the control centres, constantly monitors the status of networks and plants** – water and sewerage, electricity and public lighting – in collaboration with the **local and national Civil Protection Authority and Roma Capitale**.

Areti has an **Emergency management plan** to deal with potential breakdowns and widespread failure in the network. It defines the different states of activation (ordinary, alert, alarm and emergency), according to operational and environmental conditions, sets out **procedures** for activation and termination of these states, the **units involved** and their respective roles, the **material resources** necessary for the operational maintenance and recovery of systems and equipment and identifies the **Emergency Management Chief** and a resource specifically dedicated to **security management**, in the cases where this is required. **Detailed Operational Plans** provide precise indications of methods for managing different types of exceptional situations (floods, fire, breakdown in remote-controlled systems, failures in power and supply systems for major utilities, etc.) with accompanying indications of

management procedures and necessary materials, equipment and resources, on the basis of the circumstance in question. The operational documents describe, for example, the **procedures to restore the electrical system in the event of a blackout** of the National Transmission Grid (RTN) and **procedures for restoring power to strategic consumers** (such as the Houses of Parliament, government offices, Vatican State offices, etc.). The Master Plan and Detailed Operational Plans are available on the company intranet and accessible by authorised personnel using passwords, are **updated on an annual basis** and periodically reviewed on the basis of real case analysis. The effectiveness of the procedures and functioning of the equipment is tested in practice exercises.

In **Acea Ato 2 and Acea Ato 5**, the respective **Emergency management plans** deal with the possible anomalous conditions that affect the continuity and quality of the integrated water service in a predefined and structured manner and, on the basis of the ranking of emergency levels, **describe the preventive and corrective measures** for the different types of unforeseen emergencies, such as network damage, pollution, water shortage, snowfall and emergencies concerning the sewerage and treatment system.

The **companies in the Group managing the waste treatment plants** ensure the preparation of a detailed **ordinary maintenance plan**, specific for each single element

constituting the plant, **to reduce plant shutdowns due to faults or unforeseen events** and minimise unscheduled extraordinary maintenance. All of the structures have their own **Emergency Plans**, drawn up in relation to each site, which take into account the scenarios identified for emergencies of both an endogenous and exogenous nature. These Plans examine the aspects linked to the safety of the workers, ensuring their physical health through specific behavioural and evacuation procedures, reviewed annually, and the aspects linked to safeguarding the environment, identifying the emergency interventions to be undertaken to limit environmental pollution (air, water and soil). The Authorisations on the basis of which the plants are operated also include prescriptions concerning the **communication of extraordinary events or emergencies to the competent authorities**, in order to guarantee the maximum spreading of the information and coordination of the interventions.

Some local development projects

The **partnership between Acea and local public administrations** sets out to undertake **innovative initiatives for local development** and to promote a model of growth based on the sustainable use of water and energy resources (see also the section *Environmental issues*).

In 2016, Acea Ato 2, together with the Mayors of the municipalities in the ATO 2 area and the Department for the Development of the outskirts of the Municipality of Rome, continued the installation of the **Water Houses** in Rome

and the province of Rome, with a total of 46 Water Houses installed and operational at 31.12.2016 (see the section *Customers*, paragraph *Quality delivered in the water sector*).

Areti and Acea Ato 2 also continued to collaborate with Universities, Research institutes and businesses involved in the management of technological infrastructures and plants in the framework of **the RoMA project (Resilience enhancement of Metropolitan Area)**, co-financed by the MIUR as part of the action in support of **Smart Cities and Communities**, aimed at the realisation of integrated technological systems for enhancing the resilience of major metropolitan systems.

In order to proactively supervise the evolution of the reference sectors, Acea has developed synergies with complementary or similar **businesses** to those managed, in the form of **collaborations and partnerships**, also in a European context. In this regard, in 2016 the company participated in the triennial project **Aquavir** (Portable Automated Water Analyser for Viruses) for the development of a rapid system for detecting viruses in water, financed by the European Commission and implemented in collaboration with European partners.

Comparison with the reference context

Acea works with **Research centres, Standardisation institutes and sector Associations**, promoting or making a contribution to specific study activities in the business areas it operates in.

2016 MEMBERSHIP OF RESEARCH CENTRES, STANDARDISATION BODIES AND SECTOR ASSOCIATIONS

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During the year, Acea renewed or started numerous memberships of organisations of interest, including:

- National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA);
- AGICI - Business Finance;
- Accademia dei Lincei Friends Association;
- Luiss Friends Association;
- Italian Lighting Association (AIDI);
- Italian Association of Critical Infrastructure Experts (AIIC);
- Italian Electrical Technology and Electronics Association (AEI);
- European Association of Electricity Distribution Companies;
- Italian Water Technologies Association (AIW);
- National Association of Electronics Suppliers (Assodel);
- CIRED (Congrès International des Réseaux Electriques de Distribution);
- Italian Electrical Technology Committee (CEI);
- CSR Manager Network Italy (Altis);
- National Technological Cluster for Energy S.c.ar.l. (Di.T.NE.);
- Milan Polytechnic Energy and Strategy Group (ES-MIP);
- Federation of Environmental, Energy and Water Companies (Utilitalia);
- Italian Federation for Rational Energy Use (FIRE);
- Einaudi Foundation;
- Global Compact Network Italia Foundation;
- Utilitatis Foundation (Centre for study and research on water, energy and the environment);
- I-Com (Institute for Competitiveness);
- ISES Italia (International Solar Energy Society – Italian Section);
- European University Institute – Florence School of Regulation;
- Italian Unification Institute (UNI);
- Italian Association for Trenchless Technology (IATT);
- REF-Research: Laboratory for Local Public Services;
- REF-E: Energy Observatory;
- World Energy Council (WEC).

The company also **participates in meetings** with the business world and scientific community on **current topics of national and international relevance** and **makes its own specialist contribution to conferences, forums and thematic workshops** on topics linked to the businesses managed, also submitting publications and works of technical and scientific relevance.

In 2016, Acea participated in the **Ecomondo** fair in Rimini, with a display stand presenting the activities and plants of the Group to operators in the sector and holding seminars at its stand on

innovative technologies used in energy recovery and production from waste and took part in the **Symposium on Environmental Health Engineering** (SIDISA 2016), a meeting between operators in the integrated water cycle and the academic world, with presentations on applied research and innovation in the management of micro-pollutants and the models applied to the distribution networks. Acea, a leader in the public lighting sector, was involved with corporate presentations in the **Illuminare l'acqua** (Lighting water) workshop organised by Utilitalia and

the Italian Lighting Association (AIDI), and the **Light Designer Master's course** at Rome La Sapienza University, educating personnel. Lastly, the company presented the **Acea 2.0 project and the business transformation strategy** on numerous occasions, including the Italian ESRI conference, the International SAP Conference for Utilities, the SAS Forum, the CIO Dinner CASEWISE and the International SAP Conference on asset management.

Collaborations between Acea and the academic world were mainly conducted as part of **agreements entered into by the companies in the Group and Universities**. Specifically, in 2016, the **Research centre for forecasting, preventing and controlling geological risks (CERI)** carried out a specialist consultancy in the water sector for the integration and **management of the micro-accelerometric network of the Peschiera sources**, and **La Sapienza University** collaborated in the definition of a methodology for **research into emerging organic micro-pollutants** and their distribution/removal from civil waste purification plants. In the energy sector, Rome La Sapienza University also conducted two research projects on behalf of Areti: one on the specific countermeasures in the event of faults and the other on the **development of neural algorithms for forecasting critical situations** on the electricity distribution network.

As regard **sustainability** topics, Acea is involved in networks of experts, working groups and think tanks promoted by the academic world, civil society, and business institutions and entities, including: the **CSR Manager Network**, the national association grouping together the main Italian companies active in **corporate social responsibility**, the **Global Compact Network Italia Foundation**, the entity representing this country in the United Nations Global Compact system, and the working group on sustainability of **Utilitalia**, the federation grouping together

multiutilities in the water, environment, energy and gas sectors. Acea is also involved in the analysis of sustainability benchmarks in Italian utilities, managed by the **Utilitatis** research centre. Within the aforementioned organisations, Acea has an active role in workshops, discussion groups and seminars, sharing its specific experiences and participating in projects and common initiatives. Due to its experience in the sector, the company is also engaged as a lecturer in University Master's courses or public conferences on the topic.

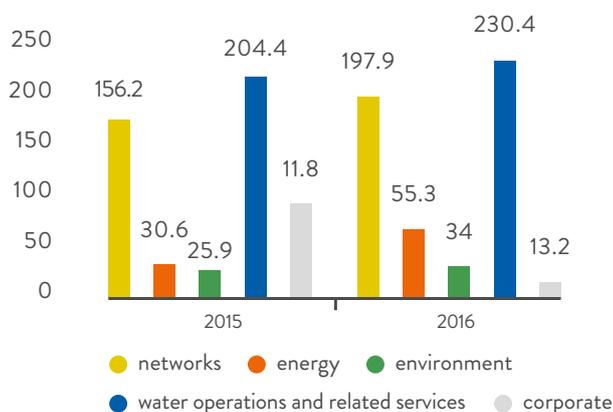
THE COMPANY AS A STAKEHOLDER

Management of company assets

Acea protects and makes the most of its tangible and intangible assets to achieve a stable financial position, **governing internal demands in an efficient and effective manner**, managing operations and **growth prospects in compliance with the aims set forth in the corporate mission and strategic plan**.

Investments were high once again in 2016, totalling **530.7 million euros**, an increase of 23.8% (428.9 million euros in 2015). The increase in allocations concerned all business areas: 34 million euros for the **Environment** Sector, mainly for line 1 of the Waste-to-Energy plant in San Vittore del Lazio; 55.3 million euros for the **Energy** Sector, divided equitably among the generation and sales segments; 230.4 million euros for the **Water** Sector, with specific regard to the works on the water and sewerage network and treatment plants in acea Ato 2; 197.9 million euros for the **Networks** Sector for the harmonisation and re-engineering of the information, commercial and metering systems and for the expansion and renewal of plants. Lastly, the **Parent Company** made investments totalling approximately 13.2 million euros.

CHART No. 40 - BREAKDOWN OF INVESTMENTS BY MACROAREA (2015-2016)



Amortisation, depreciation, provisions and write-downs amounted to **370.4 million euros** (+7.2% compared to 345.5 million euros in 2015). Specifically, amortisation and depreciation amounted to 254.2 million euros (234 million euros in 2015) and are linked to the increase in investments in all business areas, regulatory trends and tariffs in the water sector and the Acea2.0 technological platform. The write-down of receivables amounted to 64.7 million euros, an increase of about 5.6 million compared to 2015. Provisions amounted to 51.5 million euros, substantially the same as last year, and were affected by opposing trends, such as the release of the funds previously allocated for the successful conclusion of legal disputes and the increase in allocations for the voluntary redundancy and early retirement plan for Group staff.

The protection of the **company's assets**, the **prevention of fraud** and **compliance with the laws in force on safety**, with

specific regard to the **safeguarding of privacy and sensitive data** (Legislative Decree no. 196/2003) and **safety in the workplace** (Legislative Decree no. 81/2008) are dealt with by the **Human Resources and Organisation Division** of the parent company, with the support of the referents for the protection of the companies in the Group. The Division coordinates **measures to ensure an adequate degree of security in company property and workplaces**. Through the **Security Operations Room (SOS)**, it supervises the proper functioning of the **entry control, reception, guard services, and video surveillance, anti-intrusion and alarm systems in the company's facilities**. There are also **internal procedures** for the **protection of the company's assets**.

The company **protects the Group's central and peripheral information systems** with systems designed to preserve their integrity. Specifically, the **Information and Communication Technology (ICT) Division** defines the **operational policies and standards for the protection of information**, in keeping with the functional model and the company objectives and policies and in compliance with the legal requirements. The company has therefore adopted at a Group level **guidelines and procedures for IT security** and for the **protection of the corporate information assets** (information and data processed), which define the principles of conduct which the employees and collaborators must comply with, the methods of using the IT, electronic and telematic resources (such as internet access, electronic mail, PCs, etc.) and controls aimed at preventing any IT-related crimes. In **2016**, following the instructions of the Ministry for Economic Development (MISE) and the Security Information Department (DIS), Acea focused on **extending the protection of its cybernetic domain**, integrating measures for protecting the SCADA networks and devices.

ACEA 2.0

With regard to the technologies introduced by the **Acea2.0 programme**, the level of compliance of information systems with the laws in force and the **obligations deriving from Legislative Decree no. 196/2003 (Privacy Law)** has been verified and, where necessary, the **information has been updated concerning the processing of personal data** as a result of the **activation of workforce dispatching** over the territory (for example the **geo-localisation** of means and resources) following the adoption of the Workforce Management (WFM) system and the level of security of the personal data processed has been enhanced.

ACEA 2.0

Also, awaiting the legislative changes introduced by the **New European Privacy Regulation (GDPR)**, which will come into force in 2018, the procedures have been updated in line with the best practices indicated in **regulation ISO 27001**, the international standard which governs the management of security in the information technology sector.

Specifically, the **privacy network**, an inter-company working group active since 2015 on privacy matters and formed of referents of companies in the Group, has organised training sessions and started some projects. In particular, in 2016, the novelties introduced by the new European regulations were shared and analysed and the start of a project for the **adjustment of the Group Privacy System** to the new regulations has been proposed, involving the **assessment of the compliance** of the processes and systems adopted and the **forecast of corrective interventions for adjustment and compliance**, in line with the findings emerging from the process of innovation and integration of the corporate systems and the development of portability solutions. The company intranet has a specific section on privacy.

Research and innovation commitments

Scientific and technological progress in the service of company processes is guaranteed by the presence in the parent company and the operating companies of **structures for monitoring research and innovation in the various sectors of interest**, aimed at both **developing operational management** and **limiting the impact** of the industrial processes and **improving the quality of the services** supplied to customers. In 2016, the total economic resources allocated to **research and innovation activities** amounted to approximately **148 million euros**.

The **ICT Division** is responsible for **guiding the evolution of the corporate information systems**, guaranteeing the consistency and harmonisation of the technological solutions adopted by the Group companies. **Acea Elabori** carries out applied research and technological transfer activities and projects for the operational companies in the Group, aimed at enhancing processes and making them more innovative. The **operating companies** realise specific innovation projects in the **water, environment and energy sectors** (see also the specific boxes), together with research centres and scientific and academic institutes, in some cases with the technical and scientific support of **Acea Elabori**. Specifically, **the companies in the electricity sector** are involved in technological development projects aimed at improving the **continuity of the electricity distribution service, optimising the network and limiting/managing peaks** of electrical power.

With regard to **public lighting**, innovation is connected to the **development of LED technology** for the lighting systems present in the areas served, with positive effects on improving the service and energy consumption, **and also** with a view to the **evolution of the smart cities** concept. As regards the **companies in the water sector**, research and innovation activities are carried out mainly in segments such as the **treatment of waste water, monitoring the water infrastructures, reducing losses, increasing energy efficiency** in the water treatment plants and **reducing the use of chemicals**. Lastly, the **companies in the Group operating in waste-to-energy and composting** are involved in the development of **innovative solutions** aimed at **increasing the efficiency of the processes and limiting the environmental impacts** generated.

ACEA 2.0

RESEARCH AND INNOVATION IN THE CORPORATE SECTOR (ICT) IN SUPPORT OF THE OPERATING COMPANIES

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The widespread process of digitalisation of the Group, which impacts the main processes of managing activities, in the framework of the **Acea2.0 programme**, has absorbed the major volume of resources during the year.

2016 saw the conclusion of the renewal, standardisation and centralisation of the new information systems: SAP platforms, data warehousing and business systems, billing systems and CRM (Customer Relationship Management), WFM (Workforce Management) and the realisation of the new information and personnel management system.

Specifically, the new IT solutions used by the companies in the water, networks and energy sectors have been made operational and, in integration of the SAP developments, the following collateral systems have been released:

- the **Geographic Information System (GIS) 2.0** which, as part of the networks digitalisation plan, has enabled the unification of the territorial and Group information systems and, due to geo-referencing, has enabled the **certification of operating services to users**;
- **Document Management System (DMS) 2.0** which has involved the expansion of the **document management system**;
- **Business Intelligence (BI) 2.0**, according to the new concept of **Data warehousing and Business Analytics systems**;
- the **Human Capital Management (HCM)**, which has enabled the realisation of the new **Personnel Information System** required to support the reorganisation of the Group's human resources management processes.

Progress has also been made in the sector of customer relations and **Digital Transformation** has been released; this is a digital operating model enabling customers to use a wide **range of services in self-service mode**. This was followed by the **launch of the new institutional website**, with the **MyAcea section** dedicated to Group customers.

As regards **WFM (Workforce Management)**, an app which enables dispatched personnel to share operating information on in-field activities (for example the characteristics of a plant) was distributed in 2016. The app enables the filing and exchange of information and images on the activities carried out and/or on the locations visited without needing paper backup, limiting the use of telephones to a minimum and reducing travelling. Furthermore, the app enables the management in mobility of stamping (attendance management).

The **innovation of the document system** and the dematerialisation of paper documentation was strengthened by the centralisation on a single **Enterprise Resource Planning (ERP) platform** of some of the most important corporate processes (administration, finance, etc.). The **Vendor Invoice Management project** was started during the course of the year, for the electronic end-to-end management of invoices received and the new **control model** simplifying the management and monitoring activities was designed.

RESEARCH AND INNOVATION IN THE ENERGY SECTOR (DISTRIBUTION AND PRODUCTION)

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In 2016, Areti realised important innovative projects in the framework of electricity distribution services, including:

- the **Cabina 2.0 project**, for the definition of the architecture of a secondary station capable of better integrating the various systems relating to the services concerning operations (such as remote control, metering and sensors) and relevant experimental initiatives; this includes the **ATOS project** using specific integrated technology;
- the experimentation of **second-generation electronic meters** for electricity connections, aimed at identifying the best transmission technology;
- the **multi-service metering system** for experimenting with multi-functional technologies and architectures for remote metering, applicable to several sectors (not only electricity);
- the **Drone project**, in which a remote-piloted aircraft system was developed and made operational, aimed at **periodically verifying the status of the overhead electricity lines** managed by Areti;
- the continuing experimentation in the **use of biodegradable oil in power transformers**.

Lastly, in 2016, the company continued to collaborate together with other partners in the **RoMA (Resilience Enhancement of a Metropolitan Area) project**, aimed at improving the capacity of the “city” system to react to emerging environmental criticalities.

Acea Illuminazione Pubblica designed, in collaboration with the Materials Development Centre in Pomezia (CSM) an **innovative tool for measuring the load to which the cables supporting public lighting systems are subjected**.

Acea Produzione, in collaboration with Enea, has conducted a **feasibility study for the design of a solar cooling plant** at the site in Tor di Valle, combined with absorption machines for the production of cold water required for remote cooling.

RESEARCH AND INNOVATION IN THE WATER SECTOR

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In 2016, Acea Ato 2, in collaboration with Acea Elabori, defined the **Research Plan**, which made **twelve projects** possible, selected by the company management, with the objective of innovating and enhancing the management of operations. These include:

- the **safeguarding of water resources**, with the preparation of the technical proposals for the safeguarding of water supply sources;
- the **system for the satellite monitoring of areas to be safeguarded**, started in March, for improving the control of the most vulnerable territories, especially those where the boundaries are being drawn, which has enabled the detection of hundreds of morphological changes (new constructions, soil movements and others) and the relevant checks to be conducted, also through inspections;
- the innovation of the **waste water treatment processes**, continuing the activities required at the Rome South plant for the optimisation of the bio-filtering process BIOSTYR – OTV;
- the **dehydration of sludge** through the adoption of selection procedures for polyelectrolytes which has enabled a new methodology based on the “zeta potential” measurements carried out on organic sludge to be validated; this has been used in a tender for the selection of the best cationic polyelectrolyte;
- the implementation of an **automation and control platform for the waste treatment plant of the CO.B.I.S. sewerage collector**, aimed at monitoring the devices remotely;
- experimentation with **smart metering** on connections with the highest consumption, in the **Top 300 pilot project**.
- Acea Ato 2 has also continued collaborating in the **RoMA “Resilience Enhancement of Metropolitan Areas” project**, with the exchange of information between the companies and other associated partners.

To disclose knowledge and assess eventual critical situations, due to possible new quality standards, **Acea Elabori** has started research into **emerging organic micro-pollutants (MOE)**: chemical, natural and synthesis substances belonging to different families, such as **medicines** for human and veterinarian use, **therapeutic substances and recreational drugs** produced for use in the home and personal hygiene, steroid and thyroid hormones and phytoestrogens.

The objective of the study is to analyse the **concentrations of emerging organic micro-pollutants and their variability in the various purification contexts and studying in-depth their distribution and removal during the process phases**; the method has been tested in a purification plant with two parallel treatment lines using different organic oxidising technologies.

Emerging organic micro-pollutants are the subject of attention on the part of the scientific community **because of the effect they may have on aquatic fauna** (altering the growth, development, reproduction and behaviour of organisms), especially when they are discharged into a body of surface water. For some of these substances, threshold values have already been identified in surface water and the regulators may define eventual limits for effluents from treatment plants.

RESEARCH AND INNOVATION IN THE ENVIRONMENT SECTOR

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The following were the main research projects in the Environment Sector:

- the **hydrogeological and geochemical study of ground water in the areas surrounding the waste-to-energy plant in San Vittore del Lazio**;
- the **study of the geochemistry of the soil and chemical composition of vegetables cultivated in a farming area in the municipality of Pitigliano (GR)** affected by the spreading of treatment sludge.

OPERATIONS ABROAD

Acea operates abroad in the water services sector in Peru, Honduras and the Dominican Republic, serving a total of **approximately 3.0 million people**. Operations abroad 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**.

Acea encourages development through **personnel training** and the **transfer of know-how** to local businesses.

The Consorcio Conazul Trujillo contract terminated in 2016 (about 800,000 inhabitants).

This chapter provides a brief description of the operating companies and their mission in the countries in question, describing the projects started and the initiatives of social and environmental significance.

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 of Lima). The Consorcio 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.

In 2016, 40.8 Mm³ of drinking water were produced, 12.3% less than in 2015, due to the decreasing availability of surface water.

CONSORCIO AGUA AZUL SA – MAIN COMPANY AND OPERATING FIGURES

Country (area)	Peru (Lima, northern area – Cono Norte)
inhabitants served	839,000
customer	Sedapal (Drinking water and sewerage service of Lima)
source of financing	Own capital and bonds issued on the Peruvian market
contract duration	07.04.2000 – 18.06.2027
scope of the project	BOT (Build-Operate-Transfer) project for the construction and management of the drinking water supply system using the waters of the river Chillón and the underlying source of ground water
stakeholders	Acea SpA 25.5%, Impregilo International Infrastructure N.V. 25.5%, Marubeni Co 29% , Inversiones Liquidas S.A.C 20%
no. of employees at 31.12.2016	33
business volume (in thousands of euros)	12,506

In 2016, the Consorcio Agua Azul continued with projects started last year.

In a corporate context, the **training programme** on **environmental topics** and **safety in the workplace** for all internal personnel and the staff of contractors continued. **3,274 hours of training courses were provided**. The training courses for personnel of the irrigation committee on topics concerning the use of fertilizers and conversion to organic agriculture were of particular significance. Employees were once again given a **questionnaire on the working climate to be filled in anonymously**; a satisfaction level of 100% was recorded.

As regards **preventive health**, a campaign was carried out of vaccinations against tetanus, hepatitis A and hepatitis B. This campaign was expanded to include employees' families, on a voluntary basis.

558 plant visits were organised in 2016, involving students, delegations from businesses in the sector and regional institutions.

As in every year, regional courses in the design and functioning of rapid filtering plants were carried out in March and November at the facilities of the Consorcio, organised by the Faculty of Engineering of the National University of Peru. Graduates from several Latin American countries participated in these courses. Also in 2016, the Consorcio **hosted high school and university students and new graduates, offering them a period of internship**. 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-making organisations** (such as associations for the rehabilitation of drug addicts) and **consumer associations**.

In order to combat the widespread phenomenon of leaving school, it **distributed teaching materials to primary schools and kindergartens**, in greater quantities than in previous years (1,513 kits, compared to 1,416 distributed in 2015). The backpacks distributed 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**.

At Christmas time, 1,774 toys were donated to the children in schools in the outskirts, the children of members of the law enforcement agencies in the area and employees of the Municipal authorities. Also, all employees of the Consorcio were given "restaurant" coupons to be used for lunch with their families in a renowned local restaurant.

As part of the annual monitoring programme, the Peruvian certification authority SGS renewed the certification of the **Integrated Quality and Environment System**, according to **UNI EN 9001:2008 and 14001:2004** standards, issuing the relevant certificates, valid until 2017. The certified and updated 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.

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. 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 2016, 118,252 users were served and 74% of them were supplied with meters. The coverage of the drinking water service remains at 99% of the population, and for the sewerage service 83%. The total water production in 2016 was approximately 82.5 Mm³.

AGUAS DE SAN PEDRO SA – MAIN COMPANY AND OPERATING FIGURES

Country (area)	Honduras (San Pedro Sula)
inhabitants served	700,000
customer	Municipal administration
source of financing	Own capital and loans from merchant banks
contract duration	01.02.2001 – 01.02.2031
scope of the project	Concession of the integrated water service in the city of San Pedro Sula
stakeholders	Acea SpA 60.65%, IREN SpA 39.35%
no. of employees at 31.12.2016	414
business volume (in thousands of euros)	30,731

In 2016, the company confirmed its commitment to supporting environmental protection initiatives, continuing the conservation programme in the natural reserve of El Merendon, declared as a protected area for water production in San Pedro Sula.

The initiatives include several measures developed in 2016:

- the “Un millón de Árboles para el Merendón” (One million trees for the Merendon) reforestation project: 70,000 fruit trees and others for producing wood in the affected areas were planted, reaching a total of 580,000 plants since the beginning of the project;
- environmental training: 8 training courses were carried out, totalling 40 hours, aimed at new farming producers benefitting from the reforestation project, in which 223 people participated;
- fire prevention: the promotion of fire prevention campaigns continued; unfortunately, there were 17 fires in 2017, which destroyed 70.5 hectares of land;
- technical assistance to the rural communities of the Merendón.

Specifically, in 2016 the programme of **technical assistance to the rural communities** involved training activities for the community leaders, activities on the management and maintenance of 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. Thanks to these activities, the communities prepared the management and maintenance plan for the systems, establishing specific action to be carried out, the resources necessary, those responsible and the implementation dates. The feasibility studies on drinking water systems in 47 municipalities in the Merendón were concluded during the year, defining the technical interventions for their improvement. The possible environmental impacts and legal aspects to be taken into consideration when carrying out the projects were also analysed.

The implementation of the **plan for health in the workplace** continued, as required by the *Sistema Médico de Empresa EMS-IHSS-ASP*. Some health campaigns were conducted

during the year, with conferences on topics such as female wellbeing, nutrition and leading a more healthy life. Sports activities were also organised for the employees and, lastly, campaigns for vaccination against influenza, hepatitis A and B and tetanus and medical check-ups to diagnose osteoporosis, in addition to ophthalmology and dentistry check-ups.

The initiatives in favour of employees include the development of the financial education programme, through an agreement with Banca Ficohsa, for granting loans to employees at advantageous interest rates.

Activities for the improvement and maintenance of the Quality Management System were also carried out according to regulation ISO 9001:2008. The initial activities aimed at the transition of the quality system to the requirements of the 2015 version of regulation ISO 9001 were also carried out in 2016.

The management system according to regulation ISO 17025:2005 was subjected in March 2016 to an audit by the certification authority EMA (Entidad Mexicana de Acreditación), which renewed its certification.

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 Corporación 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. In 2016, Acea Dominicana installed 5,000 meters; the company is also responsible for the maintenance of all meters.

ACEA DOMINICANA SA - MAIN COMPANY AND OPERATING FIGURES

Country (area)	Dominican Republic (Santo Domingo, north and east areas)
inhabitants served	1,500,000
customer	Corporación del Acueducto y Alcantarillado de Santo Domingo (CAASD)
contract duration	01.10.2003 – 30.09.2023
scope of the project	Commercial management of the water service
stakeholders	Acea SpA 100%
no. of employees at 31.12.2016	153
business volume (in thousands of euros)	4,080

The promotion of the “Plan Deuda Cero” (Zero debt plan) aimed at users in arrears with payments continued in 2016 in the poorer areas of the capital and in Boca Chica. From a media viewpoint, this activity was supported by interviews and in-depth articles in the main Dominican daily newspapers and television channels this year as well. Acea Dominicana also continued its commitment towards **awareness campaigns** aimed at the inhabitants of the areas served. The campaigns are carried out periodically with the involvement of employees who, in weekly meetings with the local representatives, contribute towards spreading information on the proper use of water resources and on the importance of complying with the economic conditions of the contract, in order to guarantee that the local water

company has the financial tools needed to improve the quality of the service supplied.

Work was carried out in 2016 for improving and maintaining the **Quality Management System**, implemented and certified according to regulation **ISO 9001:2008**.

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.





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ENVIRONMENTAL ISSUES

2016 SUSTAINABILITY REPORT



SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL PROTECTION WITHIN ACEA

After the definition of the new **Sustainable Development Goals** (SDGs) during the United Nations Summit, and the Paris Protocol, at the 21st Conference of the Parties **COP21**⁸⁶ on **climate change**, both dating back to the end of 2015, the **twenty-second UN climate conference COP22 was held in November 2016 in Marrakesh**. The 196 countries participating adopted a work programme to ensure the implementation by the end of 2018 of the Agreement signed in Paris on combating the overheating of the planet

and set up a Fund to assist developing countries. Emissions of greenhouse gases will have to be reduced by 2020 to maximise the possibility of remaining within the two degree centigrade temperature increase from pre-industrial times.

In this context, Acea, recognising the centrality of environmental protection to its development strategy, also focuses on the topic of climate change.

THE COP22 IN MARRAKESH

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The 22nd Conference of the Parties (COP22) was held in Marrakesh, Morocco, from 7 to 18 November 2016, during which the same objectives defined in Paris during the COP21 were restated. At 30.11.2016, 115 countries had ratified the Paris Protocol. An intermediate step was established for 2018, the year in which the IPCC (Intergovernmental Panel on Climate Change) will produce another Report concerning the effects of the 1.5°C increase in global average temperature compared to pre-industrial levels.

Among the other interventions, a final agreement has also been reached for a loan of 100 billion dollars per year, to be established by 2020, in favour of Developing Countries to assist them in dealing with the challenge of environmental sustainability.

For more details, see the Declaration in Italian:

http://www.nationalgeographic.it/ambiente/clima/2016/11/18/news/cop22_la_dichiarazione_di_marrakech-3317588/

the Paris Protocol:

http://unfccc.int/paris_agreement/items/9485.php

⁸⁶ The protocol came into force on 4 November 2016.

REDUCTION OF CARBON DIOXIDE EMISSIONS

Consistently with its focus at a global level on the topic of climate change, Acea is dealing with the challenge of **limiting the emissions of greenhouse gases**, and in particular carbon dioxide (CO₂). For several years now, Acea has implemented a policy of limiting CO₂ emissions and **participates in the**

international CDP project (formerly Carbon Disclosure Project), considered since its early years to be an important driver at an international level in dealing with the action needed to reduce/mitigate emissions. With knowledge of the industrial processes and estimating the quantities of carbon dioxide emitted, it is possible to deal responsibly with the challenge of progressively transferring to industrial management processes with low CO₂ emissions.

ACEA ACHIEVES LEADERSHIP CLASS IN THE CDP

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On 25 October 2016, at the conference hall of Intesa Sanpaolo, the CDP Climate Change Report 2016, Italian Edition, was presented, with the collaboration of Borsa Italiana.

Confirming the excellent performance levels in recent years, the score attributed to Acea increased from **99B to A-**, thereby entering the **leadership class**, according to the new scoring methodology of the CDP, in recognition of the commitment made in combating climate change. The initiative, which has been supported for more than ten years by a pool of international investors, currently 827, with assets managed totalling 100 thousand billion dollars, analyses about 2,000 businesses worldwide, valorising the best in class in the strategic and operating management of the risks and impacts of climate change.

The results of the 42 Italian businesses analysed, representing 69% of the market capitalisation of the 100 leading domestic businesses, highlighted a wide-ranging distribution in the scoring classes, expressed by scores from D- to A, representing an evaluation ranging from *disclosure* to *leadership*.

About 55% of those analysed were scored between level C and B (*awareness* and *management*), which is proof that there is now a widespread awareness among businesses of the topic of climate change, which in some cases evolves towards an increased management capacity in dealing with the climate and environmental risks.

The **Utility sector** is **the industrial sector with the highest CDP scores**.

More information is available on the website: <https://www.cdp.net/ar/reports>

Several years ago, Acea started **a survey on emissions along the supply chain**, with the objective of raising the awareness of suppliers on the topic. In 2016, **it once again distributed an ad hoc questionnaire to a panel of suppliers**⁸⁷ of “goods and services” and “works”, asking them to provide quantitative information: fuels used for processes and ordinary uses, energy consumed, fuels consumed for transport (see *Energy consumption outside the Group and Scope 3 greenhouse gas emissions*).

Acea has also confirmed its participation in the pilot project **TenP** of the Global Compact Network Italia Foundation, which has led to the implementation of an IT platform through which suppliers fill out a questionnaire based on the ten Global Compact principles (including the three concerning the environment). **All suppliers intending to register with the Qualification systems active within Acea are obliged**, as a mandatory requirement, to fill in the TenP Questionnaire (see also the section *Suppliers*).

In September, the partners of the TenP platform met in Milan at the Edison head office for a training day. During the event, the referents of the Global Compact Network Italia described and explained the functioning of the platform and handed over the Manual for the use of the TenP platform for both the partners and suppliers.

During the last ten years, after undertaking initiatives such as increasing the production of energy from renewable sources, increasing the efficiency of the internal end uses of energy and modernising the fleet of company cars, **Acea has reached carbon intensity levels** (tCO₂/k€ of added value; gCO₂/kWh produced, etc.) **that are among the lowest in the Utility sector** (see the box *Acea achieves Leadership class in the CDP* and table 55 indices of energy intensity).

PROTECTION OF LAND

Acea, operating in the field every day, **is aware** that it is facing a global challenge and has an active role to play. The actions for safeguarding land and biodiversity that were started some time ago in the areas in which it operates are multi-faceted. By way of example, mention is made of the **protection of areas surrounding water springs** and the **modernisation of the electricity distribution network**. The Group also contemplates the protection of biodiversity in the procedures of the **Environmental management systems**, in the framework of the design and construction of plants. An example of this is the design, construction and maintenance of overhead LV/MV and HV lines by Areti.

The protection of springs and the surrounding areas involves the maintenance over time of optimal conditions of biological diversity in vast areas of natural interest, combined with the **constant monitoring of impacts on recipient water bodies**. Both forms of action represent a significant technological and human commitment, which contributes towards the preservation of natural capital of extraordinary value.

Activities in Central Lazio: springs and protected areas

The Group, through the company **Acea Ato 2**, mainly uses **springs located in uncontaminated areas** for the water supply, with the result that Rome is one of the few great metropolises of the world that boasts **abundant supplies of water resources**, which do not require **any preliminary treatment for drinking purposes**, since the water is of **excellent quality** at source.

The water-supply system is based on **eight major aqueducts**, making up an overall **network of approximately 200 km**. In addition to this, there are 1,376 km of delivery network and 9,533 km of drinking water distribution network⁸⁸, with a

⁸⁷ The suppliers who were sent the form requesting data on electricity consumption and CO₂ emissions (in order to quantify Scope 3 emissions of the Group) were among those considered the most important in terms of turnover.

⁸⁸ The length in km of network was updated in 2016, on the basis of the GIS mapping updates.

flow that reaches 20,000 litres/second. This priceless pool of water assets is supplemented by a number of well fields and the reserve of Lake Bracciano.

Every year, Acea pays the utmost attention to the **protection and safeguarding of water resources**, scrupulously following the provisions of Legislative Decree no. 152/2006, which in

Article 94 governs the means of **protection of areas with surface and ground waters used for human consumption**.

The location and surface area in square metres of the areas under absolute protection⁸⁹ in the province of Rome are disclosed in Table 39, and similar information for the province of Frosinone is disclosed in Table 40.

TABLE No. 39 - MAIN WATER SOURCES UNDER PROTECTION IN ATO 2 – CENTRAL LAZIO

sensitive area	location	surface area (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	Municipality of Agosta-Arsoli-Marano Equo (Rome)	1,181,979
Acquoria spring	Municipality of Tivoli (Rome)	17,724
Acqua Felice – Pantano springs	Municipality of Zagarolo (Rome)	779,143
Pertuso springs	Municipality of Trevi – Filettino (Lazio)	133,711
Doganella springs	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

Note: the surface areas were updated after in-depth studies carried out in 2015 by Acea Ato 2 in the areas of absolute protection.

TABLE No. 40- MAIN WATER SOURCES UNDER PROTECTION IN ATO 5 – SOUTHERN LAZIO

sensitive area	location	surface area (m ²) (*)
Posta Fibreno wells	Municipality of Posta Fibreno (Frosinone)	20,000
Tufano wells	Municipality of Anagni (Frosinone)	20,000
Capofume spring	Municipality of Collepardo (Frosinone)	10,000
Madonna di Canneto spring	Municipality of Settefrati (Frosinone)	15,000
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

(*) Surface area figures are estimated.

As already mentioned, the protection of the areas surrounding springs contributes towards safeguarding biodiversity in overall terms and the ecosystem services involved. The **territorial monitoring** required for protecting the springs has recently been supplemented by a “**satellite project**”. Through the satellite, high resolution photographs (20 cm on the ground) taken in the territories to be controlled are sent from space and by comparing two images taken after a pre-established amount of time (a few days or even several months), **it is possible to detect – through**

a complex operation involving digital manipulation – all of the changes that have occurred and understand their nature. It can therefore be seen whether these are new undocumented constructions, earth movements, disposal sites, etc. In the first year of application of the new satellite control model, over a sample area covering approximately 200 km², **hundreds of “suspect” changes were detected**, which led to the same number of inspections being conducted, enabling Acea Ato 2 personnel to perform accurate and effective monitoring.

A TECHNICAL DISCUSSION GROUP FOR SAFEGUARDING SPRINGS

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Since 2015, Acea Ato 2 has organised a technical discussion group focusing on safeguarding springs. The idea is to **group together several entities**, including Roma Capitale, Lazio Region, Arpa Lazio, the local health authorities, the City Council, Acea Ato 2 and the Technical Operational Secretariat of ATO 2 Central Lazio, **to solve complex problems** that are not easily managed, **concerning the pollution of water springs**. Roma Capitale has taken over the project, sharing a pathway that will guarantee the coordination and management of the activities aimed at safeguarding the sources of water supplies. The first step is that of finalising a Memorandum of Understanding between the parties involved, with the objective of providing homogeneous guidelines for action to combat the threats of environmental pollution of water springs and, in particular, the safeguarding of underground and surface water to be used for human consumption. The collaboration will be based on the promotion of the principles of sustainable development, on other environmental training and educational initiatives and on sharing information and data, thanks to a GIS IT web platform.

⁸⁹The areas subject to absolute protection are those immediately surrounding the uptakes or branches, as defined in Legislative Decree no. 152/2006.

The result of the activities for protecting the areas surrounding the springs lies not only in the **scant or zero significance of the impact of the Group's activities on the sources** but also that the sources are protected from any other activity which might arise in the area.

Safeguarding the natural environment also occurs during the **phase of electricity distribution**. Areti, which manages this activity, is careful as regards the **mitigation of the risk of flying creatures hitting the overhead high and medium voltage lines**, especially in the areas of particular natural value. In collaboration with the responsible authorities, Areti is therefore searching for the best technological response to the problems that the presence of overhead lines for transporting electricity in sensitive areas may have on flying creatures (see *Protocol agreement for the resetting of electricity networks*, in *Energy distribution*).

ENVIRONMENTAL MANAGEMENT

Over the years, the Group's monitoring and reporting systems have continued to evolve, bringing about a progressive **systemisation of energy and environmental management**, with the implementation, in the majority of the Group plants and production processes, of **ISO 14001 standard**, in some cases further evolved in the direction of **EMAS registration** (Eco-Management and Audit Scheme) and **ISO 50001** (see *Corporate Identity, Management systems*). The holding company has **implemented the integrated Quality, Environment, Safety and Energy Management system**, as the cornerstone of an organisation and management model which, in synergy with the Environmental Legislation Unit within the parent company's Legal and Corporate Affairs Division, has the task of ensuring environmental compliance and providing general policies for Group companies, so that their approach to environmental protection complies with the principles expressed in the *Code of Ethics*. The planning process, formally envisaged by ISO 14001 and 50001 Systems, periodically sets new environmental and energy management efficiency thresholds. The control of performance indicators, also envisaged by the Systems, makes it possible to assess the correct nature of the direction adopted or identify possible anomalies in advance, which can then be promptly corrected, in favour of the principle of **continuous improvement**, a strong point of the management system, leading to a reduction in costs and risks.

Even though operating companies are very much committed to keeping the management system on environmental issues efficient, situations may arise, often caused by contingent circumstances, that generate non-compliances that may be disputed by the **competent supervisory bodies**. During 2016, **in the consolidated area, around 500 environmental disputes** were reported. They include disputes that arose during the year, which are not moreover connected to the fines paid, and the number of fines paid in 2016 (about 300). **The amount of the fines paid totalled approximately 415,000 euros** (102,271 euros by Acea Ato 2).

Environmental-related complaints from individual users are not systematically monitored, unless indirectly. The majority of the companies in the Group (such as Acea Ato 2, Acea Ato 5 and companies in the Environment Sector) **only receive notifications from the Supervisory bodies or responsible Entities** (which individuals contact with their complaints). The Entities may often act autonomously through on-site checks and then, if required, begin the proceedings

and invoke the sanctions, as mentioned above. However, in exceptional circumstances, the companies receive some significant notifications; in such an eventuality, they are checked and work is carried out to solve them if necessary. For example, in 2016, there was **only one case of a complaint** raised during the year and solved by Acea Ato 5.

As regards the company responsible for **energy distribution**, there may be observations inherent to alleged environmental damage, which often conceal urban planning-related interests linked to the decrease in value of owned properties, which house electricity installations. These **installations are necessary and indispensable for the correct running of the public electricity distribution network**, constructed by Areti further to **permits granted by Bodies that oversee the area** and therefore compliant with reference legislation, including urban planning and environmental regulations⁹⁰. Problems/reports are handled by the company's Property Unit which protects company assets; the Property Unit receives the complaints made by the owners of properties that house the **power lines/transformer stations**, and, subsequently, the **Safety Unit carries out instrumental checks** in response to the complaints. In 2016, **12 environmental related complaints were handled and closed successfully** (concerning electromagnetic fields from transformer stations).

Managing and monitoring operations that have an impact on the environment

The Group also monitors activities and processes that have the **potential to generate environmental impacts**, and pays particular attention to the handling of activities which require the use, or presence in the installation, of intrinsically hazardous materials, such as:

- **Asbestos**, used as construction material until the 1970s, then banned from use and subject to strict regulations where still present. In compliance with Italian Ministerial Decree dated 6 September 1994, Acea has appointed an **Asbestos Officer**, who is responsible for monitoring and coordinating maintenance activities on buildings and plants documented as presenting asbestos risks;
- **Sulphur hexafluoride**, present in high-voltage electrical plants as insulation fluid. SF₆ is handled with the maximum care so as to avoid leaks and uncontrolled atmospheric emissions. The use of dedicated sensors and careful monitoring of maintenance operations is envisaged, especially when they involve the emptying of the plants, making it possible to keep the potential environmental impact under control;
- **Radon**, a gas produced from the radioactive decay of uranium present in the ground naturally which, in enclosed locations, may reach high concentrations that are damaging to the health of humans. Acea monitors its concentration, and the results of this monitoring highlight average concentrations that are well below the legal thresholds;
- **Dielectric oil**, used in power transformers as insulating and cooling fluid. Since both its advantageous technological features and certain environmental problems linked to its chemical nature as an oil derivative are known, as early as the end of 2014 Acea began experiments using a **vegetable-origin insulating oil** that presents technological characteristics very similar to mineral oil, with the advantage of being totally **biodegradable as well as reusable** at the end of the life cycle. The experiments involve **3 MV/LV transformers, 2 with output of 400 kVA and a third with output of 630 kVA**. The transformers were designed and constructed for these experiments, then filled with the new vegetable oil, and introduced in production in 2015. **In 2016, the experiments**, which in-

⁹⁰The environmental legislative reference in this case is the Italian Prime Minister's Decree dated 8 July 2003.

clude the monitoring of the performance of the vegetable-origin dielectric oil, **continued**, with the precautionary aim of maximising the confidence in this new product, reducing eventual risks and/or defects related to its use to a minimum (see also *Institutions and the Company*).

“ENVIRONMENTAL EXPENDITURE”

Environmental expenditure is defined as “the cost of steps taken by an undertaking or by others on its behalf to prevent, reduce or repair damage to the environment which results from its operating activities”⁹¹.

As regards the identification of environmental expenditure, the aforementioned definition was applied from 2015, supplementing it with the environmental expenditure items described by the G4-EN31 indicator of the GRI Guidelines adopted for reporting purposes. It therefore includes:

- management/**disposal of waste (including sludge)**;
- **training** on environmental matters;

- protection of **air** from pollution and combating climate change;
- reduction of **noise** pollution;
- protection of **biodiversity** and the countryside;
- ISO 14001 and 50001 environmental management systems, costs for certification of emissions;
- **insurance coverage** for environmental liability;
- **clean-up costs**, for example after spills (excluding fine-related costs);
- external services for environmental management;
- **extra** expenditures to install **innovative technologies** (additional cost beyond standard technologies);
- **leak detection** activities;
- R&D (environmental aspects);
- extra expenditures on **green products**;
- other environmental management costs.

In 2016, Acea incurred approximately **36.1 million euros in environmental expenditure** (44.4 million in 2015), including investments and current costs (see table 41).

TABLE No. 41 - ENVIRONMENTAL EXPENDITURE OF THE MAIN OPERATING COMPANIES (2015-2016)

Group companies	2015		2016	
	current expenditure (millions of euros)	investments (millions of euros)	current expenditure (millions of euros)	investments (millions of euros)
Acea Produzione	0.39	0.18	0.44	0.06
Waste-to-energy plants	8.20	0.82	5.71	0.06
Composting plants (Plants in Monterotondo, Aprilia and Sabaudia), Orvieto plant and Aquaser	1,608	0.13	2.26	0.00
Areti	0.35	0.01	0.12	0.03
Water services (**)	30.37	2.33	27.19	0.23
Total	40.93	3.48	35.71	0.38

(*) The 2016 data does not include environmental expenditure of the Orvieto plant and Aquaser, as it was not available at the time of publication.

(**) Acea Elabori, Acea Ato 2, Acea Ato 5.

Note: The environmental expenditure of the water companies Publicacqua, Acque, Acquedotto del Fiora and Umbra Acque is described in the Water company charts.

ENERGY AREA

REFERENCE BOUNDARY

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The *Energy Area* chapter includes Areti, Acea Produzione and the Acea Ambiente waste-to-energy plants⁹². The waste-to-energy activities are described in detail in the chapter *Environment Area - Waste Management*.



742 GWh TOTAL ENERGY PRODUCED



78% OF THE TOTAL PRODUCED FROM RENEWABLE SOURCES
(576 GWh)



279 MW POWER INSTALLED

⁹¹ See European Recommendation 2001/453/EC.

⁹² As of 29/12/2016, in implementation of the resolutions of the respective companies, SAO, Solemme and Kyklos were incorporated into A.R.I.A. Srl and the latter was renamed Acea Ambiente Srl.

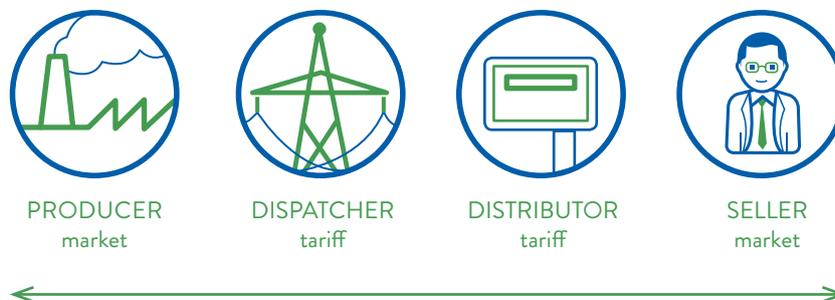
The Acea Group **oversees the entire electrical energy business chain**, via independent companies that meet obligations which ensure neutrality in infrastructure management, essential for the development of a free energy market, prevent discrimination in accessing commercially sensitive information and avoid cross subsidies between the various segments of the production chain.

The activities overseen are: **production** of electrical energy and heat; **distribution** of electricity in the Rome and For-

mello area, including the management of public lighting; **sale** of electricity, heat and gas.

Under the current electrical energy system in Italy, a consumer receives electricity as a result of the contribution of four distinct segments, managed by different parties, which operate in a separate, albeit integrated, manner in the value production chain (see Chart 41).

CHART No. 41 – THE ELECTRICAL ENERGY CHAIN



The electrical energy management system, despite representing the most sustainable energy vector at our disposal, has a strong socio-environmental impact, requires heavy infrastructure investment and needs support for research and development activities. Therefore, the sector requires market forces and the entrepreneurial capacity of the individual player, as well as the regulatory action of a public body that ensures the correct conduct of the various players.

Acea operates in almost all segments of the chain, as electrical energy **producer**, **distributor** for Rome and Formello, and **seller** throughout Italy. At the same time, Acea has made progress in its research in the **smart grid** sector. It is now well known to experts in the energy production line that in a not too distant future, the flows of electricity generation and consumption will be mono-directional (see also the box on the figure of the “prosumer” in *Customers and the community* and the paragraph *Research and innovation commitment in Institutions and the Company*).

ENERGY GENERATION: FOSSIL AND RENEWABLE ENERGY SOURCES

Generation and Group plants

Acea produces electrical energy primarily through **hydroelectric plants** and **waste-to-energy plants operating on Refuse Derived Fuel (RDF)** – a partially renewable, waste-derived primary energy source.

Acea Produzione carries out generation activities from (renewable) hydroelectric sources and via traditional thermoelectric plants using fossil sources. The overall generator base comprises:

- **7 hydroelectric plants** located in Lazio and Abruzzo (122 MW);

- **2 thermoelectric plants** located in the municipal area of Rome: Montemartini (78 MW) and Tor Di Valle (19.3 MW)⁹³, for a **total of 219 MWe of installed available power**.

Waste-to-energy generation is carried out by the **company Acea Ambiente**, which ensures production via **two waste-to-energy plants** located respectively in San Vittore del Lazio and Terni. The gross overall electrical power currently available reaches about **46 MWe**.

The framework of installed generation power is completed by a small **photovoltaic park** of approximately **14 MWe** (see chart 43).

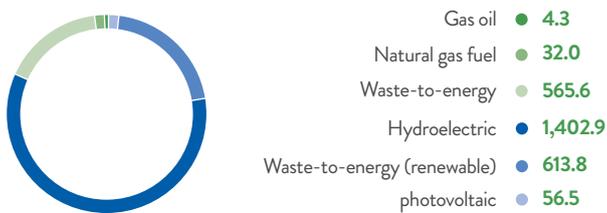
Electrical energy produced

The **gross electrical energy production in 2016** amounted to approximately **742 GWh**, down slightly with respect to the previous year (5% less than the 2015 figure of 783 GWh), mainly due to the shutdown of the Alessandro Volta hydroelectric station, which is being refurbished/modernised, and the extraordinary maintenance at the S. Angelo hydroelectric station.

The portion of electrical energy generated from **renewable sources**, around **576 GWh**, was **clearly predominant**, and came to **around 78% of the total**, with a contribution of **390 GWh from hydroelectric**, **170 GWh from waste-to-energy** and **16 GWh from photovoltaic** sources (see chart 42 and table 45). With regard to the **portion of green energy from waste-to-energy activities**, around 52% of production from this type of plant is renewable, since it is associated with the combustion of the **biodegradable fraction of the waste** used as the primary source. In particular, **the renewable portion of the Refuse Derived Fuel (RDF) entering the San Vittore del Lazio plant** came to **around 56% of the total waste-to-energy generation**, while at the **Terni plant**, the portion was **around 41%**.

⁹³ The Tor di Valle station, historically constituted by a co-generation plant (19.3 MW) and combined cycle plant (126 MW), began disposing of the combined cycle plant in 2016.

CHART No. 42 – ELECTRICAL ENERGY PRODUCED, BY PRIMARY ENERGY SOURCE (TJ) (2016)



Note: the values shown in the chart are TJ (1 GWh = 3.6TJ).

Thermal energy produced

The Tor di Valle thermoelectric plant produced approximately

90 GWh of thermal energy, obtained via the gas turbine unit engineered for cogeneration, and also via traditional boilers.

TABLE No. 42 - GROSS HEAT PRODUCED AT THE TOR DI VALLE PLANT (2014-2016)

gross heat produced (kWht)	2014	2015	2016
Tor di Valle thermoelectric plant	92,026,747	80,195,695	90,027,823
Gas turbine unit in cogeneration	15,163,198	17,155,344	13,172,350
Auxiliary boilers (Galleri type)	76,863,549	63,040,351	76,855,473

The heat generated is used to serve around **38,900 residents in southern Rome** (Mostacciano, Torrino, Mezzo Cammino) by means of a district heating network which serves a volume of approximately 3,547,000 m³.

Efficiency of the electrical generation system

The gross average efficiency by means of which the Acea production system in its entirety managed to convert the energy from primary sources into electrical energy, estimated as the ratio between gross electrical energy produced in the year (equal to 742 GWh) and incoming energy (around 2,339 GWh), came to **32%** (see also table 45).

$$E_{ff} = \left(\frac{742}{2,339} \right) \times 100 = 32\%$$

Where E_{ff} is the average gross conversion efficiency.

The average efficiency net of internal plant consumption and initial transformation losses is as follows:

$$E_{ff} = \left(\frac{687}{2,339} \right) \times 100 = 29\%$$

The breakdown of efficiency by individual plants is shown in table 45.

The Group's thermoelectric and hydroelectric plants, and the related gross output, are listed in table 43; the waste-to-energy plants are described in the pertinent section (see also the *Environmental accounts*).

TABLE No. 43 – ACEA PRODUZIONE POWER PLANTS

hydroelectric plants	thermoelectric plants
A. Volta plant, Castel Madama (Rome) gross output 9.4 MW	Tor di Valle plant: co-generation section (*) (Rome)
G. Ferraris plant, Mandela (Rome) gross output 8.5 MW	Natural gas fuel – gross output 19.3 MW
Salisano plant (Rieti) gross output 24.6 MW	Tor di Valle plant: combined cycle section (Rome)
G. Marconi plant, Orte (Viterbo) gross output 20 MW	Being disposed of
Sant'Angelo plant (Chieti) gross output 58.4 MW	Montemartini plant (Rome)
Cecchina plant (Rome) gross output 0.4 MW	Gas oil fuel – gross output 78.3 MW
Madonna del Rosario plant (Rome) gross output 0.4 MW	
grand total: gross output 219 MW	

(*) The co-generating turbogas unit at Tor di Valle is open-cycle in type and supplies the district heating service to the districts of Torrino Sud, Mezzocammino and Mostacciano, for a total of 38,924 inhabitants.

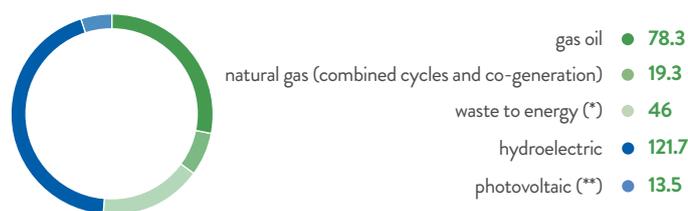
With reference to the thermoelectric plants, the dismantling and simultaneous disposal of the combined cycle of the Tor di Valle plant was started in 2016, and is required for the planned **reconversion into a high performance co-generation plant**. In detail, the reconversion of the two current plants, a Combined Cycle Gas Turbine (CCGT) and a co-generation plant (CHP - Combined Heat and Power) is envisaged, converted into a single High-Efficiency Co-generation plant (CAR), equipped with two engines in CAR layout, each with an electrical power of 9.5 MW, for a total of 19 MW, in addition to three supplementary boilers and 8 accumulation tanks, functional for both the supply of heat to the southern districts of Rome - Torrino Sud, Mostacciano and Mezzocammino – and the supply of electricity for all of the electrical utilities of the Rome South Treatment Plant. The following potential benefits must be highlighted: the optimisation of fuel consumption, great-

er machine output and the reduction of emissions into the atmosphere thanks to **the adoption of Best Available Techniques (BAT) for the “fume lines” of the engines and the type of boiler burners used**, as well as for the **atmospheric emissions monitoring** system.

Once the construction of the plant is completed, which should be by the end of 2017, the old co-generation unit, constituted by an open cycle gas turbine with 19 MW electrical power, operational since the early 1980s, will be disposed of.

Chart 44 shows **installed capacities**, which **overall amount to approximately 279 MW**, broken down by energy source. There were no changes compared to the previous year, except for the absence of the MW corresponding to the combined cycle of the Tor Di Valle plant, which is being disposed of.

CHART No. 43 – GROUP INSTALLED ELECTRIC POWER, BY ENERGY SOURCE (MW) (2016)



(*) Line no. 1 of the San Vittore del Lazio plant began operations on 30.09.2016, after revamping.

(**) On 29.12.2015, the photovoltaic business segment of A.R.S.E. – the total split-off of which occurred on 30.12.2015 – constituted by 52 photovoltaic plants, was taken over by Acea Produzione, for a total power of 8.5 MW. The Parco della Mistica plants, totalling 5 MW, were transferred to Elga Sud (renamed Acea Liquidation and Litigation Srl in October).

Following on from the medium/long-term investment projects for **the modernisation and streamlining of the Acea Produzione hydroelectric plants**, also for the purpose of the achieving incentive tariffs (for example green certificates), after the work carried out at the Guglielmo Marconi and Salisano plants, **during the course of 2016, the revamping works** continued on the systems of the **Alessandro Volta plant**, located in the municipality of Castel Madama (Rome), and this work has now **entered the completion phase**.

These works will enable the **optimisation of the available water resources**, under the same installed power conditions authorised on concession.

Acea Produzione has also prepared the **tender documents for the revamping** of the systems of the **Galileo Ferraris hydroelectric plant**, which is also in the province of Rome.

The availability indices for the Acea Produzione plants, by Plant, are shown in table 44.

TABLE No. 44 - AVAILABILITY INDICES FOR THE ACEA PRODUZIONE PLANTS (2014-2016)

energy source	Plant	overall availability (%)			scheduled unavailability (%)			unscheduled unavailability (%)		
		2014	2015	2016	2014	2015	2016	2014	2015	2016
Natural gas	Tor di Valle (combined cycle - CCGT)	100.0	73.3	0.00	0.0	25.2	0.0	0.0	1.5	0.00
	Tor di Valle (co-generation section)	97.5	95.7	94.8	0.0	1.6	0.0	2.5	2.7	5.2
Gas oil	Montemartini	90.7	96.7	99.7	4.1	3.3	0.0	5.2	0.0	0.3
Hydroelectric	Salisano	99.8	99.4	99.93	0.0	0.3	0.0	0.2	0.3	0.04
	S. Angelo	97.0	96.6	93.0	2.0	3.3	4.0	1.0	0.1	3.0
	G. Marconi (Orte)	99.5	99.9	99.9	0.4	0.0	0.0	0.1	0.1	0.1
	A. Volta (Castel Madama)	99.0	47.1	0.00	0.4	51.7	100.0	0.7	1.3	0.0
	G. Ferraris (Mandela)	98.2	79.3	66.7	1.7	19.2	33.3	0.1	1.6	0.0
	Minor plants	93.9	99.1	95.0	2.0	0.0	0.0	4.1	0.9	5.0

Note: the figure for the hours of scheduled/unscheduled unavailability cannot be provided as the indices are calculated taking into account partial shutdowns and load limits as well.

The following definitions must be taken into account in order to correctly interpret the figures provided in table 44:

- **overall availability (%)**: this index refers to the period in which a plant or section thereof is available to produce energy, including periods it was not operational due to

electricity market needs. It is obtained from the ratio between the available energy - equal to the difference between the maximum energy which can be generated and unavailable energy (see following points) and the maximum energy which can be generated in the month;

● **scheduled unavailability (%)**: this index refers to the period in which a plant or section thereof was unavailable due to scheduled events (maintenance, etc.). It is obtained from the ratio between the energy unavailable during the scheduled event and the maximum amount of energy that can be generated in the month;

● **unscheduled unavailability (%)**: this index refers to the period in which a plant or section thereof was unavailable due to fault. It is obtained from the ratio between the energy unavailable during the fault event and the maximum amount of energy that can be generated in the month.

TABLE No. 45 - ENVIRONMENTAL INDICATORS: ELECTRICAL ENERGY PRODUCED (BY PRIMARY ENERGY SOURCE), ENERGY INDICATORS OF PRIMARY ENERGY AND OUTPUTS (2014-2016)

primary energy source	2014	2015	2016
	TJ (GWh) (*)		
electrical energy produced (by primary energy source)			
Gas oil	0.2 (0.05)	6.6 (1.84)	4.3 (1.2)
Natural gas (combined cycles and co-generation)	36.7 (10.2)	40.3 (11.2)	32.0 (8.9)
Waste-to-energy (for 2016: around 48% of total)	543.2 (150.9)	565.6 (157.1)	565.6 (157.1)
Total thermoelectric	580.0 (161.1)	612.5 (170.1)	601.9 (167.2)
Hydroelectric	1,782.7 (495.2)	1,617.1 (449.19)	1,402.8 (389.68)
Waste-to-energy (for 2016: around 52% of total)	490.0 (136.1)	459.3 (149.8)	613.8 (170.5)
Photovoltaic	55.8 (15.5)	50.0 (13.9)	56.5 (15.7)
Total renewable	2,328.5 (646.8)	2,126.4 (612.9)	2,073.2 (575.9)
Grand total	2,908.5 (807.9)	2,738.9 (783.0)	2,675.1 (743.1)
primary energy by energy source used			
Gas oil	1.6 (0.5)	26.6 (7.4)	17.5 (4.9)
Natural gas (co-generation)	142.1 (39.5)	155.9 (43.3)	127.6 (35.4)
Waste-to-energy	5,150.3 (1,430.7)	5,647.7 (1,568.8)	5,937.1 (1,649.2)
Hydroelectric	2,195 (609.7)	2,008.7 (558.0)	1,712.6 (475.7)
Photovoltaic	398.6 (110.7)	357.4 (99.3)	410.9 (114.1)
Grand total	7,887.6 (2,191.1)	8,196.3 (2,276.8)	8,205.7 (2,279.3)
average outputs of the electrical energy generation plants			
Plants	2014	2015	2016
	%		
Tor di Valle plant (co-generation section)	70.6	71.3	68.6
San Vittore del Lazio waste-to-energy plant	20.0	19.5	19.6
Terni waste-to-energy plant	18.3	18.1	18.8
Montemartini plant	11.3	24.8	24.2
Salisano plant	88.0	88.0	88.0
S. Angelo plant	70.3	69.6	69.7
G. Marconi plant	98.6	98.6	98.6
A. Volta plant	82.8	81.9	0.0
G. Ferraris plant	91.2	91.4	91.5
Minor plants	61.0	61.3	61.1
Photovoltaic plants	14.0	14.0	14.0

(*) 1 GWh=3.6TJ.

ENERGY DISTRIBUTION

Distribution networks



29,000 km OF DISTRIBUTION NETWORK - IN ROME AND FORMELLO



CIRCA **11,000 GWh** OF ELECTRICITY DISTRIBUTED IN ITALY



43% TERRITORIAL PROTECTION INDEX (underground HV network on total HV network)

Areti manages the **electrical energy distribution network** serving Rome and Formello, covering around **29,000 km** and capable of serving roughly 2.7 million resident inhabitants. In terms of volumes of electricity distributed, around 11,000 GWh per year, the company is the third leading Italian operator in the sector. Table 46 shows the main plant figures, relating to the primary and secondary stations and overhead and underground power lines.

An environmental indicator linked to the **protection of the area** is calculated as the percentage of **high voltage (HV) underground network by total HV lines operating** (overhead and underground). The data is monitored and in 2016 and was slightly higher than in previous years, amounting to **43%** (42% in 2015); this is also an effect of the modernisation of the high and very high voltage electricity distribution network.

With reference to **electric and magnetic fields** (relating to the primary transformer stations, the High and Medium voltage overhead lines and secondary transformer stations), any possible risk for the health of the local community is dealt with in **the Company environmental analysis document** and in the **Risk Assessment document**.

Areti carries out periodic sample checks and at the sites deemed the most critical. Furthermore additional checks are performed as a result of reports received from users/customers or external Bodies. At times, on specific request by customers, checks are carried out by ARPA Lazio⁹⁴.

Memorandum of Understanding for the resetting of the electrical networks

In 2016, work continued in the framework of the **plan for the modernisation of the high voltage electricity distribution network (150 kV)**, defined in the **Memorandum of Understanding** signed in 2010 by Areti SpA (formerly Acea Distribuzione), the Municipality of Rome and Terna SpA, which concerned in particular:

- the completion of the construction of the new 150 kV line “Cassia-Flaminia/O”, of which 4.7 km in overhead lines constructed using tubular pylons and green trellises, in compliance with the environmental prescriptions of the Veio Park, and 0.4 km in underground cables, enabling the demolition of the current overhead line Cassia-Rome North totalling 9.8 km. Also, after the above works, it was possible to demolish a 60 kV overhead line, already disposed of: Flaminia – Grottarossa totalling 7.9 km and 33 pylons, 8 of them demolished in 2016;

- the completion of the construction and activation of the new 150 kV line “Rome North-Bufalotta”, 3 km of which is overhead line, also constructed using tubular pylons and green trellises in compliance with the prescriptions of the Regional Body Roma Natura, and 1.6 km is underground cables, enabling the demolition of the current overhead line Bufalotta-Flaminia/O, totalling 9.2 km and 23 pylons, of which 2.9 km is double-circuit line;
- the completion of the works on the former 60 kV line Vitinia-Lido Vecchio, which has made possible the **demolition of 26 trellises**. It must be noted that **all of the pylons were in the areas of the “Littorale Romano” State Natural Reserve**, and the removal of seven pylons required **the use of a helicopter** in order to avoid any form of impact on the subsoil and vegetation and trees present in the area. On completion of the activities, in compliance with the instructions of the Environmental Protection Department of the Municipality of Rome, **some cork trees (*Quercus Suber*) were planted** to fill the gaps left by the trellises that were removed.

The completion of the work envisaged in the plan, thanks to the reduced energy losses, will result, in addition to the improvement of the service and related social benefits, in **a significant environmental benefit**, due to the **significant energy saving expected, amounting to approximately 58 million kilowatt hours**, equivalent to the annual consumption of about 20,000 families, and a better quality electricity service.

The management of the electricity distribution network for Rome and Formello is based on the **continuous improvement of performance**, also from the viewpoint of energy efficiency. The **numerous loss reduction initiatives** continued, ranging from the installation of low loss transformers to the progressive replacement of the medium voltage power outputs from 8.4 kV to 20 kV.

The Smart-network Management System project, which is aimed at **improving the performance of the networks**, due to the evolution and integration of the management systems, the other smart grid activities and, in general, the application of technological innovation in network management are described in the section *Institutions and the Company*. Also due to the above-mentioned activities, the **energy losses on the network**, mainly due to the heating of the conductors caused by the Joule effect, amounted to **approximately 6.5% of the total transported** in the year.

⁹⁴ According to the following legislative references: Legislative Decree no. 81/08; CEI 211-6 guide first edition dated 01/2001; Prime Minister's Decree dated 8 July 2003 “Fixing of exposure limits, warning levels and quality objectives for protection of the population from electric and magnetic fields with a network frequency (50Hz) generated by power lines”.

TABLE No. 46 - ENVIRONMENTAL INDICATORS: OVERHEAD AND UNDERGROUND DISTRIBUTION LINES AND PLANTS: NUMBERS (2014-2016)

Areti				
plants and outputs	U.M.	2014	2015	2016
HV/HV - HV/MV primary sub-stations	no.	70	71	71
HV/HV and HV/MV transformers	no.	168	169	170
Transformation power	MVA	7,903	7,764	7,924
Secondary sub-stations in operation	no.	13,113	13,124	13,152
MV/MV - MV/LV transformers	no.	12,799	12,797	12,831
Transformation power	MVA	6,118	6,154	6,183
overhead and underground networks				
High voltage network - overhead lines	km	323	323	321
High voltage network - underground lines	km	238	239	243
Medium voltage network - overhead lines	km	458	440	429
Medium voltage network - underground lines	km	10,050	10,086	10,180
Low voltage network - overhead lines	km	1,658	1,648	1,646
Low voltage network - underground lines	km	17,585	17,723	17,917

ENVIRONMENT AREA – WASTE MANAGEMENT

REFERENCE BOUNDARY

x

This section includes the activities of the waste treatment plant dealing with the collection, recovery, treatment and disposal of waste, the waste-to-energy plants and the compost production plants, all managed by Acea Ambiente since 29.12.2016.



ABOUT **381,000 tonnes** OF WASTE TREATED AT THE WASTE-TO-ENERGY PLANT, IN THE RDF AND PULPER



ABOUT **327 GWh** OF ENERGY PRODUCED BY THE PLANTS IN SAN VITTORE DEL LAZIO AND TERNI



13.5 MWh/h OF ENERGY PRODUCED (MWh) ON HOURS OF FUNCTIONING OF THE WASTE-TO-ENERGY PLANT AT SAN VITTORE DEL LAZIO

10.2 MWh/h OF ENERGY PRODUCED (MWh) ON HOURS OF FUNCTIONING OF THE WASTE-TO-ENERGY PLANT AT TERNI



3.55 t/h OF WASTE PRODUCED (t) ON HOURS OF FUNCTIONING OF THE WASTE-TO-ENERGY PLANT AT SAN VITTORE DEL LAZIO

2.04 t/h OF WASTE PRODUCED (t) ON HOURS OF FUNCTIONING OF THE WASTE-TO-ENERGY PLANT AT TERNI

ACEA AT ECOMONDO

x

The 20th edition of **Ecomondo** at the Rimini Fair was held from 8 to 11 November. The event was taken by the Group as a **chance to spread the culture of social and environmental respect** and to **present the new industrial reality of Acea Ambiente** and the various activities related thereto.

Two workshops on the circular economy were held at the **Acea display stand**, in which the same number of partner companies took part: the Magaldi Group, which dealt with the topic of dry extraction from the bottom of burners of the sludge from the combustion of refused derived fuels (RDF) at the San Vittore plant, and Saxa Gres, which described the production process for manufacturing construction tools, partly constituted by the product of combustion originating from the same waste-to-energy process.

Also, the Environment Sector of Acea shared its know-how on the **expansion of composting plants** and on the problems in the recovery of organic sludge in agriculture during some seminars, meeting with Utilitalia, the major Italian multiutilities, representatives of the scientific world, farmers and the treatment and recovery plants.

As has been well defined in the Package of the European circular economy⁹⁵, **waste must also be considered as a resource**, so that the production chain can be closed in a circle. Since 2006, Acea has chosen to give new life to this topic, and since then has managed the waste cycle so as to recover, recycle and reuse as much waste as possible and recover energy where possible.

The Group handles the following stages of the waste cycle:

- the **treatment of municipal solid waste (MSW)** and other waste types (green waste from selective collection, industrial waste, etc.), **including material recovery** (glass, plastic, steel, other metals, paper and cardboard) and disposal of the residues in landfills;
- **incineration with energy recovery**;
- **production of high-quality compost** for agricultural purposes.

Furthermore, **Aquaser**, a subsidiary of Acea, collects and manages the **sludge produced by the non-industrial wastewater treatment cycle** so that it can be treated and used, for example, in agriculture.

The subsequent sections provide further information on the operational aspects of the listed above activities, stressing **the advanced technologies required for modern and efficient waste management**.

INTEGRATED WASTE TREATMENT AT THE ORVIETO PLANT

Acea Ambiente also manages an important centre for the treatment of urban waste in the municipality of Orvieto,

in Umbria, where it carries out activities for **sorting, composting and landfilling**, as per the certified management systems (see *Corporate Identity, Management systems*).

The activities are carried out with the objective of achieving the **maximum recovery of materials**, favouring both the **production of energy from renewable sources** and the **reduction of waste to be sent for landfilling**. In 2016, the total waste entering the plant was 96,541 tonnes, of which 70,780 tonnes in total were disposed of in landfills. For more details, see the *Environmental Accounts*.

A **new anaerobic treatment line** for organic waste has enabled the **production of electricity from the combustion of biogas released by digestion** (see the dedicated box). In particular, **approximately 2.6 Mm³ of biogas was produced in 2016, and approximately 4.9 GWh produced was transferred to the electrical energy network**. The testing of the new line started in 2016.

The plant for the **valorisation of the biogas from landfill** also **produced approximately 7 Mm³ of biogas, of which approximately 11 GWh of energy was transferred to the network**.

The Orvieto centre also has a **photovoltaic plant**, which in 2016 generated approximately 486 MWh, used to cover part of the consumption of electricity.

In overall terms, the new line for the treatment of biogas, the plant for the valorisation of biogas from landfill and the photovoltaic plant lead to an **overall saving amounting to 3,196 Tep**.

RECOVERY OF ENERGY FROM BIOGAS

X

In some plants, anaerobic digestion is carried out in addition to basic aerobic treatment (composting).

Anaerobic digestion is a biochemical conversion process which takes place in the absence of oxygen and involves the demolition, by micro-organisms, of complex organic substances (lipids, protides, glucides) contained in vegetal matter and in animal-origin by-products. This process produces a gas (biogas), which can be burnt to produce electricity and heat.

Specifically, at the plant in the Municipality of Orvieto, **a new plant line for the anaerobic digestion of the organic component of waste** was activated in 2016, which has enabled the production of electricity from the combustion of the biogas produced by the digestion process. **The heating potential of the biogas**, which is approximately 4,259 kcal/Nm³, **is harnessed through an internal combustion co-generation plant, and the electricity produced is transferred to the network**. This plant has been placed after the composting phase and has implied a reduction in the pollution emissions and a **reduction in the volumes to be sent to the landfill** linked to the recycling of humid products. In overall terms, the plant has a power of just under 1 MW.

In the actual landfill itself, a process of decomposition (biodegrading) and mineralisation of the organic substance is carried out on the material conferred by anaerobic bacteria, due to the presence of oxygen in the waste. Once the oxygen has been consumed, the **anaerobic bacteria** intervene and **continue the process of degradation, forming biogas**. For a number of years now at the currently used landfill and that which is no longer used, the **biogas is captured and sent to a specific plant for its energy recovery**, constituted primarily by two internal combustion engines located in the proximity of the landfill in use. **The energy produced is transferred to the network in this case as well**.

Capturing the biogas also contributes towards avoiding the spreading of bad odours in the air and enables the **lowering of the emission of methane** (a greenhouse gas with a heating potential 20 times that of CO₂) **into the atmosphere, reducing the greenhouse effect** in fulfilment of the principles of the Kyoto Protocol. Furthermore, its use for the production of electricity avoids the emission of the CO₂ produced by the combustion of conventional fossil sources, such as crude oil and coal. The positive effect is therefore dual: on one hand, there is a **reduction in the emission of greenhouse gases** and on the other an **increase in the production of electricity from renewable sources**.

WASTE TO ENERGY

As already mentioned, energy recovery from waste is also part of the package of the EU circular economy. There is therefore also space for **waste-to-energy: the process of incinerating waste**, considered by the European Union to be **valid if combined with energy recovery from waste**, given that, in addition to implying advantages of an energy and economic nature (energy recovery itself), it enables a **significant volumetric reduction and biological stabilisation**

of waste to be achieved, avoiding as much as possible the conferment of the waste itself to landfills.

Acea Ambiente manages the waste-to-energy process in **two plants**, one in San Vittore del Lazio and the other in Terni, which operate according to ISO 14001:2005 Certified environmental management systems, have obtained European EMAS registration and manage the health and safety aspects according to OHSAS 18001:2007 (see *Corporate identity, Management systems*).

⁹⁵ Closing the Loop - An EU Action Plan for the Circular Economy [COM(2015) 614 final].

The plant in San Vittore del Lazio is constituted by three independent waste-to-energy lines, designed to be powered by refuse derived fuels (RDF), with the following characteristics:

- 52 MW_t of thermal power installed on line 1 and 54 MW_t of thermal power installed on the other two lines;
- 12 MW_e of electrical power installed on each line;
- 360,000-400,000 t of RDF as total capacity treated by the system⁹⁶.

The revamping phase of production line 1 has been concluded and it began operations on 30.09.2016; therefore,

the effective electrical power available now is about 36 MW, with which 224 GWh of electricity was produced in 2016. As a waste incinerator, the treatment capacity of the plant in 2016 amounted to 281,917 tonnes.

The plant at San Vittore del Lazio plays a role of some significance in the management of urban waste in Lazio and will do so even more in full operation, due to both the particularly advanced technologies used in its construction and its considerable treatment potential.

TABLE No. 47 – THE WASTE-TO-ENERGY PLANT IN SAN VITTORE DEL LAZIO: FUNCTIONING DATA (2014-2016)

	U.M.	2014	2015	2016
RDF burnt	t	224,336	239,871	281,917
Gross electricity produced	GWh	205.09	225.35	243.68
Conversion performance (*)	kWh/kg RDF	0.91	0.94	0.86

(*) ratio of gross electricity produced (GWh) and quantity of RDF burnt (t).

The Terni plant, also renewed recently, is constituted by a single waste-to-energy treatment line with the following characteristics:

- 52 MW_t of thermal power installed;

- 12.33 MW_e of electrical power installed;
- 100,000 t/year of pulper waste (paper waste, derivatives from pulping waste paper) as total treatment capacity.

TABLE No. 48 – THE WASTE-TO-ENERGY PLANT IN TERNI: FUNCTIONING DATA (2014-2016)

	U.M.	2014	2015	2016
Pulper burnt	t	99,397	99,892	99,768
Gross electricity produced	GWh	81.95	81.52	83.07
Conversion performance (*)	kWh/kg pulper	0.82	0.82	0.83

(*) ratio of gross electricity produced and quantity of pulper burnt.

For details on the waste-to-energy plant emissions, see *Emissions and mobility*.

HIGH QUALITY COMPOST PRODUCTION

As already mentioned, Acea Ambiente operates in both waste-to-energy and in the sector of complementary services to the integrated water service, performing activities in the recovery and disposal of organic purification sludge and waste deriving from the purification of water.

The three plants treating purification sludge and the organic component of municipal solid waste (MSW) for producing compost are respectively in Aprilia and Sabaudia (both in the province of Latina) and Monterotondo Marittimo (Grosseto).

In 2016 Aquaser, which deals with the transport and dispatch of organic purification sludge and waste deriving from water purification and the treatment of wastewater and liquid waste, handled over 600,000 tonnes of waste, of which approximately 170,000 tonnes was shovelled purification sludge, originating primarily from the water companies in the Acea Group, which were allocated for the following end uses:

- 6% directly used in agriculture;
- 72% for composting.

The remaining 22% was dispatched for disposal, as it was not recoverable.

For more detailed data on the production of compost, see *Environmental accounts*.

⁹⁶ This maximum quantity is subordinate to the Environmental Impact Assessment procedure – which currently enables the waste-to-energy treatment of a maximum of 300,000 t/year.

COMPOSTING

X

Composting involves **the reproduction**, in controlled environments and atmospheres, **of the natural organic process of transformation of the organic substance contained in waste**. Mixing waste of different types triggers phenomena involving the degradation of the mixture by the micro-organisms present in the environment. These cause the aerobic/anaerobic decomposition of the mixture, ending, after a period of time that varies on the basis of the type of process, with a **stable and hygienised material ready for use in agriculture or farming flowers and plants**. A composting plant is not therefore the last ring in the production chain but **the first in the farming line**.

Source: publication by Acea Ambiente, *Transforming waste matter into new energy is our talent*.



From the viewpoint of **sustainable growth**, in line with **combating climate change**, the Environment sector has set itself the target of **transforming the two composting plants** in Acilia and Sabaudia into **integrated composting and anaerobic digestion plants**, so as to be able to use the biogas

produced and generate energy from renewable sources. **The worksite for the initial stage of the works for refurbishing the plant in Aprilia was opened on 19.12.2016**, and the works are expected to be completed by the end of 2018.

WATER AREA

REFERENCE BOUNDARY

X

The reference boundary includes Acea Ato 2 and Acea Ato 5.

Acque, Gori, Acquedotto del Fiora, Publiacqua and Umbra Acque are only included in the reporting boundary for the water graphs and a few other data (water transferred to the network and analytical tests). Accurate data concerning these companies are provided in the chapter *Water Company Data Sheets*.

The environmental data of the water companies in the reporting boundary are attributed 100% to Acea.



1,292 Mm³
VOLUME OF DRINKING WATER
TRANSFERRED TO THE NETWORK
(GROUP)



ABOUT **49,000 km** OF NETWORK
MANAGED SERVING THE DRINKING
WATER SYSTEM OF THE GROUP



391.0 Mm³
OF DRINKING WATER SUPPLIED
BY ACEA ATO 2 AND ACEA ATO 5

It is well known that water is an indispensable resource for human life and the sustainability of ecosystems. The management of water resources is one of the core businesses of the Group, and the monitoring of water consumption is becoming increasingly vital. Through its subsidiaries, Acea manages the integrated water service (SII) in Optimum Areas of Operation (ATO) in four regions: Lazio, Campania, Umbria and Tuscany, and has become the national leader in the sector. It also operates abroad⁹⁷ with companies created in partnership with local and international stakeholders to carry out activities aimed at improving the water service supplied.

In overall terms, the user base served in Italy is approximately **8.5 million inhabitants**, with a **volume of drinking water transferred to the network of approximately 1,292 million cubic metres** in 2016.

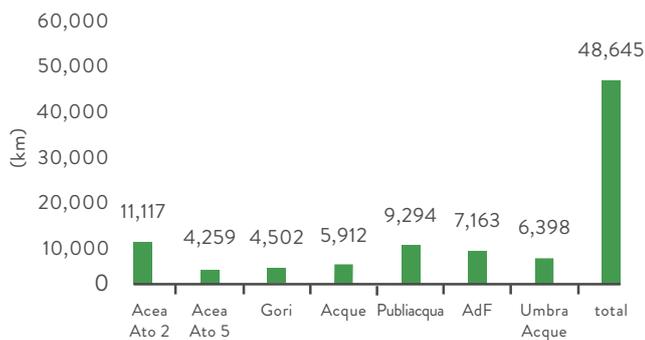
In **ATO 2-Central Lazio** alone, including the city of Rome and another 11 municipalities, of which 79⁹⁸ managed at 31 December 2016, the **volume of water transferred to the network** serving the approximately 3.7 million inhabitants was about **680 million cubic metres** (of which 510 cubic metres in the “historical network” of Rome and Fiumicino)⁹⁹.

⁹⁷ In Peru, Honduras and the Dominican Republic, countries in which it serves a total of 3.04 million inhabitants, between the integrated water service and commercial aspects of the service. The incidence of overseas business on total revenues in the water sector is 1.8%. On the basis of the GRI “materiality” indications, it has thus been decided to only briefly describe them in *Overseas operations*, which see.

⁹⁸ The SII is partly managed in another 13 municipalities.

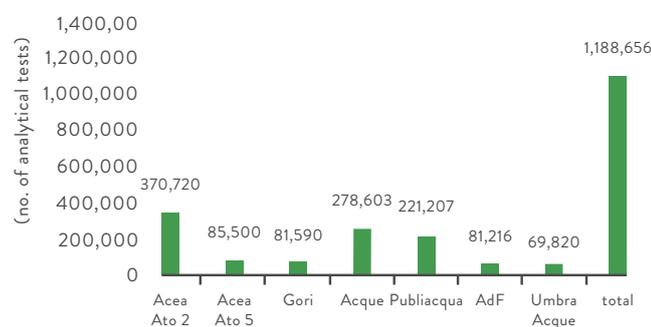
⁹⁹ Consistently with the last three years, the items in the water accounts were calculated using criteria provided by the AEEGSI in 2016.

CHART No. 44 – THE GROUP’S WATER DISTRIBUTION NETWORK IN ITALY (2016)



Note: network kilometres include the aqueducts.

CHART No. 45 - ANALYTICAL TESTS ON DRINKING WATER: TOTALS AND BY COMPANY (2016)



As regards the city of Rome, the quality of the drinking water supplied is very high, thanks to the characteristics of **purity and excellent mineralisation**, while there are areas of Lazio where the land is of volcanic origin where there are problems in terms of making the water drinkable, linked to the physiological presence of some substances in concentrations in excess of those allowed by the laws and regulations in force. In these areas, **Acea Ato 2** has over the

WATER QUALITY

The companies in the water sector carry out scheduled checks on the quality of the drinking water supplied and that of the wastewater returned to the environment after the purification process. **The analytical tests on the drinking water** distributed to the users are of vital importance due to the **health-related** effects that derive from them. A summary of the activities carried out in this framework by all of the water companies is given in chart 45.

years conducted numerous interventions aimed at solving these problems, and specifically has constructed more than **30 purification plants** capable of removing the undesired substances and lowering the concentration levels to values well below the thresholds established by the law (see also *Customers and the community, Quality in the water sector*). The intensive monitoring of the chemical and biological parameters of the water circulating in the water distribution network enables the quality of the water to be maintained at safe levels. In overall terms, **about 371,000 analytical tests** were conducted in ATO 2 during the course of 2016.

The measurements and analytical checks on water are carried out by the companies in the Group both independently and **through the subsidiary Acea Elabori, accredited according to ISO/IEC 17025** for the performance and certification of chemical, physical and bacteriological tests in different materials, including water (see table 48 for the analyses performed by Acea Ato 2 and Acea Ato 5).

TABLE No. 49 - ENVIRONMENTAL INDICATORS: ANALYTICAL TESTS (2014-2016) AND QUALITY PARAMETERS OF THE DRINKING WATER DISTRIBUTED IN ROME AND FROSINONE (2016)

ANALYTICAL TESTS CARRIED OUT BY ACEA ELABORI - ATO 2 - CENTRAL LAZIO AND ATO 5 - SOUTHERN LAZIO (2014-2016)

type of water analysed	no. of analytical tests		
	2014	2015	2016
Acea Ato 2 drinking water	310,507	320,946	347,886
Acea Ato 5 drinking water	69,553	80,440	85,642
Acea Ato 2 waste water	161,466	155,355	145,553
Acea Ato 2 surface water	31,437	40,562	36,922
Total	572,963	597,303	616,003

ANALYTICAL TESTS CARRIED OUT BY ACEA ELABORI ON DRINKING WATER – ROME “HISTORICAL” NETWORK (2014-2016)

area of withdrawal	no. of withdrawal points	no. of samples				no. of analytical tests		
		2014	2015	2016	2014	2015	2016	
Collection	45	544	602	469	21,996	22,556	21,085	
Aqueduct and feeder lines	20	343	310	158	10,451	9,411	6,051	
Reservoirs/water centres	21	283	21	248	11,285	10,471	8,974	
Distribution networks	320	4,095	3,965	4,208	138,927	137,053	135,943	
Total	406	5,265	5,151	5,083	182,659	179,491	173,702	

AVERAGE CHEMICAL AND MICROBIOLOGICAL FEATURES OF DRINKING WATER DISTRIBUTED IN ROME AND FROSINONE (2016)

parameters	unit of measurement	2016 average value	legal parameter (Legislative Decree no. 31/01)
ROME			
Turbidity	NTU	<0.5	no unusual changes
Temperature	°C	13.2	not envisaged
Concentration of hydrogen ions	pH unit	7.5	>6.5 and < 9.5
Electrical conductivity	µS/cm at 20 °C	572	<2500
Chlorides	mg/l Cl	10.2	<250
Sulphates	mg/l SO ₄	19.2	<250
Calcium	mg/l Ca	100.1	not envisaged
Magnesium	mg/l Mg	18.7	not envisaged
Sodium	mg/l Na	7.97	<200
Potassium	mg/l K	4.42	not envisaged
Water hardness	°F	32.7	(*)
Free residual chlorine	mg/l Cl ₂	0.15	(**)
Alkalinity	mg/l CaCO ₃	326	not envisaged
Fixed residue calculated	mg/l	409	(***)
Nitrates	mg/l NO ₃	3.90	<50
Nitrites	mg/l NO ₂	<0.05	<0.50
Ammonia	mg/l NH ₄	<0.10	<0.50
Fluorides	mg/l F	0.22	<1.50
Bicarbonates	mg/l HCO ₃	398	not envisaged
Total organic carbon	mg/l C	0.53	no unusual changes
Iron	µg/l Fe	7.14	<200
Copper	mg/l Cu	0.002	<1.0
Lead	µg/l Pb	<2.0	<10
Cadmium	µg/l Cd	<2.0	<5.0
Chromium	µg/l Cr	<5.0	<50
Nickel	µg/l Ni	<2.0	<20
Manganese	µg/l Mn	0.29	<50
Arsenic	µg/l As	<1.0	<10
Vanadium	µg/l V	5.45	<140
Total trihalomethanes	µg/l	1.73	<30
Trichloroethylene	µg/l	<0.10	<10
Tetrachloroethylene	µg/l	<0.10	<10
1,2 - Dichloroethane	µg/l	<0.30	<3.0
Benzene	µg/l	<0.10	<1.0
Benzopyrene	µg/l	<0.003	<0.010
Coliform bacteria at 37° C	MPN/100 ml	0	0
Escherichia coli	MPN/100 ml	0	0
Enterococcus	UFC/100 ml	0	0

FROSINONE

Turbidity	NTU	<0.5	no unusual changes
Temperature	°C	13.5	not envisaged
Concentration of hydrogen ions	pH unit	7.7	>6.5 e < 9.5
Electrical conductivity	µS/cm at 20 °C	460	<2500
Chlorides	mg/l Cl	6.6	<250
Sulphates	mg/l SO ₄	7.7	<250
Calcium	mg/l Ca	87.2	not envisaged
Magnesium	mg/l Mg	14.4	not envisaged
Sodium	mg/l Na	4.70	<200
Potassium	mg/l K	1.2	not envisaged
Water hardness	°F	27.7	(*)
Free residual chlorine	mg/l Cl ₂	0.17	(**)
Alkalinity	mg/l CaCO ₃	279	not envisaged
Fixed residue calculated	mg/l	335	(***)
Nitrates	mg/l NO ₃	3.71	<50
Nitrites	mg/l NO ₂	<0.05	<0.50
Ammonia	mg/l NH ₄	<0.10	<0.50
Fluorides	mg/l F	<0.1	<1.50
Bicarbonates	mg/l HCO ₃	341	not envisaged
Total organic carbon	mg/l C	0.57	no unusual changes
Iron	µg/l Fe	7.66	<200
Copper	mg/l Cu	0.0028	<1.0
Lead	µg/l Pb	<0.2	<10
Cadmium	µg/l Cd	<0.2	<5.0
Chromium	µg/l Cr	<5.0	<50
Nickel	µg/l Ni	<2.0	<20
Manganese	µg/l Mn	<0.2	<50
Arsenic	µg/l As	1.31	<10
Vanadium	µg/l V	1.43	<140
Total trihalomethanes	µg/l	2.56	<30
Trichloroethylene	µg/l	<0.10	<10
Tetrachloroethylene	µg/l	<0.10	<10
1,2 - Dichloroethane	µg/l	<0.30	<3.0
Benzene	µg/l	<0.10	<1.0
Benzopyrene	µg/l	<0.003	<0.010
Coliform bacteria at 37° C	MPN/100 ml	0	0
Escherichia coli	MPN/100 ml	0	0
Enterococcus	UFC/100 ml	0	0

(*) recommended values: 15-50 °F - the lower limit is valid for water subject to softening or desalination treatment.

(**) recommended value 0.2 mg/l.

(***) maximum recommended value: 1,500 mg/l.

SEWERAGE SERVICE AND TREATMENT SYSTEM



ABOUT **136,000 tonnes**
TOTAL SLUDGE PRODUCED
BY ACEA ATO 2 AND ACEA ATO 5



ABOUT **7,800 km**
OF SEWERS AND **295 treatment**
plants IN ACEA ATO 2 AND ACEA ATO 5

The Integrated Water Service includes the management of the sewerage and purification system. The water, which has been used for various non-industrial purposes, is **collected via sewage pipes** and **sent to the treatment plants** for the **removal of pollutants by physical processes** (filtration, sedimentation, flocculation) and **biological processes** (aerobic decomposition of organic substances by bacteria).

The water exiting the plant, after having undergone the necessary treatment, **has chemical and biological features**

compatible with the life cycle of the receiving water body which it will flow into and in accordance with the parameter values that are not to be exceeded to ensure full compatibility, as regulated by Legislative Decree no. 152/2006, third part.

Thanks to the **approximately 830 treatment plants**, the **volumes of water treated by the Group in 2016** totalled **around 870 million cubic metres**. About **23,600 km** of sewerage networks are managed.

CHART No. 46 – GROUP SEWER NETWORKS IN ITALY (2016)

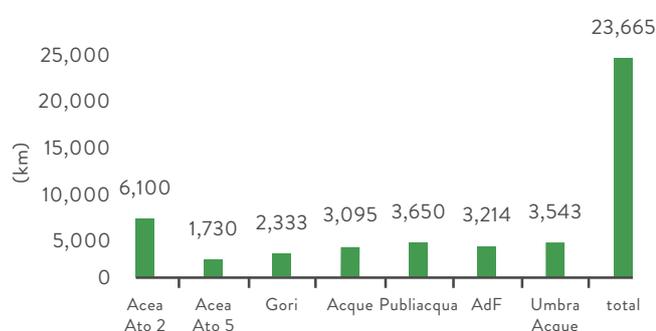
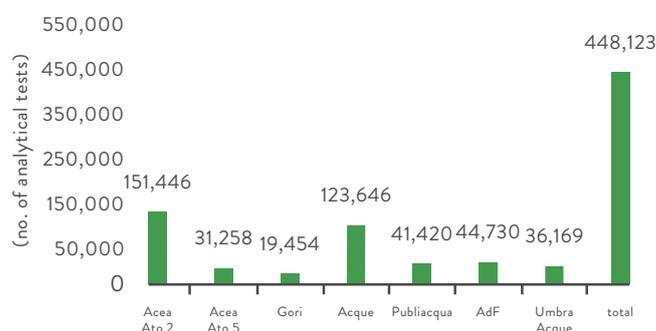


CHART No. 47 - ANALYTICAL TESTS ON WASTEWATER: TOTALS AND BY COMPANY (2016)



Tables 50 and 51 show the volumes of wastewater treated and percentage coverage of sewerage and treatment ser-

vices out of the total consumer base served by aqueducts, for companies operating in the Lazio area.

TABLE No. 50 - PERCENTAGE COVERAGE OF SEWERAGE AND TREATMENT SERVICES OUT OF THE TOTAL CONSUMER BASE OF WATER COMPANIES OPERATING IN LAZIO (2014-2016)

company	2014		2015		2016	
	sewerage	treatment	sewerage	treatment	sewerage	treatment
Acea Ato 2	91.7%	87.8%	88.5%	84.9%	91.9%	88.7%
Acea Ato 5	67.1%	55.4%	66.5%	54.6%	64.0%	52.5%

TABLE No. 51 - VOLUMES OF WASTE WATER TREATED BY WATER COMPANIES OPERATING IN LAZIO (2014-2016) (Mm³)

company	2014	2015	2016
Acea Ato 2	651.6	623.1	597.5
Acea Ato 5	26.6	27.0	26.7

In the “historical” Acea Ato 2 area, which includes Rome and Fiumicino, the **main treatment plants processed around 514 million cubic metres of wastewater in 2016**, down slightly compared with the approximately 528 million cubic metres of wastewater treated in 2015.

Also considering minor treatment plants and those belonging to the municipalities acquired in ATO 2 (168 in total), a **total volume of around 595 million cubic metres of wastewater was treated**, down 4% compared to 2015, in line with the lower production due to it being a rather dry year, given

that some rainwater flows into the sewerage collection system in Rome.

The **treatment efficiency** of plants, also the responsibility of Acea, made it possible to maintain the values of pollutant parameters in outgoing treated water **within the limits set by the law**. A breakdown of the main parameters for water leaving treatment plants is shown in table 52. Other indicators of treatment efficiency, pertaining to both Acea Ato 2 and Acea Ato 5, are described in *Environmental sustainability performance – Water area* of the *Environmental accounts*.

TABLE No. 52 - PARAMETERS FOR WATER EXITING THE MAIN TREATMENT PLANTS MANAGED BY ACEA ATO 2 SPA – MUNICIPALITY OF ROME (2016)

	Rome South treatment plant	Rome North treatment plant	Rome East treatment plant	Ostia treatment plant	limits of concentration in surface water (Legislative Decree no. 152/06)
parameter	average values (mg/l)				
BOD ₅	14	7	11	9	≤ 25
COD	34	13	32	22	≤ 125
SST	14	8	18	8	≤ 35
Nitrogen (ammonia, nitric and nitrous)	8	8	7	11	-
Phosphorous	2	1	1	2	-
	absolute values (t)				
COD	9,692	1,285	3,046.7	556	-
SST	4,083	783	1,726	206	-

The sludge produced in the treatment process is re-used in the agricultural sector, either spread directly on the ground or spread after being subjected to composting (see

also Environment Area, paragraph on High quality compost production).

USE OF ENERGY AND WATER

REFERENCE BOUNDARY

x

The reporting boundary for this section includes Acea SpA, Acea Produzione, Areti, Acea Illuminazione Pubblica, Acea Elabori and Acea Ambiente with two waste-to-energy plants and three composting plants. For the water area, Acea Ato 2 and Acea Ato 5 are included.

ENERGY CONSUMPTION

Group energy consumption

The direct energy consumption of the main Group companies, involving the use of primary sources for the functioning of the production system, including consumption for generation of electricity and heat (table 53), and indirect energy consumption, which includes the losses which occur within the Rome electricity distribution network, attributable to the transformation and transportation phases (table 54), are illustrated below.

Total consumption of energy, direct and indirect, amounted in 2016 to around 10,600 TJ (about 10,000 TJ in 2015). The increase is mainly due to the additional direct consumption of the waste-to-energy sector, in line with the rise in energy production by the waste-to-energy plants. In particular, line 1 of the waste-to-energy plant in San Vittore started operations in September 2016, after undergoing revamping.

TABLE No. 53 – ACEA GROUP DIRECT ENERGY CONSUMPTION (2014-2016)

	2014	2015 TJ (GWh)	2016
Methane (for electricity generation, district heating, office heating)	579.2 (160.9)	577.5 (160.4)	569.1 (158.1)
Diesel (for electrical generation, office heating)	17.2 (4.8)	40.6 (11.3)	34.5 (18.0)
RDF and pulper (waste-to-energy)	5,150.4 (1,430.7)	5,646.6 (1,568.5)	6,151.77 (1,708.8)
Petrol (vehicle transport) (*)	12.7 (3.5)	9.1 (2.5)	4.9 (1.4)
Diesel (vehicle transport) (*)	35.4 (9.8)	42.8 (11.9)	61.6 (17.1)
LPG (heating)	0.6 (0.2)	0.8 (0.2)	0.8 (0.2)
Total	5,795.7 (1,609.9)	6,317.4 (1,754.8)	6,822.6 (1,895.17)

(*) The figures for the vehicle fleet for 2014 and 2015 have been recalculated on the basis of the effective consumption in 2016.

Note: figures include the Acea Ambiente, Acea Produzione, Acea SpA, Acea Ato 2, Acea Ato 5 and Areti plants.

TABLE No. 54 – ACEA GROUP INDIRECT ENERGY CONSUMPTION (2014-2016)

	2014	2015 TJ (GWh)	2016
Electricity losses in the distribution and transportation networks	1,332.4 (370.1)	1,341.8 (373.0)	1,283.8 (356.6)
Losses and internal consumption for electricity production	186.5 (51.80)	198.0 (55.0)	200.0 (55.5)
Heat losses in the district heating network	68.0 (18.9)	28.8 (8.0)	86.4 (24.0)
Consumption for public lighting	669.2 (185.9)	602.4 (167.3)	604.3 (167.8)
Electricity consumption for waste treatment plants	12.6 (3.5)	7.9 (2.2)	19.8 (5.5)
Electricity consumption for drinking and non-drinking water distribution (*)	699.5 (194.3)	797.4 (221.5)	846.0 (235.0)
Electricity consumption for wastewater treatment (*)	689.8 (191.6)	692.8 (192.4)	677.5 (188.2)
Electricity consumption for the offices	33.1 (9.2)	36.7 (10.2)	35.6 (9.9)
Total indirect energy consumption	3,691.1 (1,025.3)	3,705.8 (1,029.6)	3,753.4 (1,042.6)

(*) The 2015 figure has been corrected after adjustment.

Note: the figures for the three-year period include the consumption of Acea Ambiente, Acea Produzione, Areti, Acea SpA, Acea Elabori and the water companies in Acea Ato 2 and Acea Ato 5.

The trends of the **energy consumption intensity indices** are shown in table 55.

TABLE No. 55 - ENERGY INTENSITY INDICES (2014-2016)

energy consumption intensity index	U.M.	2014	2015	2016
Electricity consumed by the Group by added value	TJ/M€	10.02	10.60	9.65
Electricity consumed for public lighting per lighting point	TJ/lighting point	0.0031	0.0027	0.0027
Total electricity consumed by Acea Ato 2 per water supplied (*)	TJ/Mm ³	3.067	3.317	3.406
Electricity consumed by Acea Ato 2 for sewerage service per km of sewerage network	TJ/km	0.0260	0.0256	0.0259
Electricity consumed by Acea Ato 2 in the treatment process per population equivalent	TJ/Millions PE	102.3	100.5	99.8
Electricity consumed by Acea Ato 5 - sewerage service per km of sewerage network	MJ/km	5.641	5.937	5.951
Electricity consumed by Acea Ato 5 in the treatment process per waste water treated	TJ/Mm ³	1.773	1.848	1.846

(*) The increase in consumption of electricity per water supplied depends primarily on an increase in energy consumption due to a very dry year.

Energy consumption outside the Group

Last year, Acea started monitoring energy consumption outside the Group, throughout the supply chain, by means of specific questionnaires.

In December 2016 the questionnaire was sent to the most

representative suppliers as regards the value of orders during the year. Thanks to the response of 30 of them (27% of overall Acea expenditure for the procurement of goods/services and work), their overall energy consumption was estimated at around 225,245 GJ¹⁰⁰.

¹⁰⁰ A more limited scope was considered in 2015, which enabled an estimate of consumption of 206,871 GJ to be made, included in the 2014 CDP.

In May 2016, 26 employees of the Group obtained certification as Experts in Energy Management – **EGE** – according to UNI 11339. The presence of the EGE among the corporate workforce will enable the independent fulfilment of the requirement of **preparing the energy diagnoses** envisaged by Legislative Decree no. 102/2014¹⁰¹, given that it will be able to independently organise the four-yearly fulfilments envisaged therein. The next expiry date will be in 2019.

The aforementioned Decree also envisages that the management of the Energy Efficiency Certificates (TEE) by the GSE can as of July 2016 be carried out only by certified individuals and that for ESCos, the relevant certification in compliance with UNI 11352 is obligatory. Therefore, in November, the Group company Ecogena SpA obtained the necessary accreditation.

As a natural follow-on from this commitment and to create synergy between the sectors in which Acea operates (water, energy and environment), meetings known as “**EGE technical tables**” are held quarterly and/or in the case of specific events. During these meetings, in addition to discussing the regulatory fulfilments and the latest novelties in the energy sector, the **activities of the Group companies** on energy efficiency **are monitored and reported**, thereby sharing the know how that each participant has acquired during their working activities.

During the course of 2016, **Ecogena** was certified as an **ESCO** (Energy Services Company) pursuant to standard UNI CEI 11352, being qualified as a **subject tasked with developing the energy efficiency initiatives** carried out by the Group companies. One of the activities carried out during the year was reporting the results to the Energy Services Manager (GSE) for obtaining the Energy Efficiency Certificates (TEE).

During the course of 2016, the request for obtaining the Energy Efficiency Certificates for the LED Plan for public lighting by Roma Capitale was submitted to the GSE. The Project involves the entire area of the municipality, envisaging the replacement of more than 180,000 light bulbs, with an expected overall saving of 7,800 tep/year.

The activities awarded to **Ecogena** include the design and construction of **tri-generation plants**¹⁰² for the combined production of **electricity, heat and cold**. In 2016, the **co-generation plants managed produced a total of 5.5 MW of electrical power**, combined with remote heating networks. The overall production of energy increased compared to the previous year, thanks to the start-up in December 2015 of the Europarco Station and the takeover of the management of the remote heating Station in Prepo (fraction of the municipality of Perugia).

At 31.12.2016, the plants managed by Ecogena had received 1,231 TEE pursuant to Ministerial Decree dated 5 September 2011.

In order to achieve the energy saving goal set for Areti, action was concentrated on acquiring the TEE on the market managed by the Electricity Market Manager (GME). The requirement for 2016 is for **242,924 TEE**, in addition to the residual quota from the 2015 requirement, amounting to 80,508 TEE. Areti will annul the minimum requirement for 2016, amounting to 145,754 TEE, by 31 May 2017, while the residual quota for 2015 will be annulled by 31 May 2018.

Energy efficiency action

In recent years, Acea has realised numerous interventions for **the recovery of energy efficiency in the processes managed** by both the **companies in the water sector** and those in the **networks and environment sectors**.

Although in the **water sector**, considering all the companies included therein¹⁰³, **there has been a slight increase in consump-**

tion in terms of absolute value (+2.3% compared to 2015) – partly due to the improvement of the treatment capacity and partly to the dry weather conditions (with an increase in energy consumption due to the use of reserve pumping stations, which is vital to integrate the gravity derived water supply) – **some companies have improved their specific energy efficiency**¹⁰⁴.

For example, **Acea Ato 2** has achieved **specific energy savings of approximately 2.6 GWh/year** (and about 900 t of CO₂ emitted) through the completion of the replacement of the pumping groups serving the Peschiera aqueduct system and improving the oxidation system at the Ostia treatment plant. As part of the revamping of the remote controlling system, Acea Ato 2 has also installed electricity meters (remotely controlled) on about 170 treatment plants.

Acea Ato 5, in turn, has made a significant investment in the well field of Zappatine (Rocca d’Evandro) and has optimised the pumping network in the municipality of Fontana Liri.

In general, the Group companies operating in the water sector are progressively obtaining UNI EN ISO 50001 energy certification, confirming their commitment towards energy efficiency and environmental sustainability.

In the Networks area, Areti, which manages the distribution of electricity, has had for some time a **structured energy efficiency policy** and during the year, carried out **energy diagnoses in some company facilities**, as part of the UNI EN ISO 50001 Energy Management System and according to Legislative Decree no. 102/2014.

The following was carried out as a result of the energy diagnoses:

- revamping/increasing efficiency of one thermal station;
- replacement of traditional light bulbs with LED bulbs for external and internal lighting.

The work carried out on the distribution network aimed at energy saving is also significant, and involves: the optimisation of the set-up of the MV network and the progressive transformation, again on the MV network, of the voltage level from 8.4 to 20 kV; other adjustments on the HV and LV lines; the use of MV/LV transformers with very low losses. Table 56 summarises the aforementioned work and the relevant savings in the three years. These increases in efficiency have led to a “**reduction in emissions**” of about **1,200 t of CO₂ in 2016**.

TABLE No. 56 – ARETI ENERGY EFFICIENCY (2014-2016)

¹⁰¹ In implementation of Directive 2012/27/EU on energy efficiency, Legislative Decree no. 102/2014 identifies the mechanism of white certificates as the obligatory regime envisaged by art. 7 of the EU Directive, thereby keeping unchanged the fundamental role carried out in Italy since 2004 in providing energy efficiency incentives in the end uses of electricity and gas.

¹⁰² Co-generation, i.e. the combined production of electricity and heat, enables high performance levels to be reached, between 80% and 90%. Tri-generation, which is a specific application of co-generation, enables the use of part of the heat energy recovered to produce refrigerating energy in the form of refrigerated water for air-conditioning or industrial processes.

¹⁰³ All of the water companies in the Group, including the companies consolidated under the equity method, are considered herein.

¹⁰⁴ The energy saving action undertaken by the water companies in Tuscany, Umbria and Campania is described in the section *Water Company Data Sheets*.

Action	U.M.	energy saving achieved		
		2014	2015	2016
Use of 43 electrical vehicles (*)	MWh	22.7	10.6	0.0
Reduction of losses on the network	MWh	1,615	4,254	3,109
Reduction of losses due to the acquisition of new transformers	MWh	5.9	7.0	131.8
Revamping of the thermal station	MWh	-	4.9	17.0
Revamping of the internal lighting system of a facility	MWh	-	-	3.8

(*) Since 2016, the electrical vehicles fleet has been completely blocked. The main reason for this is the adoption of WFM, requiring the individual allocation of new diesel vehicles to operating staff and the obligation of recovering the vehicles from the homes of the employees.

In the **Environment** sector, during the year **Acea Ambiente**, following-up the energy audit that was started previously, carried out the modernisation of the lighting of the Terni plant (see the relevant box). Also, at the waste treatment plant in Orvieto, following the completion of the revamping works, the anaerobic digester for the organic component was made operational, enabling the production of biogas for the generation of electricity (see the specific box in the paragraph *Integrated waste treatment at the Orvieto plant*).

In addition to improving efficiency in the above areas, in 2016 **projects were prepared for increasing the efficiency**

MODERNISATION AND INTEGRATION OF THE LIGHTING SYSTEM AT THE WASTE-TO-ENERGY PLANT IN TERNI

x

Following the consolidation of LED technology for external lighting, the Group companies have undertaken some interventions aimed at **increasing the efficiency of the lighting of the industrial sites**.

One of the interventions planned and realised by Acea Illuminazione Pubblica concerned the **Terni waste-to-energy plant**, the first company industrial site to have modernised its lighting points using LED technology.

The work involved **about 550 lighting points**, including both modernisation (replacement of the light bulbs using new LED ones) and new installations, in both the **external areas of the plant** and **inside the working environments**, including the production line, such as the biomass ditch, the conveyor belts and the storage area. The interventions also involved the perimeter systems and the technical rooms serving the plant (battery room, etc.).

The work, carried out during some plant shutdowns and in coordination with the management of the plant, lasted for about 70 solar days, including evening and night shifts to limit any interference with the production activities.

On conclusion of the work, the technical checks performed confirmed that the project objectives had been reached, with a **42% reduction in consumption compared to the pre work situation and with an equivalent reduction of CO₂ amounting to 51 tonnes per year**. The overall power of the requalified lighting system **amounts to 21 kW**. In terms of the power absorbed, comparing consumption levels with an average non-industrial utility (3 kW), the Terni waste-to-energy plant had consumption levels equivalent to 15 utilities before the work, and equivalent to 7 utilities after the work.

of the lighting systems in the buildings in piazzale Ostiense and Via dell'Arte, by replacing the current inert gas light bulbs with LED bulbs with the same lighting characteristics, and a study was carried out for improving the energy efficiency of the CEDET head office, with the aim of improving the PUE (Power Usage Effectiveness) of the Data Center. The study, carried out with the support of the company supplying the air-conditioning devices in the rooms, showed that it would be possible to achieve savings of about 821,000 kWh/year (equivalent to 296 tonnes of CO₂) with an investment with return times of less than three years.

SUSTAINABLE MANAGEMENT OF THE WATER RESOURCE

GROUP (2014-2016)

	2014	2015	2016
		(Mm ³)	
Industrial processes: district heating and other processes for thermoelectric generation (*) (source: aqueduct, wells)	0.11	0.12	0.14
Non-industrial/sanitary use (**) (source: aqueduct)	1.70	2.04	2.12
Total water consumption	1.81	2.16	2.26

(*) Includes: process water used at the Tor di Valle thermoelectric plant, and the water used at the waste management plant in Orvieto and the Acea Ambiente waste-to-energy plants, originating mainly from aqueducts.

(**) The companies to which the data refer are: Acea SpA, Areti, Acea Produzione, Acea Elabori, Acea Ato 2, Acea Ato 5, the Orvieto waste management plant and the waste-to-energy plants.

Group water consumption, illustrated in Table 57, involves both **industrial processes**, such as uses for remote heating, and **civil uses**. The increase in consumption for civil uses registered since 2014 has not yet been reversed, although it should be noted that a review is under way on users and consumption characteristics. This also depends upon an increased focus on the accounting of the consumption levels themselves.

TABLE No. 57 - WATER CONSUMPTION OF THE ACEA

Projects are nearing completion at some plants for the purpose of recovering process wastewater and reusing it for industrial purposes. Specifically, at the composting plant in Aprilia at the end of 2016¹⁰⁵, the testing of a plant for the treatment of waste water that can be reused in the industrial cycle was brought to a conclusion. At the waste treatment plant in Orvieto, a system for the collection of rainwater originating from the roofs of the treatment building for its inclusion in the firefighting water reserve is operational.

Water losses

The sustainable management of water resources also includes the aspect of limiting distribution network losses, aware of the difficulties of such activities and of the considerable resources required.

Acea Ato 2 continued with its studies into detecting losses with a specific campaign, continuing the project for the delimitation of the distribution districts (or water zones), in order to control the entity of the losses in individual districts in a sufficiently detailed manner and to guide the vital research activities rationally. In 2016, the work was carried out in the municipalities of Lariano, Manziana and Castel Madama, continued in Velletri and was started in Carpignano Romano, Artena, Oleavano Romano, Cave, Valmontone and Palestrina.

In 2016, Acea Ato 5 continued the analysis of the set-ups of the water networks and **detecting and recovering losses**, with **nearly 500 interventions**, in particular in Sora, Cervaro and Arpino. The **pilot study on Isola del Liri** also continued and was concluded, leading to a new set-up of the operating pressures on the water network, widespread research

into the losses hidden in the territory and the division into districts of the zones served by the various tanks. This enabled the recovery of approximately 25 l/s, the elimination of the manoeuvres that were carried out on the tanks in the area and lowering the network pressure during night-time hours. On the basis of the results achieved, **a similar study is being brought to a conclusion in the municipality of Fiuggi** and analyses have been conducted at Castro dei Volsci, Fontana Liri and Esperia, where some air holes on the distribution network are currently being replaced.

Constant **monitoring of the total value of real losses** from water distribution networks (parameter A15 under Ministerial Decree no. 99/97) is the most common system for measuring the effectiveness of containment measures implemented by operators.

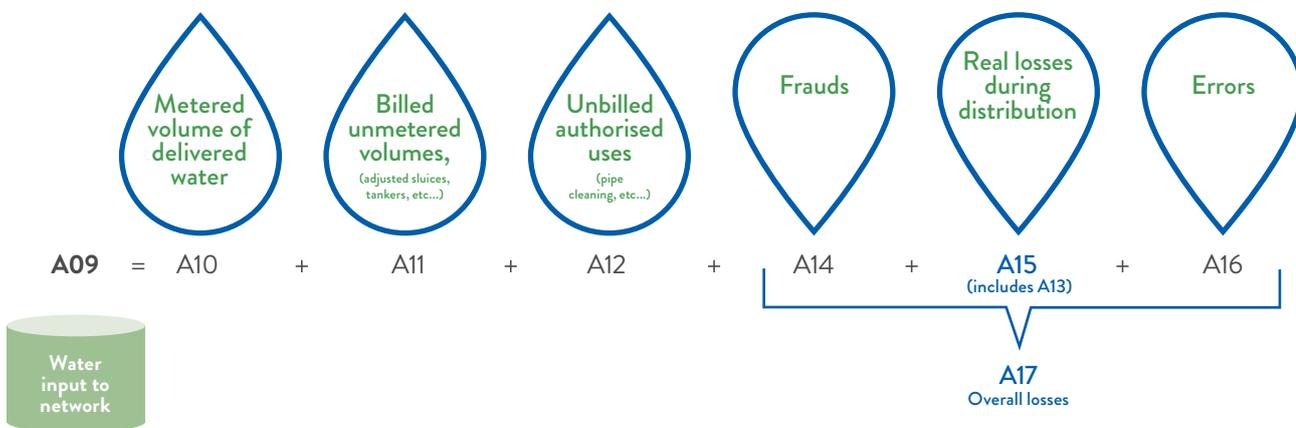
In order to make the figures between the various operators comparable and define the parameters used to make relative estimates, Ministerial Decree no. 99/97 provided the reference model. In recent years, the **AEEGSI** has implemented a series of measures introducing progressive novelties in the calculation process. The water accounts figures, described in detail in the **Environmental Accounts**¹⁰⁶, were prepared guaranteeing comparability in the last two years.

Chart 48 illustrates **the model indicated by Ministerial Decree no. 99/97**, considering the innovations of the aforementioned AEEGSI Resolution.

Real losses¹⁰⁷ in **Acea Ato 2**, with reference to the historic network of Rome and Fiumicino, amounted to **around 45% of the total introduced into the network** in 2016.

In **Acea Ato 5** (Frosinone) real losses for 2016 came to around **67%** of the total input to the network.

CHART No. 48 – REAL WATER LOSSES (BASED ON MINISTERIAL DECREE NO. 99/97, SUPPLEMENTED BY AEEGSI RESOLUTIONS)



¹⁰⁵ The section for treatment of wastewater for reuse in the process, completed in 2013, is still being tested and inspected due to the seizure of the plant in July 2014 which lasted for the whole of 2015.

¹⁰⁶ The water accounts of the companies in Campania, Umbria and Tuscany, consolidated using the equity method in 2015, can be examined in the chapter *Water Company Data Sheets*.

¹⁰⁷ Real losses, according to the AEEGSI, are indicated by the parameter (A13 + A15); they only quantify losses due to breakages and defects in plants (for example: leaks in the joints between piping, holes and lacerations in pipes, structural subsidence of concrete or metal structures, etc.). This parameter is obtained by subtracting the water sold (A10) and all the types of failure to deliver to the end customer: emergency consumption (A11), washing (A12), the effects of fraud (A14) and metering errors (A16), from the total water input to the network (A09).

EMISSIONS AND MOBILITY

REFERENCE BOUNDARY

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The boundary of this section includes Acea SpA, Areti, Acea Illuminazione Pubblica, Acea Elabori, Acea Produzione and Acea Ambiente with the two waste-to-energy plants and the Orvieto plant. With regard to the water sector, Acea Ato 2 and Acea Ato 5 are included.

AIR EMISSIONS AND MOBILITY OF THE GROUP

The **monitoring of air emissions from Acea plants**, particularly **the waste-to-energy plants**, is carried out using EMS (Emissions Monitoring System) cabins which continuously sample and analyse the fumes coming out of the chimneys, returning the measurement of numerous parameters, periodically checked by internal personnel and certified by qualified external laboratories. The emerging

scenario is satisfactory, with **values of main pollutants well below the limits laid down by the law** (see table 58). Therefore, in application of the **principle of precaution**, the search is continuing for technological solutions that are increasingly performing from the viewpoint of the quality of emissions.

The waste-to-energy plants are also managed according to UNI EN ISO 14001 standards and the European EMAS scheme.

SYSTEM FOR CUTTING EMISSIONS AT THE SAN VITTORE DEL LAZIO WASTE-TO-ENERGY PLANT

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In the San Vittore del Lazio plant, the system for reducing gaseous emissions, installed on each waste-to-energy line, comprises the following components:

- An **“electro-filter”**, which provides the first stage of treatment of boiler gases, permitting reduction of the ash, for subsequent periodic elimination;
- A **“dry reactor”**, which uses sodium bicarbonate and activated charcoal to reduce pollutant acids, heavy metals, dioxins and furans;
- A **“sleeve filter”**, which provides the second stage of exhaust gas filtration, for gathering finer particulates. When operating, the filter becomes covered with a solid layer of captured material, which acts as an absorber for the additional pollutant substances, thus further improving the overall performance of the capture system. The solids accumulated on the sleeve filters are collected in silos and periodically removed;
- A **system for the reduction of nitrous oxides (NO_x)**, called DeNO_x, which uses an ammonia-reaction conversion to produce nitrogen.

Line 1 also has at the head of all of the capture systems some gaseous effluents from a system for cutting the emissions of NO_x through the injection of urea in the post-combustion chamber.

The system is completed by a fan, which ensures the correct speed of the fumes in combustion in their movement through the boiler and the treatment/filtering section, enabling their final discharge into the atmosphere through a chimney, which is approximately 50 metres tall.

TABLE No. 58 - AIR EMISSIONS FROM THE SAN VITTORE DEL LAZIO AND TERNI WASTE-TO-ENERGY PLANTS (2014-2016)

pollutant	U.M.	San Vittore del Lazio plant (*)				Terni plant (*)			
		reference parameter (**)	2014	2015	2016	reference parameter (**)	2014	2015	2016
HCl	mg/Nm ³	8	0.030	0.185	0.069	10	3.800	3.840	4.221
NO _x	mg/Nm ³	70	24.909	22.105	16.440	200	146.940	139.480	134.445
SO ₂	mg/Nm ³	40	0.015	0.035	0.032	50	0.270	0.170	0.297
HF	mg/Nm ³	1	0.022	0.030	0.010	1	0.230	0.220	0.924
CO	mg/Nm ³	40	2.086	1.200	1.065	25	1.560	1.370	0.108
Total powders (particulates)	mg/Nm ³	3	0.012	0.020	0.004	5	0.770	0.350	0.753
IPA (polycyclic aromatic hydrocarbons)	mg/Nm ³	0,01	0.00002	0.00003	0.00001	0.01	0.00003	0.00005	<0.001
Dioxins and furans (PCDD +PCDF)	ng/Nm ³	0,1	0.0019	0.0010	0.000004	0.1	0.0028	0.0166	<0.01
Heavy metals (Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V)	mg /Nm ³	0,5	0.0413	0.0418	0.0193	0.5	0.0753	0.0501	0.02627

(*) The analysis for IPA, dioxins and furans and heavy metals and their composites are four-monthly and discontinuous. The presence of 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.

Note: The figures for the San Vittore plant refer to the arithmetic averages on the two operating lines. The figures will refer to the three lines as of 2017.

In 2016, as in every year, steps were taken at the San Vittore del Lazio waste-to-energy plant to **monitor air quality in the points of greatest accumulation of pollutants emitted by chimneys**, using mobile and fixed monitoring devices. Furthermore, periodic monitoring of the **quality of the terrain and water of the aquifers** surrounding the plant is carried out. The results of **all the monitoring campaigns**, using both fixed and mobile monitoring devices, **did not indicate excessive levels** for the parameters measured.

Greenhouse gas emissions

Particular consideration on the topic of air emissions must be given to **greenhouse gas emissions**.

According to the international document Greenhouse Gas Protocol (or GHG Protocol), aligned with the ISO 14064 standards, greenhouse gas emissions are divided up into:

- **Scope 1 emissions:** direct greenhouse gas emissions;
- **Scope 2 emissions:** indirect greenhouse gas emissions;
- **Scope 3 emissions:** other indirect greenhouse gas emissions.

Acea has for some years quantified its CO₂ emissions, evaluating the carbon footprint of the individual macro-processes according to the aforementioned guidelines of the GHG Protocol (www.ghgprotocol.org) and taking part in the CDP (see box on the “Carbon Disclosure Project” in *Reduction of Carbon Dioxide Emissions*).

Scope 1 greenhouse gas emissions are direct emissions originating from the Group’s thermoelectric plants, waste-to-energy plants, the heating process, motor vehicles in the fleet (with reference to petrol and diesel vehicles), and, lastly, sulphur hexafluoride (SF₆) losses that may occur from Areti’s plants. The greatest contribution comes

from the CO₂ emitted by the waste-to-energy plants, which was further increased in 2016 as a result of the start-up of line 1 in San Vittore (which now has three operating lines); in terms of significance, this is followed by the contribution from the Acea Produzione plants, which has remained basically constant over the last three years (see table 61 for details).

Scope 2 greenhouse gas emissions are indirect, deriving from the consumption of electricity by Acea Group companies. These are emissions which Acea monitors regularly, disclosing them by means of the Carbon Disclosure Project (see table 61).

Other details of Carbon Footprint – Scope 2 in the water sector can be found in the *Environmental Accounts*.

Scope 3 greenhouse gas emissions are represented by **other indirect emissions** (in addition to Scope 2 emissions), and include emissions deriving from the purchase of goods/services and work, employees travelling for business purposes and employees commuting to and from work.

Acea started monitoring its suppliers in 2015, with the objective of raising awareness on the topic of the possible environmental impacts deriving from its own activities (see Table 61 further on).

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 2014-2016, are shown in Table 59.

TABLE No. 59 – CO₂ EMISSION ALLOWANCES AS PER THE NATIONAL ALLOCATION PLAN (NAP) AND ACTUAL EMISSIONS BY PLANT (2014-2016)

	2014		2015		2016	
	assigned by the NAP	actual	assigned by the NAP	actual	assigned by the NAP	actual
Tor di Valle (*)	11,060	21,019	9,105	23,466	7,969	23,313
Montemartini	0	121	0	1,971	0	1,297
Terni waste-to-energy plant	0	127,728	0	120,286	0	112,865

(*) In 2016, the applicable legislative framework allowed the Tor di Valle plant to benefit from free of charge emission allowances (7,969 t), since it serves a remote heating network.

Intensity indices for greenhouse gas emissions

The intensity indices for greenhouse gas emissions monitored (see table 61) include that concerning the **Scope 2 carbon dioxide emissions, deriving from losses on the network** for the distribution of electricity, **compared with the total electricity distributed**. This index has improved over the last three-year period, passing from 0.0135 t/MWh to 0.0123 t/MWh and 0.0119 in 2016, with a trend towards reduction, in line with the continuous decrease

concerning network losses (technical losses/electrical energy distributed).

With regard to the other atmospheric emissions, and especially the more significant macro-pollutants due to the main production processes of the plants, see the data summarised in table 60.

TABLE No. 60 - TOTAL EMISSIONS OF ATMOSPHERIC POLLUTANTS FROM ACEA GROUP PLANTS (2014-2016)

emissions	2014	2015 (t)	2016
CO	6.81	6.75	6.28
NO _x	177.12	190.86	171.13
SO _x	0.20	0.22	0.28
Powders (particulates)	0.50	0.32	0.55

Note: the emissions refer to the following companies: Acea Ambiente – waste-to-energy plant and Acea Produzione.

Monitoring carried out on all the plants at risk¹⁰⁸ demonstrated **the absence of appreciable quantities of emissions of substances responsible for reducing the ozone layer.**

Group vehicle fleet: consumption and impact

Consistently with the commitment to cut atmospheric emissions, Acea focuses on the **renewal of the Group vehicle fleet**. However, in 2016, the new system introduced for the management of processes for intervention in the field (Workforce Management) changed the operating methods, introducing the figure of the mono-operator who, in the majority of cases, starts the working day from home, and no longer from the department they work in, travelling in their vehicle directly to the locations where the interventions allocated to them on their tablet by the new system are to be carried out. As things stand, this has implied – beyond the increased efficiency of the interventions – an increase in fuel consumption, also as a result of the increased number of vehicles that are simultaneously circulating. For example, Acea Ato 2 on its own recorded a 13% increase in fuel consumption compared to 2015, while the works allocated increased by 70%.

Of a total of approximately 2,400 vehicles in the Group fleet in 2016, 192 were purchased recently and are therefore latest generation, and all diesel powered. Acea Energia has also decided to progressively replace the vehicles being used with hybrid/GPL models when renewing the lease contracts for its vehicles.

The figures for vehicle fleet emissions, illustrated in table 61, reflect the choice made some years ago to use a fleet of mainly diesel powered vehicles. Emissions of nitrous oxide, which are typical of diesel engines, therefore increased, while the emissions of carbon dioxide decreased, consistently with the lower average age of the vehicles. The increase in carbon dioxide emissions depends substantially on the increase in fuel consumption, deriving, as already mentioned, from the implementation of the new WFM model, which has determined an increased number of vehicles in circulation simultaneously and longer journeys (for specific consumption and emission figures, see table 61 and the *Environmental Accounts*).

TABLE No. 61 - ENVIRONMENTAL INDICATORS: CO₂ EMISSIONS, INTENSITY INDICES OF THE GREENHOUSE GAS EMISSIONS AND VEHICLE FLEET EMISSIONS (2014-2016)

CO ₂ EMISSIONS	U.M.	2014	2015	2016
SCOPE 1 EMISSIONS				
FROM ENERGY PRODUCTION PLANTS				
CO ₂ emissions from Acea Produzione thermoelectric plants	t	23,843	25,440	24,610
CO ₂ emissions from Acea Ambiente waste-to-energy plants	t	227,728	220,286	232,865
FROM ENERGY DISTRIBUTION, HEATING, VEHICLE FLEET				
CO ₂ emissions from heating	t	1,368	1,644	1,018
CO ₂ emissions from vehicle fleet	t	3,051	3,816 (*****)	4,891
CO ₂ emissions from Acea Distribuzione plants (from SF ₆) (*)	t	16,188	12,540	14,820
SCOPE 2 EMISSIONS				
CO ₂ emissions from consumption of electrical energy (**)	t	436,495	420,490 (*****)	409,128
SCOPE 3 EMISSIONS				
CO ₂ emissions deriving from the purchase of goods/services and work (***)	t	4,400	15,464	17,099
CO ₂ emissions from commuting	t	3,500	3,800	5,300 (****)
CO ₂ emissions from business travel	t	224	166	197
INTENSITY INDICES OF THE GREENHOUSE GAS EMISSIONS				
INTENSITY INDICES OF GHG EMISSIONS				
CO ₂ emissions (Scope 1 + Scope 2)/Acea Group revenues	(t/k€)	0.749	0.726	0.627
Scope 1 CO ₂ emissions/gross production (****)	(g/kWh)	311.4	324.0	354.7
Scope 2 CO ₂ emissions deriving from losses on the electrical energy distribution network/GWh distributed	(t/MWh)	0.0135	0.0123	0.0119
EMISSIONS OF AIR POLLUTANTS PRODUCED BY THE ACEA VEHICLE FLEET				
EMISSIONS FROM VEHICLES - AROUND 2,400 ACTIVE VEHICLES (*****)				
	U.M.	2014	2015	2016
CO ₂	t	3,051.4	3,815.7	4,890.6
NO _x	t	8.2	11.7	15.8
CO	t	20.5	11.7	7.4

(*) These are the tonnes of equivalent CO₂ corresponding to the emissions of insulating SF₆ present in Areti's HV equipment (1 t of SF₆ equal to 22,800 t of CO₂): 0.65 tonnes in 2015 (0.65x22,800=14,820 t).

(**) Indirect emissions (scope 2) include the following companies: Acea Ambiente, Acquaser, Acea Produzione, Areti, Acea I.P., Acea SpA and the water companies Acea Ato 2, Acea Ato 5, Gori, Umbra Acque, Acquedotto del Fiora, Publiacqua, Acque and Gesesa, only for the part owned by Acea. The value of 0.36 is used as the emission factor per unit of electrical energy consumed (t CO₂/MWh), calculated adopting the primary energy data of the MISE 2013 energy balance and CO₂ emission factors per single source established by means of EU Decision 2007/589/EC.

(***) For the two-year period 2015-2016, the figure estimated refers to the suppliers of goods, services and works and includes transport emissions.

(****) Some calculation parameters were changed and refined in 2016. The figure is not comparable with the previous two-year period.

(*****) Scope 1 emissions in this index exclude emissions deriving from SF₆ losses in Areti plants. The 2015 figure differs from that published due to updating the emissions.

(*****) In 2016, the 2015 figures were recalculated, given that the method was refined. The aforementioned figures therefore differ from those published in the 2015 Sustainability Report and are not comparable with the 2014 figures. In the 2016 figures, those for the Acea Illuminazione Pubblica vehicles are partial – it was not possible to report the consumption of 30 vehicles.

Note: the emission factors for Scope 1 emissions are taken from the standard parameters-ISPRA 2015.

¹⁰⁸ This is primarily air conditioning equipment using refrigerant gases subject to the 1987 Montreal accord, particularly chlorofluorocarbons.

WATER COMPANY DATA SHEETS

WATER ACTIVITIES IN CAMPANIA, UMBRIA, AND TUSCANY

The environmental information and data of the main Group companies operating in the water sector and that from 2014 are consolidated in the Group statutory financial statements using the “equity” method, are presented below.

In 2016, for water balance reporting and, in particular, for the calculation of water losses, the companies followed the criteria **under Resolution 5/2016 of the AEEGSI**, as well as Ministerial Decree no. 99/97, for the three-year period, unless otherwise specified. The water balance figures thus are often different from those published in 2015.

GORI

Gori SpA manages the integrated water service in Campania, in the area covered by Optimum Area of Operations 3 - Sarnese Vesuviano.

It is a joint-stock company with a predominantly public-owned share capital, where the private minority shareholder (which holds 37.05% of the share capital) has been identified in relation to its technical-industrial and management abilities: it is Sarnese Vesuviano Srl, 99.16% of whose share capital is owned by Acea SpA. ATO 3 – Sarnese Vesuviano 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 area served has around 1,460,000 inhabitants, with over 500,000 customers; the water network and sewerage network cover more than 4,300 km and 2,300 km, respectively.

Human resources

GORI SPA EMPLOYEES: BREAKDOWN OF THE HUMAN RESOURCES (2014-2015)

(no.)	2015				2016			
	men	women	total	%	men	women	total	%
Executives	6	2	8	1	6	2	8	4
Managers	14	1	15	2	17	1	18	5
White-collar workers	307	60	367	57	302	61	363	48
Blue-collar workers	258	0	258	40	269	0	269	43
Total	585	63	648	100	594	64	658	100

GORI SPA EMPLOYEES: CONTRACT TYPE (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
Permanent workforce (open-ended contracts)	585	63	648	594	64	658
<i>of which part-time personnel</i>	0	1	1	0	1	1
Personnel with fixed-term contracts	0	0	0	0	0	0
Personnel with professional apprenticeship contracts	0	0	0	0	0	0
Total	585	63	648	594	64	658

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2015-2016)

	2015	2016
Accidents (no.)	34	23
Total days of absence (*)	948	484
Hours worked	1,067,685	1,089,276
Index of frequency (FI) (no. accidents x 1,000,000/work hours)	31.84	21.11
Index of seriousness (SI) (days absence x 1,000/work hours)	0.89	0.44

(*) The figure 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 (2015-2016)

type of course	courses (no.)		editions (no.)		training (hours)		costs (euros)	
	2015	2016	2015	2016	2015	2016	2015	2016
Human resource management (*)	2	1	2	1	12	192	0	0
IT	3	46	9	123	156	16,931	2,000	307,100
Induction of new recruits (*)	0	0	0	0	0	0	0	0
Languages	2	0	7	0	978	0	15,840	0
Technical-specialist	18	23	27	50	3,241	1,568	10,057	5,195
Managerial	1	2	4	3	408	484	13,320	16,160
Administrative-managerial	2	0	2	0	18	0	790	0
Safety	6	17	35	39	5,736	1,706	53,584	46,819
Legal	7	9	8	10	67	77	4,820	3,285
Experiential	0	1	0	2	0	1,615	0	28,800
Total	41	99	89	228	10,616	22,573	100,411	407,359

(*) The training may be carried out by teaching staff within the Group.

EMPLOYEES TRAINED (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
	452	22	474	592	56	648

Networks and plants consistency and environmental figures

WATER SYSTEM MANAGED BY GORI SPA (2014-2016)

	2014	2015	2016
Water network (km)	4,386	4,398	4,502
<i>Aqueducts and transport networks (km)</i>	353	359	453
<i>Distribution network (km)</i>	4,033	4,039	4,049
Well intake structures (no.)	71	60	75
Spring intake structures (no.)	9	4	4
Pumping stations (no.)	98	98	98
Reservoirs (no.)	158	162	163

(*) The increase in well intake works is due to the transfer by Campania Region of the Mercato Palazzo Well Field.

Note: the 2015 figures have been changed following the update of the registers.

WASTEWATER TREATMENT AND SEWERAGE PLANTS MANAGED BY GORI SPA (2014-2016)

	2014	2015	2016
Wastewater treatment plants (no.)	11	7	7
Sewerage pumping stations (no.)	156	161	165
Sewerage network (km)	2,300	2,319	2,333

Note: the 2015 figures have been changed following the update of the registers.

Certification

Since 2015, the company has adopted a management system for health and safety in the workplace certified according to BS OHSAS 18001:07.

GORI SPA ENVIRONMENTAL ACCOUNTS (2014-2016)

PRODUCTS AND ANALYTICAL TESTS	U.M.	2014	2015	2016	Δ% 2016/2015
drinking water					
Drinking water from the environment	Mm³	39.36	39.94	44.41	11.2
<i>from wells</i>	<i>Mm³</i>	<i>36.96</i>	<i>36.94</i>	<i>41.45</i>	<i>12.2</i>
<i>from springs</i>	<i>Mm³</i>	<i>2.40</i>	<i>3.00</i>	<i>2.96</i>	<i>-1.1</i>
Water from other aqueduct systems	Mm³	167.96	166.75	158.20	-5.1
Drinking water introduced into the network	Mm³	207.32	206.69	202.62	-2.0
Total drinking water supplied	Mm³	90.94	90.37	90.37	-
assessment of losses according to Ministerial Decree no. 99/97 also in compliance with AEEGSI Resolution 5/2016					
Overall losses (measure A17)	Mm ³	115.92	115.87	111.80	-3.5
Real losses (Parameter A15 of MD 99/97)	Mm ³	92.70	91.83	87.76	-4.4
wastewater treated					
Water treated in the main treatment plants	Mm³	12.6	8.7	8.2	-5.6
analytical tests on drinking water and wastewater					
Analytical tests on drinking water	no.	75,113	80,544	81,590	1.3
Analytical tests on wastewater	no.	15,037	19,204 (*)	19,454 (*)	1.3

(*) The figure includes tests carried out on wastewater of the sewer network and treatment plants.

THE RESOURCES USED	U.M.	2014	2015	2016	Δ% 2016/2015
capture, transportation and distribution of drinking and non-drinking water					
Materials					
Sodium hypochlorite	t	129.9	164.4	401.91	144
electricity					
Total electricity for drinking water	GWh	45.28	50.86	52.38	3
<i>electricity for water pumping stations</i>	<i>GWh</i>	<i>45.28</i>	<i>50.44</i>	<i>52.14</i>	<i>3</i>
<i>electricity for offices</i>	<i>GWh</i>	<i>nd</i>	<i>0.42</i>	<i>0.24</i>	<i>-43</i>
wastewater treatment					
Materials					
Polyelectrolyte powder	t	0.0	25.8	30.7	19
Polyelectrolyte emulsion	t	44.7	20.3	33.05 (*)	63
Sodium hypochlorite	t	83.8	146.2	172.2	18
Ferric chloride aiding flocculation (40%)	t	86.3	69.5	129 (**)	86
Citric acid	t		1	1.2	20
Peracetic acid, polyamine/anti-foaming agent	t	128.5	71.4	96.2	35
Polyaluminium chloride (PAC)	t	13.1	5.4	4.1	-24
Mineral oil and fats	t	2.0	1.4	6.4 (***)	357
Other (artificial COD + soda for deodorisation)	t	0.0	2.5	2.2	-12
electricity for wastewater					
Total electricity for wastewater	GWh	14.33	15.42	14.76	4
<i>electricity for treatment</i>	<i>GWh</i>	<i>9.99</i>	<i>10.63</i>	<i>10.15</i>	<i>5</i>
<i>electricity for pumping stations</i>	<i>GWh</i>	<i>4.34</i>	<i>4.79</i>	<i>4.61</i>	<i>4</i>
other consumption					
Other drinking water consumption (****)	m³	1,972	1,972	1,972	-
<i>drinking water consumed for non-industrial water uses (the figure relates to consumption for offices, outside showers, etc.)</i>	<i>m³</i>	<i>1,880</i>	<i>1,880</i>	<i>1,880</i>	<i>-</i>
<i>drinking water consumed for process water uses (washing machinery and yards, etc.)</i>	<i>m³</i>	<i>92</i>	<i>92</i>	<i>92</i>	<i>-</i>

(*) The increase is due to the inclusion of a new centrifuge for the distribution of sludge, which uses the same product.

(**) The increase is consequent to an increase in the hydraulic and organic loads arriving for treatment compared to the previous year.

(***) The increase is a consequence of the supplying of a stock of diathermic oil for starting up the sludge drying system at the Scafati treatment plant.

(****) Estimated figures.

WASTE	U.M.	2014	2015	2016	Δ% 2016/2015
specific waste from wastewater treatment					
Treatment sludge	t	10,700	12,286	12,526	1
Sand and sediment from treatment	t	1,988	2,361	2,382	1
waste pursuant to Legislative Decree no. 152/06 excluding sludge and sand (*)					
Hazardous waste	t	5.2	0.061	0.067	1.1
Non-hazardous waste	t	0.01	0.00	5.2	-

(*) As in previous years, the variability in quantities of hazardous and non-hazardous waste derives from wastewater treatment processes. Excluding sludge, sediment and sand, these are linked to uncontrollable external factors, and therefore can be highly variable.

TOTAL COD ON INPUT AND OUTPUT (2014-2016)

(tonnes/year)	2014	2015	2016
COD _{out}	120	183	158
COD _{in}	1,666	3,379	2,772

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY GORI SPA (2014-2016)

parameter	average value (mg/l) 2014	average value (mg/l) 2015	average value (mg/l) 2016
BOD ₅	9.2	9.4	8.9
COD	28.3	27	19.5
SST	13.9	15	20.3
NH ₄ ⁺	2.3	1.5	1.4
Phosphorous	0.9	1.0	0.8

TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY GORI SPA (2014-2016)

parameter	average value (%) 2014	average value (%) 2015	average value (%) 2016
$100 \times (\text{COD}_{in} - \text{COD}_{out}) / \text{COD}_{in}$	93	91	94
$100 \times (\text{SST}_{in} - \text{SST}_{out}) / \text{SST}_{in}$	91	96	84
$100 \times (\text{NH}_{4\text{in}}^{+} - \text{NH}_{4\text{out}}^{+}) / \text{NH}_{4\text{in}}^{+}$	93	88	97
$100 \times (\text{PO}_{4\text{in}}^{-3} - \text{PO}_{4\text{out}}^{-3}) / \text{PO}_{4\text{in}}^{-3}$	80	71	69

Gori implemented measures for increasing energy efficiency in 2016, achieving the savings shown in the table.

GORI SPA ENERGY EFFICIENCY (2015-2016)

action	energy saving achieved 2015 (kWh)	energy saving achieved 2016 (kWh)
Tartaglia plant – well field - actions on networks and division into districts (Municipalities of San Giorgio a Cremano and Portici)		833,424
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
Suppezza plant – well field - installation of load regulation valve and remote control of same (Municipality of Castellammare di Stabia)		466,396
Fontana Grande plant – pumping – actions on networks and division into districts (Municipality of Castellammare di Stabia)		418,929
Murata plant - pumping - regulation and functioning electric pumps via inverter (Municipality of Cercola)	812,000	385,525
Sala well - actions on networks and division into districts (Municipality of Corbara)		101,586
Parrocchia well - actions on networks and division into districts (Municipality of Palma Campania)	130,000	69,951
Torretta well - actions on networks and division into districts (Municipality of Pagani)	48,000	31,699
Spiano well - actions on networks and division into districts (Municipality of Mercato S. Severino)	58,000	13,353

Note: for 2015, the actions carried out during the year which had an energy saving benefit in 2016 as well are indicated. The description of the actions that generated energy savings in 2015 only is not given, although published.

Environmental expenditure

The “environmental expenditure” incurred in 2016 amounted to a total of about 2.23 million euros (2.04 million euros in 2015) and is broken down as illustrated in the table.

description (2001/453/EC) and GRI-G4	2015		2016	
	investments	operations	investments	operations
management/ disposal of waste (including sludge)		1,969,272		2,162,067
training on environmental matters				
protection of air from pollution and combating climate change				
reduction of noise pollution				
protection of biodiversity and the countryside				
environmental management systems, costs for certification of environmental emissions				
insurance coverage for environmental responsibility		73,350		66,015
decontamination costs , for example after spills (excluding fine-related costs)				
outsourced environmental management services				
additional costs for installing innovative technologies (cost differential with respect to the traditional technologies)				
leak detection activities				
R&D (environmental aspects)				
additional costs for green products				
other environmental management expenditure				
Total		2,042,622		2,228,082

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 Optimum Area of Operations - Umbria 1, 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 500,000 inhabitants.

Human resources

UMBRA ACQUE SPA EMPLOYEES: BREAKDOWN OF HUMAN RESOURCES (2015-2016)

(no.)	2015				2016			
	men	women	total	%	men	women	total	%
Executives	6	0	6	1.8	6	0	6	1.8
Managers	6	2	8	2.4	6	2	8	2.4
White-collar workers	64	51	115	34.0	63	50	113	34.1
Blue-collar workers	209	0	209	61.8	204	0	204	61.6
Total	285	53	338	100.0	279	52	331	100

UMBRA ACQUE SPA EMPLOYEES: CONTRACT TYPE (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
Permanent workforce (open-ended contracts)	282	52	334	277	52	329
<i>of which part-time personnel</i>	<i>1</i>	<i>8</i>	<i>9</i>	<i>1</i>	<i>9</i>	<i>10</i>
Personnel with fixed-term contracts	3	1	4	2	0	2
Personnel with professional apprenticeship contracts	0	0	0	0	0	0
total	285	53	338	279	59	331

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2015-2016)

	2015	2016
Accidents (no.)	14	8
Total days of absence (*)	503	400
Hours worked	550,964	549,238.58
Index of frequency (FI) (no. accidents x 1,000,000/work hours)	25.41	10.92
Index of seriousness (SI) (days absence x 1,000/work hours)	0.91	0.54

TRAINING COURSES AND COSTS IN UMBRA ACQUE SPA (2015-2016)

type of course	courses (no.)		editions (no.)		training (hours)		costs (euros)	
	2015	2016	2015	2016	2015	2016	2015	2016
Advanced training	1	0	1	0	64	0	11,520	0
Technical-specialist	11	66	14	114	2,624	7,872	16,600	317,300
Legal	6	15	6	15	120	240	1,590	4,370
Managerial	8	10	8	10	340	112	10,625	4,500
Administrative-managerial	8	0	20	0	1,950	0	18,500	0
Safety	12	0	21	0	2,015	0	26,117	0
Total	46	91	70	139	7,113	8,224	84,952	326,170

EMPLOYEES TRAINED (2014-2015)

(no.)	2015			2016		
	men	women	total	men	women	total
	285	53	338	279	52	331

Networks and plants consistency and environmental figures

WATER SYSTEM MANAGED BY UMBRA ACQUE SPA (2014-2016)

	2014	2015	2016
Water network (km)	6,398	6,398	6,398
<i>Aqueducts and transport networks (km)</i>	385	385	385
<i>Distribution network (km)</i>	6,013	6,013	6,013
Well intake structures (no.)	215	215	219
Spring intake structures (no.)	267	267	289
River intake structures (no.)	2	2	2
Pumping stations (no.)	161	161	238
Piezometers (no.)	1	1	1
Reservoirs (no.)	552	552	580
Disinfection/treatment plants (no.) (*)	235	250	249

TREATMENT AND SEWERAGE PLANTS MANAGED BY UMBRA ACQUE SPA (2014-2016)

	2014	2015	2016
Wastewater treatment plants (no.)	115	117	117
Sewerage pumping stations (no.)	189	189	206
Sewerage network (km)	3,541	3,541	3,543

Certification

In addition to the certification already obtained - **ISO 9001:2008** certification, renewed in March 2015 and expiring in April 2018, **SOA** certification for the OG6 categories in class II, OS22 in class III, and Qualification for planning and construction performance up to class VIII - Umbra Acque took steps in 2015 to renew laboratory accreditation as per the **UNI EN CEI ISO/IEC 17025:2005** standard from the ACCREDIA agency, relating to **pH** and

manganese parameters in natural water matrices. Laboratory accreditation was extended to **metals** (antimony - arsenic - cadmium - chromium - copper - lead - vanadium - aluminium - iron) and **anions** (bromides - chlorides - fluorides - nitrates - nitrites - sulphates). The Health and Safety management system according to **OHSAS 18001** is still valid. The relevant certificate was issued in January 2016.

UMBRA ACQUE SPA ENVIRONMENTAL ACCOUNTS (2014-2016)

PRODUCTS AND ANALYTICAL TESTS	U.M.	2014	2015	2016	Δ% 2016/2015
Drinking water					
Drinking water from the environment	Mm³	56.55	58.51	58.17	-0.6
<i>from wells</i>	Mm ³	41.80	44.91	44.30	-1.4
<i>from springs</i>	Mm ³	14.75	13.60	13.87	2.0
Water taken from other aqueduct systems	Mm³	0.88	1.15	1.07	-7.0
Drinking water introduced into the network	Mm³	57.20	59.43	59.00	-0.7
Total drinking water supplied	Mm³	27.38	29.03	27.83	-4.1
assessment of losses according to Ministerial Decree no. 99/97 also in compliance with AEEGSI Resolution 5/2016					
Overall losses (measure A17)	Mm ³	25.19	25.27	26.04	3.1
Real losses (Parameter A15 of MD 99/97)	Mm ³	23.76	23.79	24.59	3.4
wastewater treated					
Water treated in main treatment plants	Mm³	60.7	58.0	59.2	2.1
analytical tests on drinking water and wastewater					
Analytical tests on drinking water	no.	74,880	64,420	69,820	8.4
Analytical tests on wastewater	no.	41,909	38,765	36,169	-6.7
Analytical tests on surface water	no.	2,200	2,500	2,600	4.0
RESOURCES USED					
capture, transportation and distribution of drinking and non-drinking water					
Materials (provide concentration if solutions)					
Sodium hypochlorite	t	80.7	73.15	52.1	-28.8
Sodium chlorite	t	164.0	167.0	153	-8.4
Hydrochloric acid	t	172.0	166.2	150.6	-9.3
Polyaluminum chloride	t	3.0	4	4	-
Phosphoric acid 10%	t	2.15	0	6.4	-
Acetic acid	t	49.22	0	86.7	-
electricity (*)					
Total electricity for drinking water	GWh	57.39	64.33	63.20	-1.7
<i>electricity for water pumping stations</i>	GWh	57.07	63.97	62.85	-1.8
<i>electricity for offices</i>	GWh	0.32	0.36	0.36	-
wastewater treatment					
Materials					
Polyelectrolyte emulsion	t	49.4	69.3	78.7	13.6
Ferric chloride (40%)	t	20.5	25.6	49.6	95.0
Mineral oil and fats (**)	t	1.1	1.4	1.4	-
electricity for wastewater (*)					
Total electricity for wastewater	GWh	21.55	21.16	20.58	-2.7
<i>electricity for treatment</i>	GWh	16.61	16.96	16.27	-4.1
<i>electricity for pumping stations</i>	GWh	4.82	4.07	4.19	2.9
<i>electricity for offices</i>	GWh	0.12	0.13	0.12	-7.7
other consumption					
Other drinking water consumption (**)	m³	25,796	28,889	28,889	-
<i>drinking water consumed for non-industrial water uses (the figure relates to consumption for offices, outside showers, etc.)</i>	m ³	2,372	2,282	2,282	-
<i>drinking water consumed for process water uses (washing machinery and yards, etc.)</i>	m ³	23,424	26,607	26,607	-

(*) The figure relating to electricity consumption in previous years has been updated with the final figures and supplemented by the consumption of utilities serving the offices. In the absence of a direct reading for activities, the breakdown between the various activities has been achieved by reversing the consumption of utilities serving the offices in proportion to the consumption of each service, as indicated by the AEEGSI at the time of the 2012-2013 data collation in the document responding to the questions dated 19 May 2014.

(**) In the absence of figures at the time of publication, the 2016 figure is the same as the 2015 consumption.

WASTE	U.M.	2014	2015	2016	Δ% 2016/2015
specific waste from wastewater treatment					
Treatment sludge	t	18,421	22,987	23,099	0.5
Sand and sediment from treatment	t	1,578	1,290	1,321	2.4
waste pursuant to Legislative Decree no. 152/06) excluding sludge and sand					
Hazardous waste (*)	t	11.04	7.52	11.8	56.9
Non-hazardous waste (**)	t	16,111.26	22,169.54	16,747.52	-24.5

(*) The increase compared to 2015 is due to the increased production of filtering material (CER 150202) at the plant in Spedalicchio di Umbertide. The increased production is of an occasional nature.

(**) The significantly lower figure for non-hazardous waste is due to the reduced production of earth and rocks (CER 170504) attributable to the reduced number of interventions carried out.

TOTAL COD ON INPUT AND OUTPUT (2014-2016)

(tonnes/year)	2014	2015	2016
COD _{out}	2,556.68	2,516.97	3,411.79
COD _{in}	18,155.98	22,308.35	21,312.71

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY UMBRA ACQUE SPA (2014-2016)

parameter	average value (mg/l) 2014	average value (mg/l) 2015	average value (mg/l) 2016
BOD ₅	13.2	18.2	29.3
COD	42.1	43.3	57.6
SST	16.8	19.7	33.7
NH ₄ ⁺	5.8	5.6	5.3
Phosphorous	1.9	2.2	1.9

TREATMENT EFFICIENCY OF THE TREATMENT PLANTS MANAGED BY UMBRA ACQUE SPA (2014-2016)

parameter	average value (%) 2014	average value (%) 2015	average value (%) 2016
$100 \times (\text{COD}_{in} - \text{COD}_{out}) / \text{COD}_{in}$	85.9	88.7	84.0
$100 \times (\text{SST}_{in} - \text{SST}_{out}) / \text{SST}_{in}$	93.3	95.7	91.4
$100 \times (\text{NH}_{4\text{ in}}^{+} - \text{NH}_{4\text{ out}}^{+}) / \text{NH}_{4\text{ in}}^{+}$	82.9	83.5	85.9
$100 \times (\text{PO}_{4\text{ in}}^{-3} - \text{PO}_{4\text{ out}}^{-3}) / \text{PO}_{4\text{ in}}^{-3}$	35.2	32.5	38.9

Energy saving measures were carried out in 2014 and 2015.

UMBRA ACQUE SPA ENERGY EFFICIENCY (2014-2016)

action	energy saving achieved 2014 (kWh)	energy saving achieved 2015 (kWh)	energy saving achieved 2016 (kWh)
replacement of pumps and motors - Petrignano-Bastia Umbra PG plant	275,000	385,000	-
replacement of motors in various plants	20,000	-	-

Environmental expenditure

The “environmental expenditure” incurred in 2016 amounted to about 3.68 million euros (2.83 million euros in 2015) and is broken down as illustrated in the table.

ENVIRONMENTAL EXPENDITURE (IN EUROS) (2015-2016)

description (2001/453/EC) and GRI-G4	2015		2016	
	investments	operations	investments	operations
management/disposal of waste (including sludge)		2,066,234		2,157,441
training on environmental matters		3,300		
protection of air from pollution and combating climate change				
reduction of noise pollution		26,400		
protection of biodiversity and the countryside				
environmental management systems, costs for certification of environmental emissions				
insurance coverage for environmental responsibility		24,005		37,694
decontamination costs, for example after spills (excluding fine-related costs)				
outsourced environmental management services				
additional costs for installing innovative technologies (cost differential with respect to the traditional technologies)				
leak detection activities	372,080	235,400	573,864	235,000
R&D (environmental aspects)				
additional costs for green products				
other environmental management expenditure		97,709		98,691
Total	327,080	2,453,048	573,864	3,102,690

PUBLIACQUA

Publiacqua SpA is a mixed company, the balance being in public hands; Acea’s equity interest is through the company Acque Blu Fiorentina SpA. It has managed the integrat-

ed water service in ATO 3 – Medio Valdarno since 2002. The territory includes around 1.3 million inhabitants, with cities of great artistic and environmental merit, including Florence, Prato and Pistoia.

Human resources

PUBLIACQUA SPA EMPLOYEES: BREAKDOWN OF HUMAN RESOURCES (2015-2016)

(no.)	2015				2016			
	men	women	total	%	men	women	total	%
Executives	3	1	4	0.6	3	1	4	0.7
Managers	13	7	20	3.3	11	7	18	3.1
White-collar workers	189	141	330	53.7	170	135	305	52.7
Blue-collar workers	255	6	261	42.4	246	6	252	43.5
Total	460	155	615	100.0	430	149	579	100.0

PUBLIACQUA SPA EMPLOYEES: CONTRACT TYPE (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
Permanent workforce (open-ended contracts)	460	155	615	429	149	578
<i>of which part-time personnel</i>	4	18	22	3	13	16
Personnel with fixed-term contracts	0	0	0	1	0	1
Personnel with professional apprenticeship contracts	0	0	0	0	0	0
Total	460	155	615	430	149	579

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2015-2016)

	2015	2016
Accidents (no.)	28	25
Total days of absence (*)	578	753
Hours worked (**)	1,021,728	949,663
Index of frequency (FI) (no. accidents x 1,000,000/work hours)	27.40	26.33
Index of seriousness (SI) (days absence x 1,000/work hours)	0.57	0.79

(*) The figure also includes the days of absence due to the continuing or returning effects of accidents occurring in previous years.

(**) The data is the result of estimation for December.

TRAINING COURSES AND COSTS IN PUBLIACQUA SPA (2015-2016)

type of courses	courses (no.)		editions (no.)		training (hours)		costs (euros)	
	2015	2016	2015	2016	2015	2016	2015	2016
Advanced training	68	52	68	52	1,224	1,517.5	50,000	40,000
IT	6	5	13	12	1,288	748	35,000	37,000
Languages	0	0	0	0	0	0	0	0
Technical-specialist	33	39	111	138	4,453	5,737	30,000	90,000
Managerial	10	10	74	28	4,876	1,700	50,000	21,000
Administrative-managerial	23	71	57	158	2,120	7,262.5	20,000	390,000
Safety	16	21	106	80	5,439	3,594	50,000	50,000
Total	156	198	429	468	19,400	20,559	235,000	628,000

EMPLOYEES TRAINED (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
	430	140	570	430	149	579

In 2016, training primarily concerned the supplementary plan for the new systems introduced by the Acea2.0 programme.

Networks and plants consistency and environmental figures

WATER SYSTEM MANAGED BY PUBLIACQUA SPA (*) (2014-2016)

	2014	2015	2016
Water network (km)	7,152	7,155	7,163
<i>Aqueducts and transport networks (km)</i>	1,347	1,347	1,347
<i>Distribution network (km)</i>	5,805	5,808	5,816
Well intake structures (no.)	579	474	487
Spring intake structures (no.)	851	832	829
River intake structures (no.)	61	55	55
Lake intake structures (no.)	20	19	19
Pumping stations (no.)	418	417	417
Reservoirs (no.)	913	907	906
Disinfection/treatment plants (no.)	136	136	138

(*) The figures are consistent with the communication made to AEEGSI on managed infrastructures. The 2015 figures have been updated.

Certification

During the course of 2016, Pubblica renewed its quality certification according to the new version, **UNI EN ISO 9001:2015**, for the activities of “Supplying the integrated drinking water and treatment service for urban, industrial and domestic wastewater. Laboratory analysis activities for chemical and microbiological checks on the water cycle. Treatment of non-hazardous liquids. Design of the integrated systems and management of tenders for the construction of treatment plants, drinking water and water and sewerage networks. Production of hydroelectric energy”. It also retained its environmental certification according to

UNI EN ISO 14001:2004 for the activities of “Supplying the integrated drinking water and treatment service for urban, industrial and domestic wastewater. Laboratory analysis activities for chemical and microbiological checks on the water cycle. Treatment of non-hazardous liquids. Design of the integrated systems and management of tenders for the construction of treatment plants, drinking water and water and sewerage networks. Production of hydroelectric energy”. Lastly, it obtained the accreditation of the chemical and microbiological analysis laboratory according to standard **UNI CEI ISO/IEC 17025:2005**.

PUBLIACQUA SPA ENVIRONMENTAL ACCOUNTS (2014-2016)

PRODUCTS AND ANALYTICAL TESTS	U.M.	2014	2015	2016	Δ% 2016/2015
drinking water					
Drinking water from the environment	Mm³	163.6	169.2	168.9	-0.2
<i>from lakes/rivers</i>	Mm ³	109.2	112.2	112.4	0.1
<i>from wells</i>	Mm ³	42.4	45.9	44.8	-2.4
<i>from springs</i>	Mm ³	12.0	11.1	11.7	5.8
Drinking water introduced into the network	Mm³	149.2	153.8	153.5	-0.2
Total drinking water supplied	Mm³	83.5	82.4	82.8	0.5
assessment of losses according to Ministerial Decree no. 99/97 also in compliance with AEEGSI Resolution 5/2016 (*)					
Overall losses (measure A17)	Mm ³	60.3	70.9	70.2	-1.0
Real losses (measure A15 of MD 99/97)	Mm ³	56.7	69.1	68.4	-1.0
wastewater treated					
Water treated in main treatment plants	Mm³	110.0	106.8	106.8	0
analytical tests on drinking water and wastewater					
Analytical tests on drinking water	no.	209,988	227,346	221,207	-2.7
Analytical tests on surface water (**)	no.	21,376	21,745	21,447	-1.4
Analytical tests on wastewater	no.	38,175	42,196	41,420	-1.8

(*) As regards losses, the calculation linked to AEEGSI Resolution 1/2016 has been included for 2015 and 2016, while the calculation linked to AEEGSI Resolution 5/2014 has been retained for 2014.

(**) These are analyses on raw surface water (untreated); the analytical tests on drinking water are included in these figures.

RESOURCES USED	U.M.	2014	2015	2016	Δ% 2016/2015
capture, transportation and distribution of drinking and non-drinking water					
Materials					
Sodium hypochlorite	t	1,232	1,428	1,396	-2.2
Sodium chlorite	t	260	264	314	19.0
Hydrochloric acid	t	216	303	359	18.5
Flocculant	t	5,600	4,438	5,474	23.3
Charcoal powder	t	44	0	0	-
Purate	t	428	334	384	15.0
Sulphuric acid	t	687	564	586	3.9
Oxygen	t	508	418	54	-87.1
Acetic acid	t	152	186	143	-23.1
Carbon dioxide excluding drinking water fountains	t	624	722	705	-2.3
Ferric chloride	t	25	18	31	71.9
Phosphoric acid	t	26	26	19	-28.1
Sodium hydroxide	t	-	0	0	-
electricity					
Total electricity for drinking water	GWh	75.9	79.7	79.9	0.3
<i>electricity for water pumping stations</i>	GWh	74.9	78.6	78.8	0.3
<i>electricity for offices</i>	GWh	1.0	1.1	1.1	-
wastewater treatment					
Materials					
Polyelectrolyte emulsion	t	219	222	236	6,1
Sodium hypochlorite	t	9	8	13	67,2
Peracetic acid, caustic soda, polyamine/anti-foaming agent	t	5	6	7	20,0
Polyaluminium chloride (PAC)	t	1.968	3.121	4.318	38,4
Lime	t	234	209	224	7,0
Acetic acid 80% (*)	t	0	31	272	774,4

(continued) RESOURCES USED	U.M.	2014	2015	2016	Δ% 2016/2015
electricity for wastewater					
Total electricity for wastewater	GWh	34.2	34.1	36.6	7.3
<i>electricity for treatment</i>	<i>GWh</i>	<i>28.7</i>	<i>29.3</i>	<i>31.6</i>	<i>7.8</i>
<i>electricity for pumping stations</i>	<i>GWh</i>	<i>5.1</i>	<i>4.3</i>	<i>4.5</i>	<i>4.7</i>
<i>electricity for offices</i>	<i>GWh</i>	<i>0.4</i>	<i>0.5</i>	<i>0.5</i>	<i>0</i>
other consumption					
Other drinking water consumption	m³	n.d.	n.d.	n.d.	-

(*) The 2015-2016 delta for acetic acid is justified by the variability of the product.

WASTE (*)	U.M.	2014	2015	2016	Δ% 2016/2015
specific waste from wastewater treatment					
Treatment sludge	t	26,995	26,019	24,735	-4.9
Sand and sediment from treatment	t	1,858	1,297	1,120	-13.6
waste pursuant to Legislative Decree no. 152/06) excluding sludge and sand					
Hazardous waste	t	35	44	46	4.5
Non-hazardous waste	t	12,983	10,140	11,467	13.1

(*) The figures for the previous two-year period were updated following final reporting.

TOTAL COD ON INPUT AND OUTPUT (2015-2016)

(tonnes/year)	2015	2016
COD _{out}	1,893	1,774
COD _{in}	17,095	16,441

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY PUBLIACQUA SPA – SAN COLOMBANO (2014-2016)

parameter	average value (mg/l) 2014	average value (mg/l) 2015	average value (mg/l) 2016
BOD ₅	2.4	1.9	2.2
COD	19.3	15.8	15.6
SST	6.0	4.5	7.6
NH ₄ ⁺	0.6	0.7	1.1
Phosphorous	1.0	1.0	0.9

Note: the San Colombano treatment plant (600,000 PE) treats around half the global wastewater.

OUTPUT PARAMETERS: GROUP OF 36 TREATMENT PLANTS, INCLUDING SAN COLOMBANO, WHICH IN TOTAL TREAT 98% OF THE WASTEWATER AND 96% OF THE ORGANIC LOAD (COD) OF PUBLIACQUA SPA (2014-2016)

parameter	average value (mg/l) 2014	average value (mg/l) 2015	average value (mg/l) 2016
BOD ₅	2.5	2.4	2.4
COD	19.3	17.7	16.6
SST	7.3	5.2	6.7
NH ₄ ⁺	1.3	1.1	1.3
Phosphorous	1.5	1.2	1.0

TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY PUBLIACQUA SPA (2014-2016)

parameter	average value (%) 2014	average value (%) 2015	average value (%) 2016
$100 \times (\text{COD}_{\text{in}} - \text{COD}_{\text{out}}) / \text{COD}_{\text{in}}$	83.3	87.0	85.7
$100 \times (\text{SST}_{\text{in}} - \text{SST}_{\text{out}}) / \text{SST}_{\text{in}}$	87.6	91.4	84.0
$100 \times (\text{NH}_4^+_{\text{in}} - \text{NH}_4^+_{\text{out}}) / \text{NH}_4^+_{\text{in}}$	97.6	97.0	94.8
$100 \times (\text{PO}_4^{3-}_{\text{in}} - \text{PO}_4^{3-}_{\text{out}}) / \text{PO}_4^{3-}_{\text{in}}$	60.1	60.9	67.2

TREATMENT EFFICIENCY: GROUP OF 36 TREATMENT PLANTS, INCLUDING SAN COLOMBANO, WHICH IN TOTAL TREAT 98% OF THE WASTEWATER AND 96% OF THE ORGANIC LOAD (COD) OF PUBLIACQUA SPA (2014-2016)

parameter	average value (%) 2014	average value (%) 2015	average value (%) 2016
$100 \times (\text{COD}_{in} - \text{COD}_{out}) / \text{COD}_{in}$	92.0	88.9	89.2
$100 \times (\text{SST}_{in} - \text{SST}_{out}) / \text{SST}_{in}$	94.5	93.3	89.9
$100 \times (\text{NH}_4^+_{in} - \text{NH}_4^+_{out}) / \text{NH}_4^+_{in}$	95.1	95.2	94.6
$100 \times (\text{PO}_4^{3-}_{in} - \text{PO}_4^{3-}_{out}) / \text{PO}_4^{3-}_{in}$	59.8	61.2	66.5

The process for improving energy efficiency in the main plants managed main plants continued in 2016, with a considerable reduction in energy consumption.

PUBLIACQUA SPA ENERGY EFFICIENCY (2014-2016)

action	energy saving achieved 2014 (kWh)	energy saving achieved 2015 (kWh)	energy saving achieved 2016 (kWh)
Soa Sibille plant - new line pumping	300,000	-	
Case Passerini treatment plant - installation of new mixer	150,000	-	
Soa Garage plant - disposal of pumping equipment	30,000	-	
Soa La Querce plant - final pumping efficiency improvements	-	300,000	
Ponte a Niccheri plant - installation of fine bubble diffusers	-	150,000	
Anconella drinking water plant - push retainer valve			115,000
Layer 1 - new pumps			100,000
Layer 2 - pump inverter			100,000

Environmental expenditure

The “environmental expenditure” incurred in 2016 amounted to a total of about 1.4 million euros (about 2.1 million euros in 2015) and is broken down as illustrated in the table.

ENVIRONMENTAL EXPENDITURE (IN EUROS) (2015-2016)

description (2001/453/EC) and GRI-G4	2015		2016	
	investments	operations	investments	operations
management/ disposal of waste (including sludge)				
training on environmental matters				
protection of air from pollution and combating climate change				
reduction of noise pollution				
protection of biodiversity and the countryside				
environmental management systems, costs for certification of environmental emissions				
insurance coverage for environmental responsibility				
decontamination costs , for example after spills (excluding fine-related costs)				
outsourced environmental management services				
additional costs for installing innovative technologies (cost differential with respect to the traditional technologies)	185,828.18			
leak detection activities				
R&D (environmental aspects)	112,066.29			
additional costs for green products				
other environmental management expenditure	1,527,568.97	277,571.85	1,046,443.31	343,788.43
Total	1,825,463	277,572	1,046,443.31	343,788.43

ACQUEDOTTO DEL FIORA

Acquedotto del Fiora SpA has managed the integrated water service for the largest Optimum Area of Operations in Tuscany, ATO 6 – Ombrone, comprising 56 municipalities and covering an area of over 7,600 km², since 1 January 2002. The resident population is around 406,453 inhabitants, a figure which almost doubles during the summer season.

The area 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 28 (out of a total 36) municipalities of the province of Siena.

Human resources

ACQUEDOTTO DEL FIORA SPA EMPLOYEES: BREAKDOWN OF HUMAN RESOURCES (2015-2016)

(no.)	2015				2016			
	men	women	total	%	men	women	total	%
Executives	1	0	1	0.2	1	0	1	0.25
Managers	10	4	14	3.4	10	4	14	3.51
White-collar workers	102	93	195	47.7	100	93	193	48.37
Blue-collar workers	197	2	199	48.7	189	2	191	47.87
Total	310	99	409	100.0	300	99	399	100.0

ACQUEDOTTO DEL FIORA SPA EMPLOYEES: CONTRACT TYPE (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
Permanent workforce (open-ended contracts)	306	98	404	297	99	396
<i>of which part-time personnel</i>	4	13	17	4	11	15
Personnel with fixed-term contracts	0	0	0	1	0	1
Personnel with professional apprenticeship contracts	4	1	5	2	0	2
Total	310	99	409	300	99	399

(*) The figure 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 (2015-2016)

	2015	2016
Accidents (no.)	9	5
Total days of absence (*)	135	91
Hours worked	672,345	671,369
Index of frequency (FI) (no. accidents x 1,000,000/work hours)	13.39	7.45
Index of seriousness (SI) (days absence x 1,000/work hours)	0.22	0.14

TRAINING COURSES AND COSTS IN ACQUEDOTTO DEL FIORA SPA (2015-2016)

type of course	courses (no.)		editions (no.)		training (hours)		costs (euros)	
	2015	2016	2015	2016	2015	2016	2015	2016
IT	4	93	10	167	831	12,272	109,924	327,73
Induction of new recruits	1	1	1	1	24	32	287	0
Technical-specialist	20	8	27	12	1,417	759	6,799	2,217
Managerial	2	4	7	14	527	2,436	21,820	52,700
Administrative-managerial	16	8	16	11	395	835	7,479	10,506
Safety	11	10	25	39	1,755	2,310	20,691	10,614
Total	54	124	86	244	4,949	18,644	167,000	403,769

EMPLOYEES TRAINED (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
	264	69	333	300	95	395

Networks and plants consistency and environmental figures

WATER SYSTEM MANAGED BY ACQUEDOTTO DEL FIORA SPA (2014-2016)

	2014	2015 (in operation)	2016 (in operation)
Water network (km)	8,421	9,067	9,294
<i>Aqueducts and transport networks (km)</i>	1,963	1,963	1,955
<i>Distribution network (km)</i>	6,458	7,104	7,339
Well intake structures (no.)	229	188	184
Spring intake structures (no.)	292	249	248
River intake structures (no.)	1	1	1
Lake intake structures (no.)	6	6	3
Pumping stations (no.)	288	273	284
Piezometers (no.)	13	13	13
Reservoirs (no.)	787	785	796
Disinfection/treatment plants (no.)	40	32	31
Seawater desalination plants (no.)	3	3	3

TREATMENT AND SEWERAGE PLANTS MANAGED BY ACQUEDOTTO DEL FIORA SPA (2014-2016)

	2014	2015	2016
Wastewater treatment plants (no.)	132	141	142
Sewerage pumping stations (no.)	254	266	270
Sewerage network (km)	3,209	3,211	3,214

(*) Excluding Imhoff pits.

Certification

During 2016, Acquedotto del Fiora maintained its **UNI EN ISO 9001:2008** certification.

ACQUEDOTTO DEL FIORA SPA ENVIRONMENTAL ACCOUNTS (2014-2016)

Products and analytical tests	U.M.	2014	2015	2016	Δ% 2016/2015
drinking water					
Drinking water from the environment	Mm³	62.44	62.47	62.00 (*)	-0.7
<i>from lakes/ivers</i>	<i>Mm³</i>	<i>0.99</i>	<i>1.08</i>	<i>n.d.</i>	<i>-</i>
<i>from wells</i>	<i>Mm³</i>	<i>19.75</i>	<i>19.57</i>	<i>n.d.</i>	<i>-</i>
<i>from springs</i>	<i>Mm³</i>	<i>41.70</i>	<i>41.81</i>	<i>n.d.</i>	<i>-</i>
Water from other aqueduct systems	Mm³	0.78	0.79	0.80 (*)	1.2
Drinking water introduced into the network	Mm³	58.35	57.85	57.30 (*)	-0.9
Total drinking water supplied	Mm³	31.47	29.35	29.35 (*)	-
assessment of losses according to Ministerial Decree no. 99/97 also in compliance with AEEGSI Resolution 5/2016 (**)					
Overall losses (measure A17)	Mm ³	28.43	27.59	n.d.	-
Real losses (Parameter A15 of MD 99/97)	Mm ³	28.28	25.77	n.d.	-
wastewater treated					
Water treated in the main treatment plants	Mm³	17.15	17.07	16.16	-5.3
Water treated in plants with potential greater than 2,000 PE	Mm³	26.3	25.1	25.2	0.4
analytical tests on drinking water and wastewater					
Analytical tests on drinking water	no.	113,502	97,456	81,216	-16.7
Analytical tests on wastewater	no.	50,497	53,883	44,730	-17.0
Analytical tests on surface water	no.	1,257	813	631	-22.4

(*) Data not available at the moment. Estimate inserted for 2016.

(**) As regards losses, the calculation linked to AEEGSI Resolution 1/2016 has been included for 2015, while the calculation linked to AEEGSI Resolution 5/2014 has been retained for 2014. The 2016 figures were not available at the time of publication.

RESOURCES USED	U.M.	2014	2015	2016	Δ% 2016/2015
capture, transportation and distribution of drinking and non-drinking water					
Materials					
Sodium hypochlorite	t	450	278	493	77.3
Sodium chlorite	t		7	5	-28.6
Hydrochloric acid	t	10	14	2	-85.7
Charcoal powder	t	0	29	19	-34.5
Polyaluminum chloride	t	16	15.7	31	97.5
electricity					
Total electricity for drinking water	GWh	29.2	31.1	35.9	15.4
<i>electricity for water pumping stations</i>	GWh	18.6	20.1	21.1	4.9
<i>electricity for offices</i>	GWh	0.3	0.3	0.4	33.3
wastewater treatment					
Materials					
Polyelectrolyte emulsion	t	nd	163.65	150.48	-8.0
Sodium hypochlorite	t	250.0	417.33	432.76	3.7
Ferric chloride for dehydration of sludge (40%)	t	0.0	-	-	
Polyaluminium chloride (PAC)	t	80.0	67.40	66.82	-0.8
electricity for wastewater					
Total electricity for wastewater	GWh	23.5	23.9	20.0	-16.3
<i>electricity for treatment</i>	GWh	19.8	20.4	17.4	-14.7
<i>electricity for pumping stations</i>	GWh	3.7	3.5	3.6	2.8
other consumption					
Other drinking water consumption	m³	n.d.	n.d.	n.d.	-

In some treatment plants, including the Ponte a Tressa treatment plant in the municipality of Siena, an industrial water network is present, which makes it possible to use the treated wastewater for cleaning machinery and for the toi-

let facilities of the office block. Also, at the treatment plant in Puntala in the municipality of Castiglion della Pescaia, the treated water is reused for irrigation purposes.

WASTE	U.M.	2014	2015	2016	Δ% 2016/2015
specific waste from wastewater treatment					
Treatment sludge	t	14,619	13,031	11,626	-10.8
Sand and sediment from treatment	t	920.00	748.00	507.32	-32.2
waste pursuant to Legislative Decree no. 152/06) excluding sludge and sand					
Hazardous waste	t	82.39	64.44	74.36	15.4
Non-hazardous waste	t	632.197	707.76	666.74	-5.8

TOTAL COD ON INPUT AND OUTPUT (2015-2016)

(tonnes/year)	2015	2016
COD _{out}	832	900
COD _{in}	6,875	7,990

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY ACQUEDOTTO DEL FIORA SPA (*) (2014-2016)

parameter	average value (mg/l) 2014	average value (mg/l) 2015	average value (mg/l) 2016
BOD ₅	10.7	12.6	13.4
COD	39.5	48.8	55.6
SST	14.4	14.6	12.5
NH ₄ ⁺	6.0	4.9	4.8
Phosphorous	2.0	2.3	2.5

(*) Plants with potential >20,000 PE.

TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY ACQUEDOTTO DEL FIORA SPA (*) (2014-2016)

parameter	average value (%) 2014	average value (%) 2015	average value (%) 2016
$100 \times (\text{COD}_{\text{in}} - \text{COD}_{\text{out}}) / \text{COD}_{\text{in}}$	89.8	87.9	88.7
$100 \times (\text{SST}_{\text{in}} - \text{SST}_{\text{out}}) / \text{SST}_{\text{in}}$	92.5	91.7	93.7
$100 \times (\text{NH}_4^+_{\text{in}} - \text{NH}_4^+_{\text{out}}) / \text{NH}_4^+_{\text{in}}$	79.2	86.6	85.4
$100 \times (\text{PO}_4^{3-}_{\text{in}} - \text{PO}_4^{3-}_{\text{out}}) / \text{PO}_4^{3-}_{\text{in}}$	50.6	46.3	53.5

(*) Plants with potential >20,000 PE.

Acquedotto del Fiora implemented energy efficiency improvement measures both in the sphere of known technologies (inverters, high efficiency motors, recourse to LED technology for lighting, more efficient pumps, remote con-

trol), and innovative pilot projects, in particular within the sphere of treatment systems.

The table shows the main actions, together with an estimate of the related energy saving.

ACQUEDOTTO DEL FIORA SPA ENERGY EFFICIENCY (2014-2016)

action	energy saving achieved 2014 (kWh)	energy saving achieved 2015 (kWh)	energy saving achieved 2016 (kWh)
improved efficiency of drinking water pumping	-	240,000	129,682
improved efficiency of treatment processes	250,000	500,000	-
replacement of lighting units with LED units	n.d.	10,000	10,000

Environmental expenditure

The “environmental expenditure” incurred in 2016 amounted to a total of about 3.07 million euros (3.98 million euros in 2015) and is broken down as illustrated in the table:

ENVIRONMENTAL EXPENDITURE (IN EUROS) (2015-2016)

description (2001/453/EC) and GRI-G4	2015		2016	
	investments	operations	investments	operations
management/disposal of waste (including sludge)		2,613,000		2,340,000
training on environmental matters				
protection of air from pollution and combating climate change				
reduction of noise pollution				
protection of biodiversity and the countryside				
environmental management systems, costs for certification of environmental emissions				
insurance coverage for environmental responsibility				
decontamination costs, for example after spills (excluding fine-related costs)		26,000		
outsourced environmental management services		168,000		140,000
additional costs for installing innovative technologies (cost differential with respect to the traditional technologies)				
leak detection activities	1,176,151		591,166	
R&D (environmental aspects)				
additional costs for green products				
other environmental management expenditure				
Total	1,176,151	2,807,000	591,166	2,480,000

ACQUE

Acque SpA operates as the sole operator of the integrated water cycle in Basso Valdarno, an area covering five Tuscan provinces. The service is provided in 56 municipalities

in the provinces of Florence, Lucca, Pisa, Pistoia, and Siena, corresponding to Territorial Conference 2 Basso Valdarno, reference area for activities entrusted to Acque SpA and to Group companies.

Human resources

ACQUE SPA EMPLOYEES: BREAKDOWN OF HUMAN RESOURCES (2015-2016)

(no.)	2015				2016			
	men	women	total	%	men	women	total	%
Executives	5	2	7	1.8	5	2	7	1.8
Managers	5	2	7	1.8	5	3	8	2.0
White-collar workers	88	132	220	56.6	93	136	229	57.7
Blue-collar workers	155	0	155	39.8	153	0	153	38.5
Total	253	136	389	100.0	256	141	397	100.0

ACQUE SPA EMPLOYEES: CONTRACT TYPE (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
Permanent workforce (open-ended contracts)	253	128	381	253	131	384
<i>of which part-time personnel</i>	3	27	30	4	30	34
Personnel with fixed-term contracts	0	7	7	9	3	12
Personnel with professional apprenticeship contracts	0	1	1	0	1	1
Total	253	136	389	262	135	397

INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2015-2016)

	2015	2016
Accidents (no.)	8	5
Total days of absence (*)	154	122
Hours worked	617,550	635,053
Index of frequency (FI) (no. accidents x 1,000,000/work hours)	12.95	7.87
Index of seriousness (SI) (days absence x 1,000/work hours)	0.25	0.19

(*) The figure also includes the days of absence due to the continuing or returning effects of accidents which occurred in previous years.

TRAINING COURSES AND COSTS IN ACQUE SPA (2015-2016)

type of course	courses (no.)		editions (no.)		training (hours)*		costs (euros)	
	2015	2016	2015	2016	2015	2016	2015	2016
IT	2	76	12	194	342	13,256	0	346,486 (*)
Induction of new recruits	4	4	15	12	201	640 (**)	200	0
Technical-specialist (***)	53	26	73	29	1,377	475	16,844	14,310
Managerial (*)	2	2	2	5	846	1,010	0	50,847
Safety	36	47	78	73	2,830	1,981	3,280	3,315
Environmental	7	6	9	6	77	349	1,155	1,200
Transversal	3	8	10	9	200	556	0	0
Total	107		199		5,873	18,267	21,479	416,158

(*) Includes investment costs.

(**) Includes the supervision of new recruits.

(***) Includes regulatory updates.

EMPLOYEES TRAINED (2015-2016)

(no.)	2015			2016		
	men	women	total	men	women	total
	240	110	350	256	141	397

In 2016, training involved resources from all the business sectors (operating management, commercial, administration and human resources) and 12,867 hours of training were carried out in total.

A training programme aimed at 48 employees of the operating teams of Acque Servizi was carried out, with the

objective of providing them with management tools for improving teamwork and relations among employees.

As regards managerial training, a specific programme was started for the Territorial Managers, Team Leaders and Coordinators: the new corporate roles created with the adoption of Workforce Management (WFM).

Networks and plants consistency and environmental figures

WATER SYSTEM MANAGED BY ACQUE SPA (OPERATING PLANTS) (2014-2016)

	2014	2015	2016
Water network (km)	5,953	5,898	5,912
<i>Aqueducts and transport networks (km)</i>	808	829	829
<i>Distribution network (km)</i>	5,145	5,069	5,083
Well intake structures (no.)	434	428	531
Spring intake structures (no.)	274	268	299
River and lake intake structures (no.)	14	14	22
Reservoirs (no.)	550	547	569
Disinfection/treatment plants (no.)	248	293	267
Pumping stations (no.)	402	402	415

TREATMENT AND SEWERAGE PLANTS MANAGED BY ACQUE SPA (2014-2016)

	2014	2015	2016
Wastewater treatment plants (no.)	139	139	139
Sewerage pumping stations (no.)	515	517	527
Sewerage network (km)	3,064	3,081	3,095

Certification

In 2016, the integrated management system of Acque SpA, Best4 plus (quality, environment, safety, energy and social responsibility) was updated, in compliance with the new versions of regulations UNI EN ISO 9001:2015 and UNI EN ISO 14001:2015.

The following also occurred during the course of the year: the inclusion of LeSoluzioni scarl in the boundary of the integrated and infra-group management system, with the simultaneous implementation and certification of the environment (UNI

EN ISO 14001) and safety (OHSAS 18001) management systems; the extension of the accreditation of the chemical laboratories for wastewater in Pontedera, for drinking water in Empoli and for microbiological tests in Pisa; the updating of the joint EMAS environmental declaration by Acque SpA and Acque Industriali srl.

The annual audit was also carried out for maintaining energy certification (UNI CEI EN ISO 50.001) at Acque SpA, Acque Servizi Srl and Acque Industriali Srl.

For more details, see the website www.acque.net.

ACQUE SPA ENVIRONMENTAL ACCOUNTS (2014-2016)

PRODUCTS AND ANALYTICAL TESTS	U.M.	2014	2015	2016	Δ% 2016/2015
drinking water					
Drinking water from the environment	Mm³	70.35	71.731	70.120	-2.2
<i>from lakes/rivers</i>	<i>Mm³</i>	3.12	3.381	3.357	-0.7
<i>from wells</i>	<i>Mm³</i>	58.724	60.657	59.993	-1.1
<i>from springs</i>	<i>Mm³</i>	8.50	7.693	6.770	-12.0
Water from other aqueduct systems	Mm³	6.38	6.859	7.027	2.4
Drinking water supplied to other aqueduct systems	Mm ³	0.99	0.98	0.953	-2.8
Production losses between capture and intake to the network	Mm ³	3.96	3.769	2.440	-35.3
Drinking water introduced into the network	Mm³	72.77	73.84	73.754	-0.1
Drinking water introduced into the network + drinking water supplied to other systems and production losses between capture and intake to the network	Mm³	76.731	78.590	77.147	-1.8
Total drinking water supplied	Mm³	46.39	46.01	47.679	3.6
assessment of losses according to Ministerial Decree no. 99/97 also in compliance with AEEGSI Resolution 5/2016					
Overall losses (measure A17)	Mm ³	26.38	27.25	27.028	-0.8
Real losses (Parameter A15 of MD 99/97)	Mm ³	17.81	18.39	18.315	-0.4
wastewater treated					
Water treated in all treatment plants	Mm³	52.90	47.20	51.40	8.9

(continued) PRODUCTS AND ANALYTICAL TESTS	U.M.	2014	2015	2016	Δ% 2016/2015
analytical tests on drinking water and wastewater					
Analytical tests on drinking water (including tests on surface water)	no.	346,695	234,950	278,603	18.6
Analytical tests on wastewater	no.	109,949	119,144	123,646	3.8

Note: the figures concerning the tests on wastewater have all been modified and adjusted to that described in the Acque SpA Sustainability Report.

RESOURCES USED (*)	U.M.	2014	2015	2016	Δ% 2016/2015
capture, transportation and distribution of drinking and non-drinking water					
Materials					
Sodium hypochlorite	t	200.30	233.61	250.03	7.0
Hydrochloric acid	t	341.81	392.82	395.025	0.6
Potassium permanganate	t	3.70	4.30	3.00	-30.2
Polyaluminium chloride	t	15.09	38.01	17.91	-52.9
Sacks of salt	t	1.25	1	4.85	385.0
Sodium chlorite	t	265.45	312.49	357.23	14.3
Caustic soda	t	2.87	1.72	3.65	112.2
Sodium metabisulfite	t	3.38	2.70	1.25	-53.7
Phosphoric acid	t	0.25	0.42	0.15	-64.3
Citric acid	t	2.17	2.30	1.575	-31.5
Sodium alginate	t	0.25	-	-	-
Alifons L	t	0.025	0.105	-	-
Hydrofloc ALG	t	0.75	-	-	-
Polychlorinated aluminium sulphate	t	144.81	102.12	157.49	54.2
Polyelectrolyte in emulsion Florein EC TL290	t	-	1.05	-	-
Purified water	t	0.01	-	-	-
electricity					
Total electricity for drinking water	GWh	51.1	53.46	52.8	-1.2
<i>electricity for water pumping stations</i>	<i>GWh</i>	<i>50.6</i>	<i>53.0</i>	<i>51.55</i>	<i>-2.7</i>
<i>electricity for offices</i>	<i>GWh</i>	<i>0.46</i>	<i>0.46</i>	<i>0.53</i>	<i>15.2</i>
wastewater treatment					
Materials					
Polyelectrolyte powder	t	4.25	3.00	1.00	-66.7
Polyelectrolyte emulsion	t	88.875	93.025	130.60	40.4
Polyaluminium chloride	t	51.50	15.40	4.45	-71.1
Ferric chloride for dehydration of sludge (40%)	t	532.14	524.45	529.65	1.0
Sodium hypochlorite for final disinfection	t	17.00	9.965	1.00	-90.0
Peracetic acid for disinfection	t	14.05	13.00	9.5	-26.9
Sulphuric acid	t	3.00	4.15	-	-
Ferric chloride 31.5%	t	10.145	3.795	-	-
Caustic soda 30% (sodium hydroxide)	t	23.10	12.15	0.40	-96.7
Citric acid	t	3.00	1.30	-	-
Biotek base L – biological reactivant	t	0.06	0	0.06	-
Biotek Clar – biological reactivant	t	0.75	0	-	-
Bacterial starter TA34 start – biological reactivant	t	0.18	0.12	0.18	50.0
Acetic acid	t	0.075	0.00	-	-
Sodium aluminate	t	2.70	2.70	-	-
Nutrients	t	272.1	398.240	466.93	17.2

(continued) RESOURCES USED (*)	U.M.	2014	2015	2016	Δ% 2016/2015
electricity for wastewater					
Total electricity for wastewater	GWh	31.77	31.20	31.69	1.6
<i>electricity for treatment</i>	GWh	24.98	25.33	24.92	-1.6
<i>electricity for pumping stations</i>	GWh	6.50	5.60	6.44	15.0
<i>electricity for offices</i>	GWh	0.29	0.27	0.33	22.2
other consumption					
Other drinking water consumption	m³	277,457	260,118	287,554	10.5
<i>drinking water consumed for non-industrial water uses (the figure relates to consumption for offices, outside showers, etc.)</i>	m ³	55,937	40,381	59,862 (*)	48.2
<i>drinking water consumed for process water uses (washing machinery and yards, etc.) (**)</i>	m ³	221,520	219,737	227,692	3.6

(*) The figure is partly estimated.

(**) The figure is calculated on the basis of the AEEGSI method.

Note: the raw materials in 2015 have been partially modified and adjusted to that described in the Acque SpA Sustainability Report. The electricity figures for 2016 have been partly estimated on the basis of the invoices received at the time of publication.

WASTE	U.M.	2014	2015	2016	Δ% 2016/2015
specific waste from wastewater treatment					
Treatment sludge	t	61,984.500	68,609.913	62,566.287	-8.8
Sand and sediment from treatment	t	2,664.280	3,415.77	2,894.490	-15.3
waste pursuant to Legislative Decree no. 152/06) excluding sludge and sand					
Hazardous waste	t	14.89	11.643	10.3808	-10.8
Non-hazardous waste	t	2,628.50	2,636.00	2,478.971	-6.0

Acque **reused/recycled part of the water** in the main treatment plants, for a total volume of around 302,460 m³ in 2016.

TOTAL COD ON INPUT AND OUTPUT (ALL PLANTS) (2014-2016)

(tonnes/year)	2014	2015	2016
COD _{out}	2,209	1,757	2,380
COD _{in}	19,984	21,659	24,167

OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY ACQUE SPA (*) (2014-2016)

parameter	average value (mg/l) 2014	average value (mg/l) 2015	average value (mg/l) 2016
BOD ₅	6.5	4.7	8.4
COD	41.1	36.0	43.3
SST	11.4	8.7	10.3
NH ₄ ⁺	5.7	4.8	6.3
Phosphorous	2.1	2.1	2.5

(*) Plants with potential ≥ 10,000 PE.

TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY ACQUE SPA (*) (2014-2016)

parameter	average value (%) 2014	average value (%) 2015	average value (%) 2016
$100 \times (\text{COD}_{\text{in}} - \text{COD}_{\text{out}}) / \text{COD}_{\text{in}}$	86.8	90.8	90.1
$100 \times (\text{SST}_{\text{in}} - \text{SST}_{\text{out}}) / \text{SST}_{\text{in}}$	91.4	93.5	95.4
$100 \times (\text{NH}_{4\text{in}}^{+} - \text{NH}_{4\text{out}}^{+}) / \text{NH}_{4\text{in}}^{+}$	83.3	87.4	84.4
$100 \times (\text{PO}_{4\text{in}}^{-3} - \text{PO}_{4\text{out}}^{-3}) / \text{PO}_{4\text{in}}^{-3}$	61.1	62.6	68.4

(*) Plants with potential ≥ 10,000 PE.

Acque has implemented energy efficiency enhancement measures, achieving the savings indicated in the table.

ACQUE ENERGY EFFICIENCY (2014-2016)

action	energy saving achieved 2014 (kWh)	energy saving achieved 2015 (kWh)	energy saving achieved 2016 (kWh)
Pagnana plant - pumping	-	40,000	40,000
Cambiano plant - pumping	-	10,000	10,000
Le Lame plant - replacement of ventilation system	-	30,000	30,000
S. Jacopo plant - replacement of ventilation system	-	40,000	40,000
Local authority treatment plant - automation and energy efficiency enhancement	600,000	600,000	600,000
La Fontina plant - automation and energy efficiency enhancement	-	10,000	10,000
San Prospero plant - pumping	-	6,000	6,000
Other energy efficiency improvements	-	13,000	13,000

Environmental expenditure

The “environmental expenditure” incurred in 2016 amounted to a total of about 7.0 million euros (4.90 million euros in 2015) and is broken down as illustrated in the table.

ENVIRONMENTAL EXPENDITURE (IN EUROS) (2015-2016)

description (2001/453/EC) and GRI-G4	2015		2016	
	investments	operations	investments	operations
management/disposal of waste (including sludge)		4,755,879.94		6,896,792.04
training on environmental matters				1,200
protection of air from pollution and combating climate change				
reduction of noise pollution	1,144	8,000		1,440
protection of biodiversity and the countryside				
environmental management systems, costs for certification of environmental emissions	20,029.0	10,662.0	3,280	4,572
insurance coverage for environmental responsibility	20,559.4			18,503.46
decontamination costs , for example after spills (excluding the fine-related costs)				
outsourced environmental management services		80,400.0		70,510.32
additional costs for installing innovative technologies (cost differential with respect to the traditional technologies)				
leak detection activities				
R&D (environmental aspects)				
additional costs for green products				
other environmental management expenditure				
Total	40,588.40	4,854,941.94	3,280.00	6,993,017.82

GRI-G4 CONTENT INDEX: GENERAL STANDARDS AND MATERIAL SPECIFIC STANDARDS

For a “comprehensive” commitment to the **G4 Sustainability Reporting Guidelines** (ed. 2013)¹⁰⁹, including the *Electric Utilities Sector Disclosures-G4*¹¹⁰, the following is the GRI Content Index, which includes:

- the **definition of the general standards (G4-1 – G4-58) and the specific material standards** (economic, social and environmental), with an **indication of the sections and pages of the document** where they can be found – or **responses to the indicators** - and the **reporting of any**

omissions or “non-materiality” of certain indicators included in the significant aspects;

- **the extension of the “materiality” of each aspect (specific standards), in other words its significance within the organization** (Group or companies traceable to specific business sectors) **or outside of it** (for example supply chain, community).

definition of GRI-G4 general standards and specific standards, notes (responses or reporting of non-materiality) reference pages and sections

extension of “materiality”

GENERAL STANDARD DISCLOSURES GRI-G4 (INCLUDING SECTOR DISCLOSURES – EU)

STRATEGY AND ANALYSIS

- G4-1 Statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and the organization’s strategy for addressing sustainability.**
Letter to the stakeholders, pages 6-7, Corporate identity pages 33 et seq., 36 et seq.
- G4-2 Description of key impacts, risks, and opportunities.**
Letter to the stakeholders, pages 6-7, Corporate identity pages 28 s., 30, 31, 33 et. seq., 36 et seq.

ORGANIZATIONAL PROFILE

- G4-3 Name of the organization.**
Acea SpA, Corporate identity page 24.
- G4-4 Primary brands, products, and services.**
Corporate identity pages 24 et seq.
- G4-5 Location of the organization’s headquarters.**
Piazzale Ostiense 2, 00154 Rome
- G4-6 Number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.**
Corporate identity pp. 24 et seq., 30.
- G4-7 Nature of ownership and legal form.**
Corporate identity page 26.
- G4-8 Markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).**
Corporate identity pages 24 et seq., 30; Socio-economic relations with stakeholders pages 62. et seq.
- G4-9 Report the scale of the organization, including: number of employees; number of operations; net sales (for private sector organizations) or net revenues (for public sector organizations); total capitalization broken down in terms of debt and equity (for private sector organizations); quantity of products or services provided.**
Corporate identity pages 25, 30; Socio-economic relations with stakeholders pages 111 table no. 29, 130.
- G4-10 Number of employees by employment type, by employment contract, by region and gender.**
Socio-economic relations with stakeholders pages 111 et seq., 118.
- G4-11 Percentage of total employees covered by collective bargaining agreements.**
Socio-economic relations with stakeholders page 118.
- G4-12 Description of organization’s supply chain.**
Socio-economic relations with stakeholders pages 104, 105.
- G4-13 Significant changes during the reporting period regarding the organization’s size, structure, ownership, or its supply chain.**
Corporate identity pages 25, 26, 53; Socio-economic relations with stakeholders page 77 note 38.

¹⁰⁹ The definition of the general and specific standard elements have been translated from the English version of the Guidelines and Sector Supplement published in 2013. For a more detailed explanation of their meaning, which has been taken into account when drafting the report, see the original edition *G4 Sustainability Reporting Guidelines* (part 1 and part 2) and *Electric Utilities Sector Disclosures-G4* available on the website www.globalreporting.org.

¹¹⁰ The indicators of the *Sector Supplement for Utilities in the electrical sector* (EU) are included in the table. The text disciplines topics peculiar to energy companies, introduces specific aspects (EU) and some in-depth information concerning the indicators already envisaged in the *GRI-G4 Guidelines*.

- EU1** **Installed capacity, broken down by primary energy source and by regulatory regime.**
Environmental issues page 151, chart no. 43.
- EU2** **Net energy output broken down by primary energy source and by regulatory regime.**
Environmental issues page 150.
- EU3** **Number of residential, industrial, institutional and commercial customer accounts.**
Socio-economic relations with stakeholders page 64, table no. 10.
- EU4** **Length of above and underground transmission and distribution lines by regulatory regime.**
Environmental issues page 154.
- EU5** **Allocation of CO₂ emissions allowances or equivalent, broken down by carbon trading framework.**
Environmental issues page 168 table no. 59.
- G4-14** **Report whether and how the precautionary approach or principle is addressed by the organization.**
Corporate identity pages 50, 53, 54 and table no.7; *Environmental issues* page 167.
- G4-15** **Externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.** *Communicating sustainability: methodological note* page 12, *Membership of the Global Compact* page 17; *Corporate identity* pages 33, 54; *Socio-economic relations with stakeholders* pages 103, 104, 120, 135, 136; *Environmental issues* page 145.
- G4-16** **List memberships of associations (such as industry associations) and national or international advocacy organizations in which the organization: holds a position on the governance body, participates in projects or committees, provides substantive funding beyond routine membership dues, views membership as strategic.**
Socio-economic relations with stakeholders pages 133, 135, 136.

IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES

- G4-17** **Entities included in the organization's consolidated financial statements or equivalent documents. Report whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.**
The indicator is included in the report whenever the reference boundary is different from the area of consolidation. This difference in some cases is simply to be correlated to the different business sectors (and relevant companies therein) reported on, while in others it is to be taken in relation to the centralised management of certain data which, by virtue of the activities managed in service, does not cover the entire Group.
Communicating sustainability: methodological note page 16; *Corporate identity* pages 9, 27, 28; *Socio-economic relations with stakeholders* pages 62, 104, 111, 116, 118, 120, 121, 122, 128, 130; *Environmental issues* pages 148, 154, 157, 162, 167; *Environmental Accounts* page 208.
- G4-18** **Process for defining the report content and the Aspect Boundaries. Explain how the organization has implemented the Reporting Principles for Defining Report Content.**
Communicating sustainability: methodological note pages 12, 13; *Corporate identity* pages 31 et seq.
- G4-19** **List all the material Aspects identified in the process for defining report content.**
Communicating sustainability: methodological note pages 12, 13; *GRI-G4 Content Index* pages 192 et seq.
- G4-20** **For each material Aspect, report the Aspect Boundary within the organization.**
A response to this indicator is provided from time to time in this Content Index, second column.
- G4-21** **For each material Aspect, report the Aspect Boundary outside the organization.**
A response to this indicator is provided from time to time in this Content Index, second column.
- G4-22** **Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements.**
Any recalculations or aggregations implying variations with regard to that published in 2015 are properly indicated and motivated in the report.
Communicating sustainability: methodological note, page 16; *Socio-economic relations with stakeholders* page 85.
- G4-23** **Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.**
Environmental issues page 170; *Environmental Accounts* page 212.

STAKEHOLDER ENGAGEMENT

- G4-24** **List of stakeholder groups engaged by the organization.**
Communicating sustainability: methodological note page 13; *Corporate identity* pages 55 et seq., 58; *Socio-economic relations with stakeholders* pages 65-69, 78, 82, 84 et seq., 88, 91 et seq., 94, 97 et seq., 100, 107 et seq., 110, 118, 120, 122, 124, 131 et seq., 134 et seq.; *Environmental issues* page 154.
- G4-25** **Basis for identification and selection of stakeholders with whom to engage.**
Communicating sustainability: methodological note page 13; *Corporate identity* pages 55 et seq., 58; *Socio-economic relations with stakeholders* pages 65-69, 78, 82, 84 et seq., 88, 91 et seq., 94, 97 et seq., 100, 107 et seq., 110, 118, 120, 122, 124, 129, 131 et seq., 136.
- G4-26** **Organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group.**
Communicating sustainability: methodological note page 13; *Corporate identity* pages 55 et seq., 58; *Socio-economic relations with stakeholders* pages 65-69, 78, 82, 84 et seq., 88, 91 et seq., 94, 97 et seq., 100, 107 et seq., 110, 118, 120 et seq., 124, 126 et seq., 129 et seq., 132, 134 et seq.
- G4-27** **Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.**
Communicating sustainability: methodological note page 13; *Corporate identity* pages 55 et seq., 58; *Socio-economic relations with stakeholders* pages 65-69, 78, 83, 88, 91 et seq., 94, 98 et seq., 107 et seq., 110, 118 et seq., 121 et seq., 124, 132, 134, 136.
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REPORT PROFILE

- G4-28 Reporting period (such as fiscal or calendar year) for information provided.**
Communicating sustainability: methodological note page 12.
- G4-29 Date of most recent previous report.**
Communicating sustainability: methodological note page 12.
- G4-30 Reporting cycle (such as annual, biennial).**
Communicating sustainability: methodological note page 12.
- G4-31 Contact point for questions regarding the report or its contents.**
Communicating sustainability: methodological note page 16.
- G4-32 Report the 'in accordance' option the organization has chosen. Report the GRI Content Index for the chosen option. Report the reference to the External Assurance Report, if the report has been externally assured.**
Communicating sustainability: methodological note page 12 and GRI-G4 Content Index pages 192 et seq.
- G4-33 Organization's policy and current practice with regard to seeking external assurance for the report (scope and basis of any external assurance provided, relationship between the organization and the assurance providers, etc.).**
Communicating sustainability: methodological note page 12 and Opinion Letter pages 20-21.
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GOVERNANCE

- G4-34 Governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.**
Corporate identity pages 48 et seq.
- G4-35 Processes 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 proxies to the Chief Executive Officer, who, in the framework of the corporate macro-structure deliberated by the Board itself, confers powers and proxies to the management, in compliance with the missions and responsibilities of the various structures. Normally, the process for any type of proxy (and therefore also for economic, environmental and social aspects) occurs through the analysis of the need/requirement for a power to be attributed. For example, the Human Resources and Organization Manager is attributed the proxy for health and safety in the workplace.
- G4-36 Report whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental and social topics, and whether post holders report directly to the highest governance body.**
Reporting to the Chairman, delegated for supervising topics concerning the environmental and social impact of the Group, is the Institutional Affairs Division of Acea SpA – which includes the RSI and Sustainability Unit – which has among its duties the coordination and development of topics concerning the sustainability of the Group activities and processes. The person responsible for this Unit is the Acea CSR Manager.
- G4-37 Processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics. If consultation is delegated, describe to whom and any feedback processes to the highest governance body.**
During the course of the year, management was asked to attend Board meetings, making a specific informative and cognitive contribution to the meetings.
Corporate identity pages 33 et seq., 48 et seq., 50; Socio-economic relations with stakeholders page 130.
- G4-38 Composition of the highest governance body and its committees (executive or non-executive, independence, gender, etc.).**
Corporate identity page 48.
- G4-39 Report whether the Chair of the highest governance body is also an executive officer (and, if so, his or her function within the organization's management and the reasons for this arrangement).**
Corporate identity page 48.
- G4-40 Nomination and selection processes for the highest governance body and its committees, and criteria used for nominating and selecting highest governance body members (whether and how diversity, independence, expertise and experience relating to economic, whether and how stakeholders - including shareholders - are involved).**
The presence of women in the governance bodies and Committees is not motivated by the search for gender balance but evaluations of the professional skills responding to corporate requirements. As regards the processes of identification and appointment of the members of the Board of Directors of the holding company, the Acea Statutes abide by that envisaged by the applicable legislative dispositions. Law no. 120 dated 12 July 2011 introduced in Italy the obligation of ensuring, as of 2012, the presence of women on the Boards of Directors of quoted companies in the measure of one-fifth of their members, rising to one-third as of 2016. As regards Acea, the gender quotas are respected on both the Board of Directors, composed of 9 members of whom 4 are women, and the Board of Statutory Auditors, composed of 3 members of whom one is a woman.
Corporate identity page 48.
- G4-41 Processes for the highest governance body to ensure conflicts of interest are avoided and managed.**
In Acea, the risk of conflict of interest is monitored thanks to internal corporate governance systems and procedures (Management, organisation and control model, Code of Ethics, Operations with Related Parties 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 48 et seq.
- G4-42 Roles of the highest governance body and senior executives 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 impacts.**
Communicating sustainability: methodological note page 12; Corporate identity pages 33 et seq., 36 et seq., 48 et seq., 51 et seq.

- G4-43** Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics.
Communicating sustainability: methodological note page 12; Corporate identity pages 33 et seq., 48.
- G4-44** Processes for evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topics.
The non-executive directors received fixed remuneration, determined by the Shareholders' Meeting, commensurate to the commitment required of them.
Corporate identity pages 48 et seq.
- G4-45** Role of the highest governance body in the identification and management of economic, environmental and social impacts, risks, and opportunities. Include the highest governance body's role in the implementation of due diligence processes.
Communicating sustainability: methodological note page 12; Corporate identity pages 36 et seq., 48 et seq., 51 et seq.
- G4-46** Role of the highest governance body in reviewing the effectiveness of the organization's risk management processes for economic, environmental and social topics.
Communicating sustainability: methodological note page 12; Corporate identity pages 36 et seq., 48 et seq., 51 et seq.
- G4-47** Frequency of the highest governance body's review of economic, environmental and social impacts, risks, and opportunities.
Communicating sustainability: methodological note page 12; Corporate identity pages 36 et seq., 48.
- G4-48** Report the highest committee or position that formally reviews and approves the organization's sustainability report and ensures that all material Aspects are covered.
Communicating sustainability: methodological note page 12; Corporate identity page 50.
- G4-49** Processes for communicating critical concerns to the highest governance body.
Corporate identity pages 50 et seq.
- G4-50** Nature and total number of critical concerns that were communicated to the highest governance body and the mechanism(s) used to address and resolve them.
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 Director responsible for the SCIGR reports, supported by the Audit Division. 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. Additional sources of information of the BoD are Management reviews of the certified management systems in force as regards Quality, Environment, Safety and Energy and also ad hoc reports on the part of other corporate Divisions.
Corporate identity page 52.
- G4-51** Remuneration policies for the highest governance body and senior executives (fixed pay and variable pay, sign-on bonuses or recruitment incentive payments, termination payments). Report how performance criteria in the remuneration policy relate to the highest governance body's and senior executives' economic, environmental and social objectives.
The remuneration of senior managers and executives is also linked to ESG aspects (health and safety, quality delivered, leadership and relational skills), but no performance indicators are specifically stated. Quality delivered is included among the remuneration elements for the Chief Executive Officer as well.
Corporate identity pages 48 et seq.; Socio-economic relations with stakeholders page 126.
- G4-52** Processes for determining remuneration. Report whether remuneration consultants are involved in determining remuneration and whether they are independent of management.
Corporate identity pages 48 et seq.
- G4-53** Report how stakeholders' views are sought and taken into account regarding remuneration, including the results of votes on remuneration policies and proposals, if applicable.
Corporate identity page 50.
- G4-54** 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.
Corporate identity page 50; also see the Remuneration Report 2016, available on the Acea website (www.acea.it)
- G4-55** Report the ratio of 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 has decided to provide only the figure concerning the ratio between the remuneration of the highest position and that of the average employee.
Corporate identity page 50; also see the Remuneration Report 2016, available on the Acea website (www.acea.it).

ETHICS AND INTEGRITY

- G4-56** Describe the organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.
Corporate identity pages 33 et seq., 48 et seq., 59; Socio-economic relations with stakeholders page 103.
- G4-57** Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines.
There are no helplines or external consultancy channels.
Corporate identity page 48.
- G4-58** Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines.
Corporate identity page 52.

**SPECIFIC STANDARD DISCLOSURES – ONLY MATERIAL ASPECTS AND INDICATORS
(INCLUDING SECTOR DISCLOSURES – EU)**

ECONOMIC		
Aspect: Economic Performance		Acea Group
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Corporate identity pages 30, 33 et seq.</i>	
G4-EC1	Direct economic value generated and distributed (including revenues, operating costs, employee wages and benefits, community investments, economic value retained, payments to providers of capital, payments to government). <i>Corporate identity pages 30, 55 et seq., 59 et seq.; Socio-economic relations with stakeholders pages 117, 130, 132.</i>	
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change. <i>Corporate identity page 30; Environmental issues pages 145, 164.</i>	
G4-EC3	Coverage of the organization's defined benefit plan obligations. <i>Socio-economic relations with stakeholders pages 117, 118 table no. 34, 126.</i>	
G4-EC4	Financial assistance received from government. <i>Corporate identity page 59 note 13.</i>	
Aspect: Market Presence		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders page 117.</i>	
G4-EC5	Ratio of standard entry level wage by gender compared to local minimum wage at significant locations of operation. <i>Socio-economic relations with stakeholders page 117.</i>	
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation. <i>The Acea procedures for hiring staff do not envisage as the prevalent element the requirement of geographical residence, given that this is potentially discriminating and not functional to the Group logics.</i>	
Aspect: Indirect Economic Impacts		Acea Group
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Corporate identity pages 55 et seq.; Socio-economic relations with stakeholders pages 100, 104.</i>	
G4-EC7	Development and impact of infrastructure investments and services supported (impacts on communities and local economies; report whether these investments and services are commercial, in-kind, or pro bono engagements, etc.). <i>Corporate identity pages 55 et seq.; Socio-economic relations with stakeholders pages 71 et seq., 77, 79 et seq., 83, 86 et seq., 99, 100 et seq., 104, 136 chart no. 40.</i>	
G4-EC8	Significant indirect economic impacts, including the extent of impacts. <i>Corporate identity pages 55 et seq.; Socio-economic relations with stakeholders pages 72, 77, 79 et seq., 86, 100 et seq., 102 et seq., 104 et seq.; Environmental issues page 164.</i>	main Group companies; local community; suppliers
Aspect: Procurement Practices		main Group companies; suppliers
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders pages 102 et seq., 105 et seq.</i>	
G4-EC9	Proportion of spending on local suppliers at significant locations of operation. <i>There is no specific preferential strategy towards local suppliers, although, especially as regards the procurement of works, the prevalence of local suppliers is determined naturally.</i> <i>Socio-economic relations with stakeholders pages 104 et seq., 106 table no. 28.</i>	
Aspect (Sector Disclosures): Availability and Reliability		Energy and Networks companies in the Group
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>The Energy Management Unit of Acea Energia SpA ensures the procurement of electricity (in addition to gas and fuels) for the internal and external customers of the Group, ensuring the balancing and optimisation of the energy portfolio in both physical and financial terms. The Unit deals with commercial relations with its primary suppliers of electricity and gas, both national and overseas, and with the main financial institutes. The structure monitors the efficiency of its own management processes and the tools available, both operating and in terms of risk monitoring, adopting, for example, forecasting models in order to benefit from variations in market factors (consumption volumes, customer marginality, etc.) and manage their exposure on its own activities. In 2016, Acea Energia procured about 7,350 Gwh of energy from the market for sale to its final customers on the free market, primarily through bilateral contracts. The company procured about 3,030 Gwh from the Sole Seller for sale to its customers on the enhanced protection market.</i> <i>Socio-economic relations with stakeholders pages 71 et seq., 89, 102, 104 note 74; Environmental issues pages 149, 153.</i>	
EU10	Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime. Non-material. <i>The production of electricity, which in Acea has a limited dimension, because of the national system of managing the electricity market, is not functional to the direct coverage of the demand.</i>	n. m.

Aspect (Sector Disclosures): Demand-Side Management		Energy and Networks companies in the Group
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 63, 71 et seq., 77, 89, 137 et seq.; <i>Environmental issues</i> page 153.	
Aspect (Sector Disclosures): Research and Development		Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 71 et seq., 135, 137 et seq.; <i>Environmental issues</i> page 153.	
Aspect (Sector Disclosures): System Efficiency		Energy and Environment companies in the Group
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> page 153.	
EU11	Average generation efficiency of thermal plants by energy source and by regulatory regime. <i>Environmental issues</i> pages 150, 152 table no. 45.	
EU12	Transmission and distribution losses as a percentage of total energy. <i>Environmental issues</i> page 153; <i>Environmental Accounts</i> pages 210, 219.	Energy and Networks companies in the Group
ENVIRONMENTAL		
Aspect: Materials		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. In relation to the PCB, on the basis of Legislative Decree no. 209/99 and Law 62/05, Acea had already disposed of the transformers with PCB in excess of the 500 ppm threshold by 31.12.2009. There were 216 transformers with PCB in excess of 50 ppm but below the above threshold in 2016 reported to the ARPA, including 94 Public Lighting transformers. <i>Environmental Accounts</i> page 208.	
G4-EN1	Materials used by weight or volume (+Sector Disclosures). <i>Environmental Accounts</i> pages 214, 215, 216.	
G4-EN2	Percentage of materials used that are recycled input materials. Non-material: the indicator only partly concerns Acea's business, which deals primarily with the sale and distribution of energy, the distribution of water and the management of waste (waste-to-energy); however, in circumscribed frameworks, Acea has implemented a policy of green procurement. <i>Socio-economic relations with stakeholders</i> page 104.	n. m.
Aspect: Energy		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Corporate identity</i> pages 31, 33; <i>Environmental issues</i> page 149.	
G4-EN3	Energy consumption within the organization. <i>Socio-economic relations with stakeholders</i> pages 86, 95; <i>Environmental issues</i> pages 162, 163.	
G4-EN4	Energy consumption outside of the organization. <i>Environmental issues</i> page 163.	suppliers
G4-EN5	Energy intensity. <i>Environmental issues</i> pages 163, 164.	
G4-EN6	Reduction of energy consumption. <i>Socio-economic relations with stakeholders</i> page 78; <i>Environmental issues</i> page 164.	
G4-EN7	Reductions in energy requirements of products and services. <i>Socio-economic relations with stakeholders</i> pages 86, 89; <i>Environmental issues</i> page 164.	
Aspect: Water		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Corporate identity</i> pages 31, 33; <i>Environmental issues</i> pages 146, 157, 166.	
G4-EN8	Total water withdrawal by source (+Sector Disclosures). <i>Environmental issues</i> page 165; <i>Environmental Accounts</i> pages 212, 213	
G4-EN9	Water sources significantly affected by withdrawal of water. <i>Environmental issues</i> pages 146, 147.	
G4-EN10	Percentage and total volume of water recycled and reused. The quantitative data is not available for 2016. <i>Environmental issues</i> pages 165, 166.	

Aspect: Biodiversity		Accea Group
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> page 145.	
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas. <i>Environmental issues</i> page 145.	main water companies in the Group
G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas. <i>Environmental issues</i> pages 145, 146, 147, 153.	
EU13	Biodiversity of offset habitats compared to the biodiversity of the affected areas. <i>Environmental issues</i> pages 145 et seq.	
G4-EN13	Habitats protected or restored. <i>Environmental issues</i> pages 145, 146.	
G4-EN14	Total number of IUCN red list species and national conservation list species with habitats in areas affected by operations, by level of extinction risk. Non-material: This item is not currently monitored, given that in the territories in which the Group operates, there do not appear to be any of the species included in the red list. In any event, the Group carries out its activities according to rigorous criteria for respecting and safeguarding the natural territories where fauna and flora are present in the areas where it operates.	n. m.
Aspect: Emissions		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> pages 145, 167.	
G4-EN15	Direct greenhouse gas (GHG) emissions (SCOPE 1) (+ Sector Disclosures). <i>Environmental issues</i> pages 168, 169 table no. 61; <i>Environmental Accounts</i> pages 217, 219.	
G4-EN16	Indirect greenhouse gas (GHG) emissions (SCOPE 2) (+Sector Disclosures). <i>Environmental issues</i> pages 168, 169 table no. 61; <i>Environmental Accounts</i> pages 217, 219.	
G4-EN17	Other indirect greenhouse gas (GHG) emissions (SCOPE 3). <i>Environmental issues</i> page 168.	
G4-EN18	Greenhouse gas (GHG) emission intensity. <i>Environmental issues</i> pages 168, 169 table no. 61.	
G4-EN19	Reduction of greenhouse gas (GHG) emissions. <i>Environmental issues</i> pages 153, 164, 165 table no. 56.	
G4-EN20	Emissions of ozone-depleting substances (ODS). <i>Environmental issues</i> page 169.	
G4-EN21	NO _x , SO _x and other significant air emissions. <i>Environmental issues</i> page 168 table no. 60; <i>Environmental Accounts</i> pages 217, 219.	
Aspect: Effluents and Waste		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> page 161.	Group water companies
G4-EN22	Total water discharge by quality and destination (+ Sector Disclosures). The water used by the Acea structures for "non-industrial/sanitary" use undergoes the same standard purification treatment to which all urban waste water is subjected. The environmental impact on the body of water receiving the disposed of purified water is particularly limited. The composting plant in Sabaudia has a treatment line which receives approximately 10,000 t of liquid waste from outside which is treated at the plant. The outgoing effluent has concentrations of the parameters to be kept under control well below the limits allowed. <i>Environmental Accounts</i> page 213.	
G4-EN23	Total weight of waste by type and disposal method. The total hazardous waste produced amounted to 74,045 t; the total non-hazardous waste produced amounted to 211,050 t (of which 146,978 was sludge, sand and sediment). The percentage of hazardous and non-hazardous waste sent for recovery was 59%. The figures do not include the production of two hydroelectric stations (A. Volta, shutdown for revamping, and G. Ferraris), which however had a minimum incidence on the total waste of Acea Produzione (0.82%). Differentiated collection in 2016 achieved a recovery of about 1,100 tonnes of paper (+32% compared to 2015) and 606 tonnes of plastic (+27% compared to 2015). As regards the waste containing PCB, 16 transformers were disposed of by Areti (for about 7 t). <i>Environmental Accounts</i> pages 217, 218.	
G4-EN24	Total number and volume of significant spills. There were no significant releases into the environment of pollutants such as mineral oil, fuel or chemical products in 2016.	
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention annex I, II, III, and VIII, and percentage of transported waste shipped internationally. Non material: the flows of waste overseas were monitored for each company. There were no significant movements, except for 1,195 tonnes of hazardous waste (2.5% of the heavy ashes –CER 190111 – produced by the plant in San Vittore del Lazio) sent to plants in Germany for recovery in 2016.	n. m.
G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff. No landfills reported significantly affecting the habitats and biodiversity.	

Aspect: Products and Services		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> page 167.	
G4-EN27	Extent of impact mitigation of environmental impacts of products and services. The initiatives focus on the reduction of atmospheric emissions due to thermoelectric production and the waste-to-energy treatment of waste and the production of electricity from renewable sources. The environmental impacts are in truth generated by the services offered, intended as generation and distribution of electricity; co-generation; management of the IWS; management of the waste, including waste-to-energy and the environmental behaviour of contractors and subcontractors, and the Group is responsible for limiting impact in all situations. <i>Socio-economic relations with stakeholders</i> page 89; <i>Environmental issues</i> pages 168, 169 table no. 61.	main Group companies and suppliers
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category. Not applicable.	n.a.
Aspect: Compliance		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> page 147.	
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations. <i>Environmental issues</i> pages 133, 147.	
Aspect: Transport		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> page 169.	
G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce. <i>Environmental issues</i> page 169 and table no. 61.	
Aspect: Overall		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> page 148.	
G4-EN31	Total environmental protection expenditures and investments by type. <i>Environmental issues</i> page 148.	
Aspect: Supplier Environmental Assessment		main Group companies and suppliers
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 107, 108, 169, 110; <i>Environmental issues</i> pages 145, 163, 168.	
G4-EN32	Percentage of new suppliers that were screened using environmental criteria. 100%. As a compulsory requirement for registration in Qualification Systems, all suppliers must fill in the TenP Questionnaire, and also the QAS Questionnaire, for water and electricity works. <i>Socio-economic relations with stakeholders</i> pages 103, 104, 107, 108, 109, 110; <i>Environmental issues</i> page 145, 163, 168.	
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken. <i>Socio-economic relations with stakeholders</i> pages 107, 108, 109, 110.	
Aspect: Environmental Grievance Mechanisms		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Environmental issues</i> page 147.	
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms. <i>Environmental issues</i> page 147.	main Group companies; local communities
SOCIAL		
LABOR PRACTICES AND DECENT WORK		
Aspect: Employment		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 103, 107 et seq., 109 et seq., 112, 123.	
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender, and region. (+Sector Disclosures). <i>Socio-economic relations with stakeholders</i> pages 111 table no. 30, 112, 114 table no. 31, 115 table no. 32.	
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation. <i>Socio-economic relations with stakeholders</i> page 127.	

G4-LA3	Return to work and retention rates after parental leave, by gender.	Acea operates in respect of the Consolidation Act on safeguarding and supporting maternity and paternity (Legislative Decree no. 151/2001 as amended), which disciplines leave, rest, permits and the economic support of female and male workers as regards maternity and paternity of natural and adoptive children and those they are the guardians of. The law forbids any sort of discrimination for reasons relating to gender, with specific regard to any less favourable treatment because of pregnancy, maternity and paternity; establishes compulsory maternity leave for a period including the two months prior and three months subsequent to birth and guarantees the preservation of the job throughout this period, imposing a ban on dismissal; establishes the reintegration of the resource in question to the duties they carried out before maternity or equivalent duties, envisaging sanctions for employers who breach this law. Therefore, 100% of employees who take this type of leave come back to the same job when returning to work.	358 employees took parental leave in 2016, 128 of them men and 230 women. They all returned to work after their leave ended.	energy and networks companies in the Group
EU15	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region.	With regard to the Group companies operating in the electricity sector (Acea Distribuzione, Acea Energia and Acea Produzione, located prevalently in Lazio), the number of employees coming up for retirement within the next 5 years constitutes 4% of the total workforce of the companies included in the reporting boundary in the paragraph Composition and turnover, broken down into: 0.1% executives, 0.3% managers, 2.7% white-collar workers and 0.9% blue-collar workers; 22% of the workforce is coming up for retirement within the next 10 years, broken down into: 0.2% executives, 1.5% managers, 16.2% white-collar workers and 4.0% blue-collar workers.		
EU17	Days worked by contractor and subcontractor employees involved in construction, operation & maintenance activities.	In 2016, Areti, with a workforce of 1,174 resources for a total of about 204,000 days/man, made recourse to about 80,000 days/man worked by personnel of contracting companies for the execution of works. The details of the activities are not available.		
EU18	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training.	Acea verifies and promotes training on the topic of health and safety by its suppliers and sub-suppliers. In 2016, the Supplier Qualification Unit of the parent company carried out a survey on a sample of suppliers aimed at obtaining in-depth awareness of their sensitivity and skills in managing these aspects. Furthermore, a "safety team" was set-up in Acea Elabari, with the objective of ensuring the respect of the highest standards of safety in the workplace in relation to the works awarded in the Single Contracts. Socio-economic relations with stakeholders pages 109, 110.		
Aspect: Labor/Management Relations				main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects.			
	Socio-economic relations with stakeholders page 119.			
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements.			
	Socio-economic relations with stakeholders pages 118, 119.			
Aspect: Occupational Health and Safety				main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects.			
	Socio-economic relations with stakeholders pages 120, 122.			
G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs.			
	That envisaged by Legislative Decree no. 81/2008 concerning health and safety in the workplace is respected by Acea.			
	Socio-economic relations with stakeholders pages 120, 124.			
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work related fatalities, by region and by gender. (+Sector Disclosures).			
	In 2016, the rate of absenteeism was 3.90% (3.67% male absenteeism rate and 4.67% female absenteeism rate).			
	Socio-economic relations with stakeholders pages 120, 121 table no. 35, 124.			
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation.			
	Socio-economic relations with stakeholders pages 122, 124.			
G4-LA8	Health and safety topics covered in formal agreements with trade unions.			
	Socio-economic relations with stakeholders pages 120, 124.			
Aspect: Training and Education				main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects.			
	Socio-economic relations with stakeholders pages 122, 123, 127.			
G4-LA9	Average hours of training per year per employee by gender, and by employee category.			
	Socio-economic relations with stakeholders pages 124, 125 chart no. 38 and table no. 36.			

G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings. No plans for employees at the end of their careers were started in 2016. <i>Socio-economic relations with stakeholders</i> page 122.	
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category. In 2016, as part of the new Human Resources Management System, all staff of the main Group companies were subjected to evaluation. <i>Socio-economic relations with stakeholders</i> page 127.	
Aspect: Diversity and Equal Opportunity		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> page 129.	
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity. <i>Corporate identity</i> page 49; <i>Socio-economic relations with stakeholders</i> pages 114 and chart no. 34 and table no. 31, 116 and table no. 33, 129.	
Aspect: Equal Remuneration for Women and Men		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 117, 126.	
G4-LA13	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation. The National Collective Labour Contract (CCNL) applied by Acea envisages the same remuneration for men and women in equivalent positions. <i>Socio-economic relations with stakeholders</i> page 117.	
Aspect: Supplier Assessment for Labor Practices		main Group companies and suppliers
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 107, 108, 109, 110.	
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria. 100%. As a compulsory requirement for registration in Qualification Systems, all suppliers must fill in the TenP Questionnaire, and also the QAS Questionnaire, for water and electricity works. <i>Socio-economic relations with stakeholders</i> pages 103, 107, 108, 109, 110.	suppliers
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken. <i>Socio-economic relations with stakeholders</i> pages 107, 108, 109, 110.	suppliers
Aspect: Labor Practices Grievance Mechanisms		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. The non-judicial disputes between employees and companies are managed by third parties authorised to do so - for example the Territorial Departments of the Employment Ministry with Settlement Committees, trade unions or arbitration bodies - operating in compliance with the procedures envisaged in the CCNL.	
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms. No reports were received in 2016.	
Society		
Aspect: Local Communities		main Group companies and various stakeholders
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Corporate identity</i> page 55; <i>Socio-economic relations with stakeholders</i> pages 70 et seq., 77, 78 et seq., 81, 83 et seq., 86, 97, 132 et seq., 135.	
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs. 100% of the main Group companies implement initiatives engaging the parties involved. <i>Corporate identity</i> pages 52 et seq., 55 et seq., 58; <i>Socio-economic relations with stakeholders</i> pages 65-69, 77, 78 et seq., 91, 83, 84, 86, 88, 97, 98, 102 et seq., 103, 107, 108, 133, 136; <i>Environmental issues</i> page 154.	
G4-SO2	Operations with significant actual or potential negative impacts on local communities. <i>Corporate identity</i> pages 55 et seq., 58; <i>Socio-economic relations with stakeholders</i> pages 70 et seq., 77, 78, 81 et seq., 84, 86, 87, 88, 98, 100 et seq., 134, 135; <i>Environmental issues</i> pages 147, 154, 158, 166.	
EU22	Number of people physically or economically displaced and compensation, broken down by type of project. No episodes of this sort occurred.	

Aspect: Anti-corruption		Acea Group
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Corporate identity</i> page 48.	
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified. <i>Corporate identity</i> pages 48, 52.	
G4-SO4	Communication and training on anti-corruption policies and procedures. <i>Socio-economic relations with stakeholders</i> page 124.	main Group companies
G4-SO5	Confirmed incidents of corruption and actions taken. No episodes of corruption occurred.	
Aspect: Public Policy		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> page 132.	
G4-SO6	Total value of political contributions by country and recipient/beneficiary. <i>Socio-economic relations with stakeholders</i> page 133.	
Aspect: Anti-competitive Behavior		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> page 133.	
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes. <i>Socio-economic relations with stakeholders</i> page 133.	
Aspect: Compliance		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> page 133.	
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations. <i>Socio-economic relations with stakeholders</i> page 133; <i>Environmental issues</i> page 147.	
Aspect: Grievance Mechanisms for Impacts on Society		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 94, 99.	
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms. <i>Socio-economic relations with stakeholders</i> pages 74 table no. 12, 76 table no. 13, 94, 99.	
Aspect (Sector Disclosures): Disaster/ Emergency Planning and Response		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> page 134.	
Product responsibility		
Aspect: Customer Health and Safety		main Group companies, customers, community
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 85, 88; <i>Environmental issues</i> pages 153, 158.	
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement. <i>Corporate identity</i> page 52 et seq.; <i>Socio-economic relations with stakeholders</i> pages 83, 84, 85, 88, 136; <i>Environmental issues</i> page 153.	
EU25	Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements and pending legal cases of diseases. No episodes occurred in this regard in 2016.	
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes. No non-compliances of this type occurred.	
Aspect: Product and Service Labeling		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 65-69, 70 et seq., 78, 81, 91, 93.	

G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements. <i>Socio-economic relations with stakeholders</i> pages 73, 74 table no. 12, 76 tables nos. 13 and 14, 78 et seq., 81, 88, 92, 94, 95, 133.	
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes. <i>Socio-economic relations with stakeholders</i> pages 73, 74 table no. 12, 76 tables nos. 13 and 14, 78, 79, 93, 94, 95, 133.	
G4-PR5	Results of surveys measuring customer satisfaction. <i>Socio-economic relations with stakeholders</i> pages 65-69, 78, 88.	
Aspectto: Marketing communications		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 90, 91, 110.	
G4-PR6	Sale of banned or disputed products. Not applicable.	n. a.
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes. <i>Socio-economic relations with stakeholders</i> pages 110, 133.	
Aspect: Customer Privacy		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> page 92.	
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data. There were 4 documented cases of claims made against Acea companies in 2016, concerning breaches of the privacy law or the loss of consumer data, for which the Privacy Guarantor intervened requesting information or inspections. Two of these procedures were ongoing and the others were concluded without sanctions against the companies involved.	
Aspect: Compliance		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> pages 78, 79, 91, 92, 94.	
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services. <i>Socio-economic relations with stakeholders</i> pages 92, 133, 147.	
Aspect (Sector Disclosures): Access		main Group companies in the networks sector
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. <i>Socio-economic relations with stakeholders</i> page 63.	
EU26	Percentage of population unserved in licensed distribution or service areas. The coverage of the distribution networks is capillary throughout the territory.	
EU27	Number of residential disconnections for non-payment, broken down by duration of disconnection and by regulatory regime. Exclusively the data concerning reconnections following suspension due to arrears is available, as established by the reference national authority: the Authority for electricity, gas and the water system. <i>Socio-economic relations with stakeholders</i> page 74 table no. 12.	
EU28	Power outage frequency. <i>Socio-economic relations with stakeholders</i> page 76 table no. 14.	
EU29	Average power outage duration. <i>Socio-economic relations with stakeholders</i> pages 76 table no. 14, 78 table no. 18.	
EU30	Average plant availability factor by energy source and by regulatory regime. <i>Environmental issues</i> page 151 table no. 44.	
Aspect (Sector Disclosures): Provision of Information		main Group companies
G4-DMA	The DMA (Disclosure on Management Approach) should contain sufficient information to explain an organization's response to material Aspects. There are no specific helpdesks for the handicapped at the head office. With regard to the website, the start of the analysis aimed at identifying specific templates for disabilities concerning sight (text enlargers, vocal summaries, contrast between text and background and colour changes to facilitate vision) was planned in 2016.	

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2016
ENVIRONMENTAL ACCOUNTS

acea

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The 2016 boundaries include Acea SpA, Areti (until 30th June 2016 named Acea Distribuzione¹), Acea Illuminazione Pubblica, Acea Produzione, Acea Energy, Acquaser, Acea Elabori, Acea Ato 2, Acea Ato 5 and, from Acea Ambiente: Waste to Energy plants (San Vittore del Lazio and Terni), waste management plant of Orvieto, composting plants of Aprilia, Sabaudia and Monterotondo². The water companies Acque, Gori, Acquedotto del Fiora, Publiacqua and Umbra Acque, participated by Acea, consolidated in the financial statements under the equity method – are included marginally in the environmental accounts and only for items that are precisely reported. Water balances of these companies can be found in chapter Water companies.

The *Environmental Accounts*, an integral part of the Sustainability Report, bring together and systematically present the information and data on Acea Group’s environmental performance in an in-depth manner. Figures are separated into “product systems” for the energy, environment and water sectors according to the Life Cycle Assessment approach (ISO standard 14040 series), which assesses the entire life cycle of the systems. The substances used by the Group, both natural as water, and not natural as the chemicals, as well as the “products” and emissions/effluents/wastes of the Business areas, are reported for the three-year period as relevant to produce

and distribute energy, to collect and distribute drinking water, for the treatment processes and for all processes related to waste management including waste-to-energy ones. Each use is kept to a minimum in terms of quantity and all substances are carefully chosen considering quality, safety and environmental sustainability. Additional information is provided in the *Explanatory Notes* concerning the quality of the figures presented herein, especially when such are measured, estimated or calculated, and the items of the *Environmental Accounts* (indicated in the tables and in the text by a number in brackets) are accompanied by a brief illustrative description.

PRODUCT SYSTEMS

 <h3 style="margin-top: 10px;">ENERGY</h3> <ul style="list-style-type: none"> • ENERGY GENERATION (THERMOELECTRIC + HYDROELECTRIC + PHOTOVOLTAIC + WASTE TO ENERGY) • ELECTRICITY DISTRIBUTION • HEAT PRODUCTION AND DISTRIBUTION • PUBLIC LIGHTING • TESTS AND INSPECTIONS 	 <h3 style="margin-top: 10px;">ENVIRONMENT</h3> <ul style="list-style-type: none"> • DISPOSED MSW (MUNICIPAL SOLID WASTE) • COMPOST PRODUCTION • ANALYSIS AND MEASUREMENTS 	 <h3 style="margin-top: 10px;">WATER</h3> <ul style="list-style-type: none"> • DRINKING WATER SUPPLY • NON-DRINKING WATER SUPPLY • WATER DISTRIBUTION • WASTE WATER TRANSPORTATION/TREATMENT • ANALYSIS AND MEASUREMENTS
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The figures are provided for the three-year period 2013-2015 and are grouped together in three similar categories:

- the product supplied;
- the resources used;
- the waste produced.

The performance indicators and the key environmental performance indicators are illustrated for each sector below.

¹ Acea Distribuzione, in accordance with the obligations in relation to separation of identity, branding and communication policies provided for, respectively, in paragraph 23.3 and paragraph 38.2 of the Legislative Decree no. 93/11, from 1st July 2016 changed name to Areti.
² SAO Srl, Solemme Srl and Kyklos Srl, on 29.12.2016 in accordance with what approved by the respective companies, were merged through incorporation in A.R.I.A. Srl; the acquiring company that changed name to Acea Ambiente Srl.

THE PRODUCTS - ENERGY

Electricity generation figures refer to Acea Produzione³ (AP) (100% Acea SpA) and Acea Ambiente – Waste to Energy (100% Acea SpA)

ELECTRICITY – GENERATION	U.M.	2014	2015	2016	Δ% 2016/2015
summarised figures					
total gross electricity produced (1) = (3+11+16)	GWh	807.93	783.07	742.46	-5.2
total net electricity produced (2)=(10+15+18)	GWh	756.13	728.07	686.91	-5.7
from fossil sources (thermoelectric) (5 + 0.44x 15 _{San Vittore} + 0.59 x 16 _{Terni})	GWh	161.14 19.9% of (1)	170.16 21.7% of (1)	166.29 22.4% of (1)	-2.3
from renewable sources (hydroelectric, solar, biodegradable fraction of waste) (4+0.56x15 _{San Vittore} +0.41 x 16 _{Terni} +16)	GWh	646.79 80.1% of (1)	612.91 78.3% of (1)	576.18 77.6% of (1)	-6.0
Acea Produzione – thermoelectric					
total gross electricity produced (3) = (4+5)	GWh	505.43	462.26	399.73	-13.5
total gross hydroelectric energy (4)	GWh	495.18	449.19	389.68	-13.2
A. Volta Castel Madama	GWh	27.37	15.67	0.00	-
G. Ferraris Mandela	GWh	19.75	12.21	10.71	-12.3
G. Marconi Orte	GWh	75.25	62.53	62.69	0.3
Sant'Angelo	GWh	188.30	177.19	132.62	-25.2
Salisano	GWh	182.41	179.21	181.26	1.1
other minor plants	GWh	2.11	2.38	2.40	1.0
total gross thermoelectric energy (5)	GWh	10.25	13.08	10.05	-23.2
from gas oil					
Montemartini plant (*)	GWh	0.05	1.84	1.18	-35.9
From natural gas	GWh	10.20	11.24	8.88	-21.0
Tor di Valle combined cycle	GWh	0.00	0.00	0.00	-
Tor di Valle co-generation plant	GWh	10.20	11.24	8.88	-21.0
total electricity losses (6) = (7+8+9)	GWh	12.98	12.81	10.90	-14.9
internal consumption - hydroelectric plants (7)	GWh	2.43	2.29	2.09	-8.7
internal consumption - heat plants (Tor di Valle, Montemartini) (8)	GWh	3.89	4.18	4.17	-0.2
initial transformation losses (9)	GWh	6.66	6.34	4.63	-27.0
total net electricity produced by Acea Produzione (10) = (3-6)	GWh	492.45	449.46	388.84	-13.5
Acea Produzione – fotovoltaic energy					
gross fotovoltaic energy (11)	GWh	15.46	13.93	15.98	14.7
total electricity losses (12)	GWh	0.31	0.28	0.32	14.3
net fotovoltaic energy (13) = (11-12)	GWh	15.15	13.65	15.66	14.7
Acea Ambiente – waste-to energy					
total gross electricity produced (14) = (15)+(16)	GWh	287.04	306.87	326.75	6.9
San Vittore del Lazio plant (15)	GWh	205.09	225.35	243.68	8.1
Terni plant (16)	GWh	81.95	81.52	83.07	1.9
internal consumptions + initial transformation losses (17)	GWh	38.51	41.91	44.34	5.8
San Vittore del Lazio plant	GWh	29.64	32.88	35.68	8.5
Terni plant	GWh	8.87	9.03	8.66	-4.1
total net electricity produced (18) = (14-17)	GWh	248.53	264.96	282.41	6.6

(*) The Montemartini plant remains operational but only as a standby.

³ On 29.12.2015 the fotovoltaic branch (first in A.R.S.E.) was merged in Acea Produzione SpA, with the exception of Parco della Mistica Pensiline (953 kWp) and Parco della Mistica Serre (4,019 kWp), transferred to Elga Sud SpA. In addition, on 30.12.2015 the total demerger of A.R.S.E.SpA with beneficiaries Acea SpA, Acea Produzione SpA and Elga Sud SpA was effective.

THERMAL ENERGY – GENERATION	U.M.	2014	2015	2016	Δ% 2016/2015
Acea Produzione					
gross thermal energy produced					
Tor di Valle plant (19)	GWh _t	92.03	80.20	90.03	12.2
total thermal electricity losses (20)	GWh _t	18.89	7.98	23.95	200.1
<i>distribution losses</i>	GWh _t	16.65	5.82	17.83	206.4
<i>production losses</i>	GWh _t	2.24	2.16	6.11	182.9
net thermal energy sold (21) = (19-20)	GWh_t	73.13	72.21	66.08	-8.5

ELECTRICITY – TRANSPORT AND SALE	U.M.	2014	2015	2016	Δ% 2016/2015
Rome and Formello - summarised figures					
supply from Acea Group (22)	GWh	2.12	2.35	3.00	27.7
electricity from the market (23)	GWh	10,951.49	11,197.77	10,798.59	-3.6
<i>from sole buyer</i>	GWh	2,852.89	2,839.87	2,675.92	-5.8
<i>from imports</i>	GWh	432.05	389.12	390.20	0.3
<i>from wholesalers + other producers</i>	GWh	7,666.55	7,968.78	7,732.47	-3.0
electricity demand on the network (24) = (22+23) = (25 +26 +27+28+29)	GWh	10,953.61	11,200.12	10,801.60	-3.6
<i>distribution, transport and commercial losses (25)</i>	GWh	673.59	690.62	699.58	1.3
<i>internal transmission and distribution (26)</i>	GWh	29.80	30.05	32.45	8.0
<i>net electricity sold to third parties (27)</i>	GWh	2.90	2.67	2.52	-5.6
net electricity conveyed by Acea to free market customers (28)	GWh	7,247.28	7,525.98	7,309.74	-2.9
<i>net electricity sold by Acea Elettricità to free market customers on Areti network</i>	GWh	5,115.86	5,644.24	5,673.51	0.5
<i>net electricity sold by Other Sellers to free market customers on Areti network</i>	GWh	2,131.42	1,881.74	1,636.22	-13.0
net electricity sold to protected customers (29)	GWh	3,000.05	2,950.80	2,757.30	-6.6
sale in Italy - summarised figures					
net electricity sold by Acea on the free market - including sale on Rome (30)	GWh	7,887.0	6,467.5	5,558.8	-14.1
<i>Acea Energy</i>	GWh	7,343.6	6,092.0	5,163.4	-15.2
<i>other investee companies</i>	GWh	543.4	375.5	395.0	5.3
net electricity sold by Acea in Italy (free market + protected customers) (29+30)	GWh	10,887.0	9,418.3	8,316.1	-13.5

PUBLIC LIGHTING	U.M.	2014	2015	2016	Δ% 2016/2015
lighting flux in Rome (31)	Mlumen	3,377	3,376	2,750	-18.5

MONITORING AND GAUGING	U.M.	2014	2015	2016	Δ% 2016/2015
monitoring and gauging activities (32)	no.	393	371	410	10.5
<i>electromagnetic field measures</i>	no.	30	22	23	4.5
<i>noise monitoring</i>	no.	5	14	18	28.6
<i>chemical analysis of PCB</i>	no.	102	75	76	1.3
<i>waste classification</i>	no.	36	43	43	0.0
<i>transformer diagnostics</i>	no.	208	199	217	9.0
<i>other</i>	no.	12	18	33	83.0

THE PRODUCTS - ENVIRONMENT

Data refer to three composting plants (the one located in Aprilia formerly within Kyklos, and and the two others located, respectively, in Monterotondo Marittimo and Sabaudia formerly within Solemme) and to the waste management plant in Orvieto, from December 2016 all in Acea Ambiente and 100% Acea SpA.

NON-HAZARDOUS WASTE, DISPOSED OF AND RECOVERED – PLANT IN ORVIETO	U.M.	2014	2015	2016	Δ% 2016/2015
incoming waste to plant (33)	t	97,927	93,865	96,541	2.9
landfilled waste (34)	t	89,348	83,479	70,780	-15.2
recovered waste (35)	t	6,313	7,031	3,887	-44.7
high quality compost (36)	t	658	0	1,339	-
reduction for stabilisation (37) = (33 - 34 - 35 - 36)	t	1,608	3,355	20,536	-

PRODUCTION OF COMPOST	U.M.	2014	2015	2016	Δ% 2016/2015
total incoming organic waste =(38+39+40)	t	55,769.4	19,509.9	45,051.07	130.9
incoming sludge (38)	t	15,924.25	11,390.98	16,999.50	49.2
plant of Aprilia	t	2,330.09	0.00	6,393.94	-
plant of Monterotondo Marittimo	t	5,420.78	4,986.98	4,867.80	-2.4
plant of Sabaudia	t	8,173.38	6,404.00	5,737.76	-10.4
incoming green (39)	t	15,806.38	8,118.94	12,596.45	55.1
plant of Aprilia	t	4,898.20	0.00	5,705.00	-
plant of Monterotondo Marittimo	t	2,660.88	2,155.94	2,202.43	2.2
plant of Sabaudia	t	8,247.30	5,963.00	4,689.02	-21.4
incoming organic fraction from waste collection system (40)	t	24,038.74	0.00	15,455.12	-
plant of Aprilia	t	24,038.74	0.00	15,439	-
plant of Monterotondo Marittimo				15.72	-
High Quality compost produced (41)	t	14,101.1	7,203.0	8,502.90	18.0
plant of Aprilia	t	6,026.1	0.00	848.8	-
plant of Monterotondo Marittimo	t	4,000.0	3,167.0	2,100.00	-33.7
plant of Sabaudia	t	4,075.0	4,036.0	5,554.0	37.6
non-compostable material to disposal (42)	t	4,361.2	0.0	3,364.08	-
plant of Aprilia	t	4,361.16	0.00	3,364.08	-
plant of Monterotondo Marittimo and Sabaudia	t	0.00	0.00	0.00	-
reduction for stabilisation = (38+39+40-41-42)	t	37,307.1	12,306.9	36,532.45	196.8

FLUIDS TO TREATMENT	U.M.	2014	2015	2016	Δ% 2016/2015
fluids to treatment (42 bis)					
fluids to treatment – plant of Sabaudia	t	12,503	14,648	10,489	-28.4

ANALYTICAL CONTROLS ON WASTE AND ON HIGH QUALITY COMPOST	U.M.	2014	2015	2016	Δ% 2016/2015
total analytical controls (43)	no.	90	73	95	30.1
analytical controls on compost – plant of Orvieto	no.	5	0	0	-
analytical controls on compost – plants of Aprilia, Monterotondo Marittimo and Sabaudia	no.	25	17	35	105.9
analytical controls on waste – plant of Orvieto	no.	60	56	60	7.1

THE PRODUCTS - WATER

Summarised national water figures include the main water companies in the Acea Group - Acea Ato 2 and Acea Ato 5 (Lazio Region), Gori (Campania Region), Umbra Acque (Umbria Region), Acque, Publiacqua and Acquedotto del Fiora (Tuscany). Details of water balances are presented only for the operating companies in Lazio, the only companies that have been consolidated proportionally for 2016, as previously for 2015.

You can read the data of the water balance of the Group companies consolidated differently in chapter Water Companies.

The items of water balance were recalculated, for the last three years, according to the criteria provided by the AEEGSI⁴.

GROUP WATER BALANCE IN ITALY	U.M.	2014	2015	2016	Δ% 2016/2015
summarised figures					
total drinking water withdrawn from the environment or from other systems (44)	Mm ³	1,392.8	1,418.4	1,433.7	1.1
total drinking water introduced onto the network (45)	Mm ³	1,263.9	1,285.5	1,291.9	0.5
total drinking water supplied (46)	Mm ³	665.5	667.0	669.0	0.3
WATER BALANCE OF THE COMPANIES OPERATING IN THE REGION OF LAZIO					
Acea Ato 2 for Rome historic network					
drinking water withdrawn from the environment (47)	Mm ³	611.5	619.4	636.0	2.7
<i>from lake Bracciano, treated</i>	Mm ³	19.8	36.7	32.0	-12.8
<i>from wells</i>	Mm ³	18.8	19.8	20.5	3.5
<i>from springs</i>	Mm ³	572.9	562.9	583.5	3.7
drinking water sold to municipal retailers situated on the path of aqueducts (48)	Mm ³	78.5	66.7	68.9	3.3
drinking water introduced onto non-drinking water network (49)	Mm ³	14.6	11.4	11.2	-1.8
drinking water returned to the environment /technical operating volumes (50)	Mm ³	35.6	48.1	45.6	-5.2
drinking water introduced onto the Rome historic network (51) = (47) - (48+49+50)	Mm ³	482.9	493.2	510.2	3.4
drinking water supplied via the Rome historic network (52)	Mm ³	277.8	274.3	271.1	-1.2
assessment of losses according to Ministerial Decree no. 99/97 and to Resolutions of the Italian Authority AEEGSI					
overall losses (parameter A17 MD 99/97) (53)	Mm ³	203.7	217.5	237.8	9.3
effective losses (from 2014: item A13+A15 as per Resolution no 5/2014 of the AEEGSI) (54)	Mm ³	197.8	209.1	229.5	9.8
		41.0 % di (51)	42.4 % di (51)	45,0 % di (51)	
water balance - Rome non-drinking water network					
non-drinking water withdrawn from the environment (55)	Mm ³	25.2	25.9	24.6	-5.0
<i>from the River Tiber, treated (Grottarossa plant)</i>	Mm ³	0.7	4.7	9.2	95.7
<i>from springs</i>	Mm ³	9.9	9.8	4.2	-57.1
<i>drinking water introduced onto non-drinking network</i>	Mm ³	14.6	11.4	11.2	-1.8
non-drinking water supplied to the Municipality of Rome (56)	Mm ³	14.0	13.2	12.0	-9.1
non-drinking water supplied to other Municipalities (57)	Mm ³	0.03	0.03	0.01	-66.7
Acea Ato 2 for ATO 2 – Central Lazio (Rome + municipalities acquired as of 31 Dec. 2016)					
drinking water withdrawn from the environment (58)	Mm ³	722.2	735.6	756.4	2.8
<i>from lake Bracciano, treated</i>	Mm ³	19.8	36.7	32.0	-12.8
<i>from wells</i>	Mm ³	84.4	92.4	92.4	-
<i>from springs</i>	Mm ³	612.1	601.0	626.7	4.3
<i>from other aqueduct systems</i>	Mm ³	5.9	5.5	5.3	-3.6
drinking water sold to other aqueduct systems (59)	Mm ³	38.6	35.7	36.8	3.1
drinking water introduced onto non-drinking water network (60)	Mm ³	14.6	11.4	11.2	-1.8
drinking water returned to the environment /technical operating volumes (61)	Mm ³	55.9	58.9	62.6	11.4
drinking water introduced onto the ATO 2 network (62) = (58) - (59+60+61)	Mm ³	613.2	629.6	645.8	2.6
total drinking water supplied to the ATO 2 network (63)	Mm ³	363.8	362.8	364.0	0.3
assessment of losses according to Ministerial Decree no. 99/97 and to Resolutions of the Italian Authority AEEGSI					
overall losses (parameter A17 MD 99/97) (64)	Mm ³	286.3	300.9	317.1	5.4
effective losses (item A13+A15 MD 99/97) (65)	Mm ³	279.4	290.8	307.1	5.6
		(45.6% of 62)	(46.6% of 62)	(47.6% of 62)	

⁴ In particular, for Acea Ato 2 and Acea Ato 5, 2015 and 2016 data are evaluated following calculation criteria provided by the Resolution n. 5/2016 of the AEEGSI, while for 2014 by the Resolution n. 1/2016. For this reason, 2014 data are not directly comparable.

WATER BALANCE OF THE COMPANIES OPERATING IN THE REGION OF LAZIO	U.M.	2014	2015	2016	Δ% 2016/2015
Acea Ato 5 for ATO 5 – Southern Lazio - Frosinone (85 municipalities)					
drinking water withdrawn from the environment (66)	Mm ³	109.9	107.7	107.4	-0.3
<i>from wells</i>	Mm ³	60.2	60.2	73.0	21.3
<i>from springs</i>	Mm ³	49.7	47.5	34.4	-27.6
drinking water introduced onto network (67)	Mm ³	105.4	103.3	96.5	-6.6
drinking water supplied (68)	Mm ³	22.0	27.0	27.0	0.0
assessment of losses according to Ministerial Decree no. 99/97 and to Resolutions of the Italian Authority AEEGSI					
overall losses (parameter A17 MD 99/97) (69)	Mm ³	80.6	75.0	72.8	-2.9
effective losses (item A13+A15 MD 99/97) (70)	Mm ³	65.2	69.6	64.4	-7.5
		(61.9% di 67)	(67.4% di 67)	(66.7% di 67)	

TOTAL WASTE WATER TREATED BY THE GROUP COMPANIES, IN ITALY	U.M.	2014	2015	2016	Δ% 2016/2015
summarised figure					
waste water treated in main purification plants of the Group companies in Italy (71)	Mm ³	940.7	895.9	872.7	-2.6

WASTE WATER TREATED BY ACEA ATO 2	U.M.	2014	2015	2016	Δ% 2016/2015
waste water treated in main purification plants (72)	Mm ³	563.8	528.1	514.3	-2.7
<i>Rome South</i>	Mm ³	329.6	296.7	288.1	-3.0
<i>Rome North</i>	Mm ³	95.6	96.5	95.7	-0.8
<i>Rome East</i>	Mm ³	98.4	96.1	94.8	-1.4
<i>Rome Ostia</i>	Mm ³	27.0	26.6	24.9	-6.8
<i>CoBIS</i>	Mm ³	8.8	7.5	6.7	-11.9
<i>Fregene</i>	Mm ³	4.4	4.7	4.1	-14.6
other – Municipality of Rome	Mm ³	13.5	16.0	14.8	-7.5
other – outside Municipality of Rome	Mm ³	74.3	79.0	66.1	-16.3
total waste water treated by Acea Ato 2 (73)	Mm ³	651.6	623.1	595.2	-4.5

WASTE WATER TREATED BY ACEA ATO 5	U.M.	2014	2015	2016	Δ% 2016/2015
waste water treated in main purification plants (74)	Mm ³	26.6	27.0	26.7	-1.1

ANALYTICAL CHECKS ON DRINKING WATER AND WASTE WATER FOR ACEA GROUP IN ITALY (*)	U.M.	2014	2015	2016	Δ% 2016/2015
summarised figures					
Group total analytical checks on drinking water (75)	no.	1,234,161	1,147,716	1,188,656	3.6
Group total analytical checks on waste water (76)	no.	462,118	486,425	448,123	-7.9
ACEA ATO 2 ANALYTICAL CHECKS					
analytical checks on drinking water – Acea Ato 2	no.	342,141	359,090	370,720	3.2
analytical checks on waste water - Acea Ato 2	no.	181,940	191,552	151,446	-20.9
ACEA ATO 5 ANALYTICAL CHECKS					
analytical checks on drinking water – Acea Ato 5	no.	71,842	83,910	85,500	1.9
analytical checks on waste water - Acea Ato 5	no.	24,611	21,681	31,258	44.2

(*) The number includes the controls carried out independently by each Company, and those carried out by Acea Elaborasi in-house. Some data of the previous biennium have been adjusted.

THE RESOURCES USED - ENERGY

The figures of the resources used refer to Acea Produzione (AP) (100% Acea SpA), Acea Ambiente – waste to energy (100% Acea SpA) and Areti (100% Acea SpA).

GENERATION, TRANSPORT AND SALE OF ELECTRICITY, HEAT AND PUBLIC LIGHTING	U.M.	2014	2015	2016	Δ% 2016/2015
natural gas					
electricity and heat generation (77) = (78+79)	Nm³ x 1,000	15,093	14,853	14,849	0.0
thermoelectric and heat production AP (78)	Nm³ x 1,000	11,063	11,363	11,314	-0.4
<i>Tor di Valle reserve boilers - for district heating</i>	<i>Nm³ x 1,000</i>	<i>7,306</i>	<i>7,247</i>	<i>7,958</i>	<i>9.8</i>
<i>Tor di Valle co-generation plant</i>	<i>Nm³ x 1,000</i>	<i>3,757</i>	<i>4,116</i>	<i>3,357</i>	<i>-18.4</i>
<i>Tor di Valle combined cycle</i>	<i>Nm³ x 1,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>
waste to energy (79)	Nm³ x 1,000	4,030	3,490	3,535	1.3
<i>San Vittore del Lazio waste to energy plant</i>	<i>Nm³ x 1,000</i>	<i>2,711</i>	<i>2,109</i>	<i>2,816</i>	<i>33.5</i>
<i>Terni waste to energy plant</i>	<i>Nm³ x 1,000</i>	<i>1,319</i>	<i>1,381</i>	<i>719</i>	<i>-47.9</i>
gas oil for thermoelectric generation					
thermoelectric generation and Terni plant (80)	l x 1,000	106	757	564	-25.5
<i>Montemartini plant</i>	<i>l x 1,000</i>	<i>46</i>	<i>748</i>	<i>492</i>	<i>-34.2</i>
<i>Terni plant</i>	<i>l x 1,000</i>	<i>60</i>	<i>9</i>	<i>72</i>	<i>749.4</i>
refuse derived fuel (RDF) burnt					
San Vittore del Lazio waste to energy plant (81)	t x 1,000	224.336	239.871	281.917	17.5
pulper from paper industry waste burnt					
Terni waste to energy plant (82)	t x 1,000	99.397	99.892	99.768	-0.1
water					
offtake for hydroelectric production (83)	Mm³	4,222.16	3,514.77	3,176.99	-9.6
process water (84)	Mm³	0.1067	0.1179	0.1395	18.3
domestic/sanitary (85)	Mm³	0.2818	0.2770	0.3078	11.1
sundry materials					
dielectric mineral oil in operation (86)	t	9,706	9,885	9,871	-0.1
dielectric mineral oil - oil loss make-up	t	3.26	3.21	2.74	22.9
SF₆ in operation (87)	t	29.53	29.64	29.75	0.4
SF ₆ -gas loss make-up	t	0.7	0.6	0.7	16.7
coolants (HCFC type) in operation (88)	t	1.32	1.27	1.33	4.7
coolants (HCFC type) loss replacement/make-up	t	0.005	0.008	0.000	-
chemicals (89)	kg	7,250,060	7,993,950	8,351,458	4.5
<i>acidity corrector</i>	<i>kg</i>	<i>60</i>	<i>60</i>	<i>120</i>	<i>100</i>
<i>sodium chloride</i>	<i>kg</i>	<i>55,500</i>	<i>53,000</i>	<i>93,000</i>	<i>75.5</i>
<i>caustic soda</i>	<i>kg</i>	<i>100,710</i>	<i>105,410</i>	<i>106,938</i>	<i>1.4</i>
<i>sodium hypochlorite</i>	<i>kg</i>	<i>360</i>	<i>420</i>	<i>0,0</i>	<i>-</i>
<i>sodium bicarbonate</i>	<i>kg</i>	<i>6,165,570</i>	<i>6,731,810</i>	<i>7,007,300</i>	<i>4.1</i>
<i>hydrochloric acid</i>	<i>kg</i>	<i>99,810</i>	<i>109,310</i>	<i>11,760</i>	<i>2.2</i>
<i>ammonia solution</i>	<i>kg</i>	<i>567,730</i>	<i>655,440</i>	<i>725,340</i>	<i>10.7</i>
<i>activated carbon</i>	<i>kg</i>	<i>260,320</i>	<i>338,500</i>	<i>307,000</i>	<i>30.0</i>
oil and greases / lubricants (90)	kg	5,117	6,332	1,098	-82.7
electricity					
<i>consumed for electricity distribution (91) = (25)</i>	<i>GWh</i>	<i>673.59</i>	<i>690.62</i>	<i>699.58</i>	<i>1.3</i>
<i>consumed for electricity production (92) = (1)-(2)</i>	<i>GWh</i>	<i>51.80</i>	<i>55.00</i>	<i>55.55</i>	<i>1.0</i>
<i>Consumed for offices (50% of the electricity consumed by the Parent Company) (93)</i>	<i>GWh</i>	<i>4.61</i>	<i>5.10</i>	<i>4.96</i>	<i>-2.7</i>
<i>other internal uses (94)</i>	<i>GWh</i>	<i>29.80</i>	<i>30.05</i>	<i>32.45</i>	<i>8.0</i>
total (95) = (91+92+93+94)	GWh	759.80	780.77	792.55	1.5
public lighting					
consumption for public lighting (96)	GWh	185.93	167.34	167.85 (*)	0.3

(*) The consumption trend does not present reductions compared to 2015, despite around 70,000 replacement lamps with LED technology, because the tasks of mass replacement have been concentrated in the latter part of the year; the benefits will be significant in 2017.

THE RESOURCES USED - AREA AMBIENTE

The figures of the resources used refer to the three composting plants (the one located in Aprilia already in Kyklos, and two located respectively in Monterotondo Marittimo and Sabaudia already in Solemme) and to the waste management facility of Orvieto, all from December 2016 in Acea Ambiente and 100% Acea SpA. It should be noted that, following a serious incident at the plant located in Aprilia, from July 30th 2014 the latter was placed under sequestration, preventing further contributions until December 2015. The Orvieto plant, after the sharp reduction of the activities because of revamping (Jan-Nov 2015), resumed full operation from January 2016.

LANDFILL WASTE DISPOSAL – PLANT OF ORVIETO	U.M.	2014	2015	2016	Δ% 2016/2015
process water (97)	m ³	1,241	2,468	3,425	38.8
sundry chemicals (98)	l	7,000	1,916	8,081	-
electricity (99)	GWh	0.800	0.600	3.557	-
gas oil (100)	l	254,744	262,618	249,422	-5.0
domestic/sanitary water uses (101)	m ³	1,292	1,353	4,227	-

PRODUCTION OF COMPOST	U.M.	2014	2015	2016	Δ% 2016/2015
process water (composting plants in Aprilia, Monterotondo Marittimo and Sabaudia) (102)	m ³	0	0	0	-
sundry chemicals (composting plants in Aprilia, Monterotondo Marittimo and Sabaudia) (103)	t	109.31	53.20	70.83	33.1
<i>aluminum sulfate, polyelectrolyte, quartzite</i>	t			10,46	-
<i>sodium hydroxide</i>		4.82	0.00	0.00	-
<i>hypochlorite</i>	t	8.40	6.20	3.65	-41.1
<i>sulphuric acid</i>	t	96.09	47.00	62.68	33.4
electricity (composting plants in Aprilia, Monterotondo Marittimo and Sabaudia) (104)	GWh	2.620	1.551	1.924	24.0
gas oil (composting plants in Aprilia, Monterotondo Marittimo and Sabaudia) (105)	l x 1,000	85.90	91.60	127.50	39.2

THE RESOURCES USED - WATER

The figures of the resources used refer to the water Group companies: Acea Ato 2, Acea Ato 5.

WATER COLLECTION, TRANSPORTATION AND DISTRIBUTION OF DRINKING AND NON-DRINKING WATER	U.M.	2014	2015	2016	Δ% 2016/2015
sundry materials and natural resources					
reagents for purification and disinfection (106)	t	1,819.00	2,367.70	2,877.00	21.5
reagents used in chemical analyses (107)	t	1.50	1.50	1.40	-3.3
gas used in chemical analyses (108)	MNm ³	5.01	5.24	5.26	0.4
coolants (HCFC type) in operation (109)	t	1.32	1.27	1.33	4.7
coolants (HCFC type) replacement/make-up	t	0.005	0.008	0.000	-
electricity					
water pumping plants (110)	GWh	193.15	220.31	233.88	6.2
offices /internal use (50% of energy consumed by the Parent Company) (111) = (93)	GWh	4.61	5.10	4.96	-2.7
chemical laboratory (112)	GWh	1.09	1.23	1.12	-8.9
totale electricity consumed (113) = (110+111+112)	GWh	198.85	226.64	239.97	5.9
drinking water					
domestic/sanitary uses (114)	Mm ³	1.32	1.63	1.63	-
offices (50% of drinking water consumed by the Parent Company) (115)	Mm ³	0.13	0.13	0.19	46.2
total drinking water consumed (116) = (114+115)	Mm³	1.45	1.76	1.81	2.8

WASTE WATER TREATMENT	U.M.	2014	2015	2016	Δ% 2016/2015
sundry materials and natural resources					
reagents used in waste water treatment (117)	t	6,534	6,690	6,389	-4.5
polyelectrolytes used to dehydrate sludge	t	1,222	1,257	1,678	33.5
sodium hypochlorite for final disinfection	t	3,042	3,027	2,575	-14.9
ferric chloride used to dehydrate sludge	t	568	642	85	-86.8
peracetic acid	t	1,667	1,729	1,865	7.9
others (anti-foaming agents, etc.)	t	35	35	186	430
oil and greases (117 bis)	t	nd	4.9	5.4	9.5
electricity					
sewage and purification systems (118)	GWh	191.6	192.4	188.2	-2.2

FUELS USED BY THE GROUP COMPANIES FOR AUTOMOTIVE AND HEATING PURPOSES

The figures concerning the Vehicle Pool refer to the main Group companies: Acea Ato 2, Acea Ato 5, Areti, Acea SpA, Acea Elabori, Acea Illuminazione Pubblica, Acea Produzione, Acea Energy.

The figures concerning heating purposes refer to Acea SpA, Acea Ato 2, Areti and Acea Produzione.

FUEL TYPE	U.M.	2014	2015	2016	Δ% 2016/2015
automotive (Group Vehicle Pool) (*)					
petrol (119)	l x 1,000	406.0	290.4	157.1	-45.8
diesel (120)	l x 1,000	984.5	1,189.8	1,711.4	43.8
heating					
gas oil (121)	l x 1,000	10.8	2.3	4.5	95.7
natural gas (122)	Nm ³ x 1,000	488.5	766.4	463.0	-39.6
LPG (123)	l x 1,000	23.9	34.3	32.8	-4.4

(*) 2014 fleet have been updated compared with published ones. 2016 data resent the WFM model – see the Explanatory notes.

EMISSIONS AND WASTE - ENERGY

The figures concerning emissions and waste refer to Acea Produzione (AP), waste to energy plants of Acea Ambiente and Areti.

AIR EMISSIONS	U.M.	2014	2015	2016	Δ% 2016/2015
CO₂ (124) = (125 + 126 + 127) (*)	t	267,759	260,670	272,295	4.5
<i>Acea Produzione (125)(*)</i>	t	23,843	25,440	24,610	-3.3
<i>Areti - from SF₆ (126)</i>	t	16,188	12,540	14,820	18.2
<i>waste to energy plants (127)</i>	t	227,728	222,690	232,865	4.6
NO_x (128) = (129 + 130)	t	177.12	190.86	171.13	-10.3
<i>Acea Produzione (129)</i>	t	40.05	55.20	46.88	-15.1
<i>waste to energy plants (130)</i>	t	137.07	135.66	124.25	-8.4
CO (131) = (132 + 133)	t	6.81	6.75	6.28	-6.9
<i>Acea Produzione (132)</i>	t	2.15	3.61	3.56	-1.4
<i>waste to energy plants (133)</i>	t	4.66	3.14	2.72	-13.3
SO₂ (134) = (135 + 136)	t	0.20	0.22	0.28	26.1
<i>Acea Produzione (135)</i>	t	0.00	0.03	0.02	-33.3
<i>waste to energy plants (136)</i>	t	0.20	0.19	0.26	35.4
dust (137) = (138 + 139)	t	0.50	0.32	0.55	74.4
<i>Acea Produzione (138)</i>	t	0.01	0.04	0.03	-25.0
<i>waste to energy plants (139)</i>	t	0.49	0.28	0.52	88.8
HCl	t	2.45	2.65	3.00	13.4
<i>waste to energy plants</i>	t	2.45	2.65	3.00	13.4
HF	t	0.18	0.20	0.09	-55.0
<i>waste to energy plants</i>	t	0.18	0.20	0.09	-55.0
Organic Carbon	t	1.31	1.79	1.40	-21.6
<i>waste to energy plants</i>	t	1.31	1.79	1.40	-21.6

OTHER EMISSIONS AND WASTE	U.M.	2014	2015	2016	Δ% 2016/2015
waste water treated (140)	Mm ³	0.0008	0.0006	0.0002	-66.7
cooling water returned (141)	Mm ³	0.000	0.000	0.000	-
50 Hz electric fields	kV	Monitored commitment to keep within the legal limits			
50 Hz magnetic fields	μT	Monitored commitment to keep within the legal limits			
noise	dB	Monitored commitment to keep within the legal limits			
dispersed luminous flux	Mlumen	commitment to design the plants in order to limit to the maximum the percentage of emissions dispersed towards the sky			

WASTE (EX LEG. DEC. NO 152/06)	U.M.	2014	2015	2016	Δ% 2016/2015
hazardous waste - excluding waste to energy area (142)	t	1,594.57	1,254.34	324.17	-74.2
<i>energy sector production (*)</i>	t	1,593.40	1,252.80	323.58	-74.2
<i>portion deriving from activities carried out by Parent Company (**)</i>	t	1.17	1.54	0.59	-61.7
hazardous waste of waste to energy area (143) (***)	t	47,158.90	54,405.71	73,035.04	34.2
non-hazardous waste - excluding waste to energy area (144)	t	870.46	958.34	947.23	-1.2
<i>energy sector production (*)</i>	t	844.40	920.50	902.71	-1.9
<i>portion deriving from activities carried out by Parent Company (**)</i>	t	26.06	37.84	44.52	17.7
non-hazardous waste of waste to energy area (145)	t	13,720.30	8,011.30	7,381.94	-7.9

(*) Data of Acea Produzione are estimates and do not include two hydropower plants (G. Ferraris Mandela and A. Volta Castel Madama), which however had a minimal impact on waste 2015.

(**) 50% of waste produced by the Parent Company.

(***) In 2016, 1,195 tonnes of hazardous waste (CER 190111), representing 2.5% of bottom ash produced at San Vittore del Lazio (FR) plant, were sent to factories in Germany, to be recovered.

EMISSIONS AND WASTE - ENVIRONMENT

The figures refer to the three composting plants (the one located in Aprilia formerly in Kyklos, and two located respectively in Monterotondo Marittimo and Sabaudia already in Solemme) and to the waste management plant of Orvieto (100% Acea SpA), all from December 2016 in Acea Ambiente.

It should be noted that, following an incident at the plant located in Aprilia, and the consequent sequestration of the plant (from July 30th 2014 to December 2015), the contributions at the plant itself arrived again only from January 2016. The Orvieto plant (TR), after the sharp reduction of the activities because of revamping (Jan-Nov 2015), resumed full operation from January 2016.

WASTE (LEG. DEC. No. 152/06)	U.M.	2014	2015	2016	Δ% 2016/2015
hazardous waste - plants at Aprilia, Monterotondo Marittimo and Sabaudia, including leachate (146)	t	48.90	847.66	562.12	-33.7
non-hazardous waste - plants at Aprilia, Monterotondo Marittimo and Sabaudia, including leachate (147)	t	15,265.93	5,676.57	16,448.62	189.8
hazardous waste - plant at Orvieto (148)	t	1.4	1.0	9.7	-
non-hazardous waste - plant at Orvieto, including leachate (149)	t	21,634.00	18,641.32	20,193.18	8.3

AIR EMISSIONS - plant at Aprilia	U.M.	2014	2015	2016	Δ% 2016/2015
dust (150)	t	11.15	2.58	0.68	-73.6
Total Organic Compound (TOC) (151)	t	5.98	≤9.64	0.28	-
ammonia (152)	t	6.23	≤0.58	0.80	-
volatile inorganic acids (SIV) (153)	t	1.32	≤4.05	2.42	-

EMISSIONS AND WASTE - WATER

The figures refer to the water companies Acea Ato 2 and Acea Ato 5.

WASTE	U.M.	2014	2015	2016	Δ% 2016/2015
specific waste from waste water treatment					
total treatment sludge (154) =(155+156)	t	158,921	151,197	136,045	-10.0
<i>treatment sludge - Acea Ato 2 (155)</i>	t	150,533	139,341	122,947	-11.8
<i>treatment sludge - Acea Ato 5 (156)</i>	t	8,388	11,856	13,098	10.5
total sand and sediment from treatment (157)	t	11,375	28,917	10,933	-62.2
<i>sand and sediment - Acea Ato 2 (158)</i>	t	11,282	28,733(*)	10,813	-62.4
<i>sand and sediment - Acea Ato 5 (159)</i>	t	93	184	120	-34.8
waste (ex Leg. Dec. No. 152/06)					
total hazardous waste (160)=(161+162+163)	t	119.0	81.1	114.0	40.7
<i>production from Acea Ato 2 and Acea Elabiori (161)</i>	t	117.1	79.1	113.4	43.5
<i>production from Acea Ato 5 (162)</i>	t	0.8	0.5	0.02	-96.0
<i>portion deriving from activities carried out by Parent Company (163) (**)</i>	t	1.2	1.5	0.6	-60.0
total non-hazardous waste (164) =(165+166+167+168)	t	7,466.9	7,166.2	19,101.5	166.5
<i>production from Acea Ato 2 and Acea Elabiori (165)</i>	t	372.8	367.5	338.8	-7.8
<i>production from Acea Ato 5 (166)</i>	t	7,027.0	6,570	18,492.0	181.5
<i>portion deriving from activities carried out by Parent Company (167) (**)</i>	t	26.1	37.8	44.5	17.6
<i>inert material (168)</i>	t	41.0	191.3	226.2	18.2
other emissions and waste					
noise	dB	monitored commitment to keep within the legal limits			
smells		monitored commitment to keep within the limit of perception in areas nearby treatment plants			

(*) Figure corrected with the consolidated data.

(**) 50% of waste produced by Parent Company.

EMISSIONS FROM VEHICLES AND AIR-CONDITIONING

The figures concerning the Car Pool refer to the main companies of the Group: Acea Ato 2, Acea Ato 5, Areti, Acea SpA, Acea Elabori, Acea Illuminazione Pubblica, Acea Energy, Acea Produzione. 2015 and 2016 data are not comparable with 2014 data: the emission estimation method was in fact refined during 2016. The figures concerning heating purposes refer to Acea SpA, Acea Ato 2, Areti and Acea Produzione.

GROUP COMPANIES	U.M.	2014	2015	2016	Δ% 2016/2015
vehicles (*)					
CO ₂ (169)	t	3,537.7	3,815.7	4,890.6	28.2
NO _x (170)	t	8.2	11.7	15.8	35.0
CO (171)	t	20.5	11.7	7.4	-36.8
SO ₂ (172)	t	n.d.	n.d.	n.d.	-
heating					
CO ₂ (173)	t	1,368	1,644	1,018	-38.1

(*) 2014 and 2015 fleet data have been recalculated with respect to what published- see the Explanatory notes for details.

ENVIRONMENTAL SUSTAINABILITY PERFORMANCE ENERGY

Key environmental performance indicators (Key Performance Indicators).

INDICATOR	U.M.	2014	2015	2016
energy used in processes				
A consumption for electricity distribution	TJoules (GWh)	1,332.4 (370.1)	1,341.8 (373.0)	1,283.8 (357.0)
B consumption for electricity production (item 92)	TJoules (GWh)	186.5 (51.80)	197.1 (54.72)	200.0 (55.55)
C heat loss on district heating network (item 20)	TJoules (GWh)	68.0 (18.9)	28.7 (7.98)	86.2 (23.95)
D consumption for public lighting (item 96)	TJoules (GWh)	669.3 (185.93)	602.42 (167.34)	604.26 (167.85)
E consumption for Environment (items 99+104)	TJoules (GWh)	12.6 (3.5)	7.9 (2.2)	19.8 (5.5)
F water distribution (item 113 - 111)	TJoules (GWh)	699.5 (194.3)	797.4 (221.5)	846.0 (235.0)
G waste water treatment (item 118)	TJoules (GWh)	689.8 (191.6)	692.6 (192.4)	677.5 (188.2)
H electricity for offices (item 93 + 111)	TJoules (GWh)	33.12 (9.2)	36.7 (10.2)	35.75 (9.93)
I consumption for office heating	TJoules (GWh)	19.1 (5.3)	29.2 (8.1)	18.1 (5.0)
L vehicles (item 119 + 120)	TJoules (GWh)	48.4 (13.4)	48.4 (13.4)	66.5 (18.5)
indirect consumption + consumption from vehicles + heating	TJoules (GWh)	3,758.7 (1,044.1)	3,782.2 (1,050.8)	3,837.9 (1,066.1)
M - energy losses when converting from primary sources to electricity	TJoules (GWh)	4,492.4 (1,287.8)	4,887.5 (1,408.3)	5,394.4 (1,498.4)
total energy use (sum A : M)	TJoules (GWh)	8,251.1 (2,331.8)	8,669.7 (2,459.1)	9,232.30 (2,564.5)

INDICATOR	U.M.	2014	2015	2016
EMISSIONS, EFFLUENT, AND WASTE				
greenhouse gas emissions (CO ₂) (item 124 + 169 + 173)	t	272,178	266,129	278,204
emissions of SO ₂ NO _x and other significant gases by type				
NO _x (item 128 + 170)	t	185.32	202.56	186.93
CO (item 131 + 171)	t	27.31	18.45	13.68
SO ₂ (item 134 + 172)	t	0.20	0.22	0.28
Acea (Acea Produzione and Acea Ambiente) emission/production indicators				
NO _x /thermoelectric production	g/kWh	1.10	1.12	0.97
CO ₂ /thermoelectric production	g/kWh	846	776	764
CO ₂ /total gross production	g/kWh	311.4	316.9	346.8
SO ₂ /thermoelectric production	g/kWh	0.0	0.0	0.0
PRODUCTS AND SERVICES: ELECTRICITY				
electricity production process efficiency - Acea Produzione figures (*)				
gross average efficiency of thermoelectric production (calculation 1)	%	25.7	25.8	25.0
Tor di Valle plant (co-generation – solely electricity efficiency)	%	25.8	26.0	25.2
Montemartini plant	%	11.3	24.9	24.2
gross average efficiency of thermoelectric production including recovered thermal energy (calculation 2)	%	63.6	59.6	57.6
gross average efficiency of hydroelectric production (calculation 3)	%	81.2	80.5	81.9
gross average efficiency of total production (calculation 4)	%	80.1	79.1	80.5
gross average efficiency of total production including recovered heat (calculation 5)	%	80.7	79.8	81.1
rend electricity generation process efficiency – waste to energy plants				
San Vittore del Lazio plant				
refuse derived fuel/gross electricity produced-San Vittore	kt/GWh	1.094	1.064	1.157
gross efficiency of RDF conversion in electricity (calculation 6)	kWh /kg RDF	0.91	0.94	0.86
Electric efficiency (calculation 7)	%	20.0	19.5	19.6
total waste produced /hours worked	t/h	2.66	2.74	3.55
Terni plant				
gross efficiency of pulper conversion in electricity (calculation 8)	kWh /kg pulper	0.82	0.82	0.83
electric efficiency (calculation 9)	%	18.3	18.1	16.5
total waste produced /hours worked	t/h	2.2	2.0	2.0
electricity generation process efficiency - fotovoltaic plants				
average efficiency of fotovoltaic units	%	14.0	14.0	14.0
other indicators (territory, public lighting, checks, losses)				
protection of the surrounding areas total length of HV underground cables / (length of HV overhead and underground cables) x 100	%	42.42	42.53	43.09
public lighting flux efficiency (item 31 / item 96)	Lumen/kWh	18.2	20.2	16.4
average efficiency of installed lamps (item 31 / wattage)	Lumen/W	84.3	84.9	84.3
		(40,069 kW)	(39,759 kW)	(32,641 kW)
specific consumption per lamp (item 96 / no. lamps)	kWh/no. lamps	854.11	760.03	761.31
		(217,688)	(220,175)	(220,474)
percentage of illuminated roads (**)	% (km of lighted roads/km of total roads)	85.9	86.6	86.7
		(6,107/7,110)	(6,156/7,110)	(6,165/7,110)
No. of operating and laboratory checks /GWh net electricity sold (item 32) / (item 29)	no./GWh	0.13	0.13	0.15
SF ₆ gas loss make-up /km of electricity distribution network	kg/km	0.0231	0.0197	0.0211
total electricity losses (item 25) / (item 24) (***)	% on required energy	6.1	6.2	6.5

(*) The thermoelectricity generation efficiencies, calculated using computation as described before the explanatory notes at the end of the document, are strongly affected by the low level of production recorded also in 2016 at the combined cycle power plant of Tor di Valle. Such calculations therefore have to be evaluated cautiously because not complying with typical values of the plant technologies used.

(**) This is an estimate.

(***) The total electricity losses include: initial transformation loss, transport loss, internal consumptions and technical and commercial losses, these due to incorrect measurements and fraud.

ENVIRONMENTAL SUSTAINABILITY PERFORMANCE

WATER

Key environmental performance indicators (Key Performance Indicators).
Boundary: Acea Ato 2 and Acea Ato 5.

INDICATOR	U.M.	2014	2015	2016
carbon footprint				
WATER SERVICE IN ITALY				
total CO ₂ /m ³ of water supplied (integrated water service) (*)	kgCO ₂ /m ³	0.40	0.39	0.39
CO ₂ /m ³ of water supplied (distribution process)	kgCO ₂ /m ³	0.20	0.21	0.22
CO ₂ /m ³ of treated water (treatment process)	kgCO ₂ /m ³	0.11	0.11	0.11
DRINKING WATER SERVICE				
assessment parameters as per Ministerial Decree no. 99/97 and also according to Resolutions of the AEEGSI				
Acea Ato 2 network				
primary efficiency (R1): (item 63) / (item 62)	%	59.3	57.6	56.4
efficiency at consumption level (R2): (item 63 + A 11) / (item 62) A 11 = 14,90 Mm ³ for 2016	%	61.3	59.6	58.7
net efficiency (R3): (item 63 + A 11 + A 12) / (item 62) A 12 = 1,56 Mm ³ for 2016	%	61.0	59.8	58.9
"historic" network (Rome + Fiumicino)				
primary efficiency (R1) "historic" network: (item 52) / (item 51)	%	57.5	55.6	53.1
efficiency at consumption level (R2): (item 52+ A 11) / (item 51) A 11 = 11,76 Mm ³ for 2016	%	59.9	57.7	55.4
net efficiency (R3): (item 52 + A 11 + A 12) / (item 51) A 12 = 1,3 Mm ³ for 2016	%	57.9	58.0	55.7
PRODUCT: DRINKING WATER				
Acea Ato 2 network				
linear index of overall drinking water losses (as per MD No. 99/97: A 17 / km network) (item 64) / (km of Rome and Fiumicino network, branches included)	m ³ x1,000/km (11,006.9 km)	25.3 (11,346.3 km)	26.0 (11,346.3 km)	28.5 (11,117 km)
linear index of effective distribution losses (as per MD no 99/97 and the AEEGSI Resolutions): (A15+A13) / km of network (item 65) / (km of Rome and Fiumicino network, branches included)	m ³ x1,000/km (11,006.9 km)	24.0 (11,346.3 km)	25.6 (11,346.3 km)	27.6 (11,117 km)
specific electricity consumption for water network (Ato 2 energy network consumption) / (item 62)	kWh/m ³	0.221	0.250	0.267
no. of checks on drinking water distributed (item 75 - drinking water Acea Ato 2) / (item 62)	no./Mm ³	558	570	574
additive index of drinking water (item 106 - network of Acea Ato 2) / (item 62)	g/m ³	2.5	3.3	4.0
"historic" network (Rome + Fiumicino)				
linear index of overall drinking water losses (as per MD no 99/97: A17 / km of network) (item 53) / (km of network)	m ³ x1,000/ km (7,310.9 km)	27.9 (7,324.4 km)	29.6 (7,324.4 km)	37.7 (6,300 km)
linear index of effective distribution losses (as per MD No. 99/97 and the AEEGSI Resolutions): (A15 + A13)/ (km of network) (item 54) / (km of network)	m ³ x 1,000 /km (7,310.9 km)	26.3 (7,324.4 km)	28.5 (7,324.4 km)	36.4 (6,300 km)
specific electricity consumption for water network (Acea Ato 5 energy network consumption) / (item 67)	kWh/m ³	0.554	0.597	0.634
No. of checks on drinking water distributed (item 75 - Acea Ato 5 drinking water) / (item 67)	no./Mm ³	682	812	886
additive index of drinking water (item 106 - network of Acea Ato 5) / (item 67)	g/m ³	2.5	2.9	2.7

INDICATOR	u. m.	2014	2015	2016
SERVICE: WASTE WATER TREATMENT				
Acea Ato 2				
total sludge disposed of (item 155)	t	150,533	139,341	122,947
sand and sediment removed (item 158)	t	11,282	28,733	10,813
COD in	t	152,994	163,451	198,946
COD removed	t	122,976	143,709	180,755
COD removal efficiency	%	80	88	91
SST in	t	89,887	113,971	121,876
SST removed	t	74,243	103,959	113,284
SST removal efficiency	%	83	91	93
Total N in (as NH ₄ +NO ₂ +NO ₃ + organic)	t	na	na	22,870
total N removed	t	na	na	17,365
N removal efficiency	%	na	na	76
P in	t	na	2,865	2,389
P removed	t	na	1,714	1,383
P removal efficiency (as PO ₄ ⁻³)	%	na	64	58
additive process index -Acea Ato 2	g/m ³	9.06	9.67	9.82
specific electricity consumption for treatment process - Acea Ato 2	kWh/m ³	0.270	0.282	0.288
Acea Ato 5				
total sludge disposed of (item 156)	t	8,388	11,856	13,098
sand and sediment removed (item 159)	t	93	184	120
COD in	t	nd	7,020	9,012
COD removed	t	nd	5,805	7,000
% removal of COD	%	84	81	78
% removal of SST	%	81	80	82
% removal of N (NH ₄ ⁺)	%	84	85	89
% removal of P (PO ₄ ⁻³)	%	86	66	44
additive process index -Acea Ato 5	g/m ³	23.73	24.56	20.40
specific electricity consumption for treatment process - Acea Ato 5	kWh/m ³	0.595	0.619	0.620
COMPLIANCE				
penalty paid for non-compliance with environmental regulations/agreements (**)	euro	91,002	75,469	414,491

(*) "Scope 2" emissions, arising from electricity consumption of the water companies considered.

(**) Penalties paid by Acea Ato 2, Acea Ato 5, waste to energy plants, Acea Produzione, Areti.

ENVIRONMENTAL SUSTAINABILITY PERFORMANCE

ENVIRONMENT

key environmental performance indicators (Key Performance Indicators).

INDICATORE	u. m.	2014	2015	2016
non-hazardous waste disposed in landfill / total waste entered at plan (item 34)/(item 33)	t/t	0.91	0.89	0.73
waste disposed in landfill / energy consumed (item 34)/(item 99)	t/kWh	0.11	0.14	0.02
waste disposed in landfill / energy consumed net of photovoltaic production	t/kWh	0.15	0.14	0.02
compost/ incoming waste (item 41)/(item 38 + item 39 + item 40)	t/t	0.27	0.37	0.19
compost produced/electricity consumed (item 41)/(item 104)	kg/kWh	5.58	4.64	4.42

DESCRIPTION OF THE CALCULATIONS USED TO DETERMINE ELECTRICITY GENERATION EFFICIENCY

calculation 1

$$\text{efficiency (thermoelectric)} = \frac{\text{Energy}_{\text{thermoelectric}} \text{ (kWh)}}{\text{Energy}_{\text{diesel oil}} \text{ (kWh)} + \text{Energy}_{\text{natural gas}} \text{ (kWh)}}$$

where:

$\text{Energy}_{\text{thermoelectric}}$ = gross electricity produced using thermoelectric cycle

$$\text{Energy}_{\text{diesel oil}} \text{ (kWh)} = \frac{\text{diesel oil (l)} \times 0.835 \times \text{NCV}_d \text{ (kcal/kg)}}{860 \text{ (kcal/kWh)}} \quad \text{Energy equivalent to diesel oil consumed (80)}$$

$$\text{Energy}_{\text{natural gas}} \text{ (kWh)} = \frac{\text{natural gas (Nm}^3\text{)} \times \text{NCV}_m \text{ (kcal/Nm}^3\text{)}}{860 \text{ (kcal/kWh)}} \quad \text{Energy equivalent to natural gas consumed (78)}$$

NCV_m = 8,500 kCal/Nm³ (net calorific value of natural gas)

NCV_d = 10,000 kCal/kg (net calorific value of diesel oil)

860 = energy conversion factor from kcal to kWh

0.835 = specific weight of diesel oil (kg/l)

NB: the calorific values used for Acea Produzione are the effective ones taken from the gaugings of the natural gas and diesel oil suppliers.

calculation 2

$$\text{efficiency (thermoelectric)} = \frac{\text{Energy}_{\text{thermoelectric}} (\text{kWh}) + \text{Energy}_{\text{thermal}} (\text{kWh})}{\text{Energy}_{\text{diesel oil}} (\text{kWh}) + \text{Energy}_{\text{natural gas}} (\text{kWh})}$$

$\text{Energy}_{\text{thermal}}$ = Gross thermal energy produced

$\text{Energy}_{\text{thermoelectric}}$ = Gross thermoelectric energy produced

$$\text{Energy}_{\text{diesel oil}} (\text{kWh}) = \frac{\text{diesel oil (l)} \times 0.835 \times \text{NCV}_d (\text{kcal/kg})}{860 (\text{kcal/kWh})} \quad \text{Energy equivalent to diesel oil consumed (80)}$$

$$\text{Energy}_{\text{natural gas}} (\text{kWh}) = \frac{\text{natural gas (Nm}^3) \times \text{NCV}_m (\text{kcal/Nm}^3)}{860 (\text{kcal/kWh})} \quad \text{Energy equivalent to natural gas consumed (78)}$$

NCV_m = 8,500 kCal/Nm³ (net calorific value of natural gas)

NCV_d = 10,000 kCal/kg (net calorific value of diesel oil)

860 = energy conversion factor from kcal to kWh

0.835 = specific weight of diesel oil (kg/l)

NB: the calorific values used for Acea Produzione are the effective ones taken from the gaugings of the natural gas and diesel oil suppliers.

calculation 3

$$\text{efficiency (hydroelectric)} = \frac{\text{Energy}_{\text{hydroelectric}} (\text{MWh}) \times 3.6 \times 10^9}{\left[m(\text{kg}) \times 9.8 \left(\frac{\text{m}}{\text{s}^2} \right) \times h(\text{m}) \right] (\text{joule})}$$

where:

3.6×10^9 = water energy conversion factor from MWh to Joules

m = offtake water for hydroelectric production

9.8 = gravitation acceleration at sea level

h = height of water drop (free surface reservoir– turbine)

$\text{Energy}_{\text{hydroelectric}}$ = energy produced in the hydroelectric cycle

calculation 4

$$\frac{(E_i)}{(E_i + E_t)} \times \varepsilon_i + \frac{(E_t)}{(E_i + E_t)} \times \varepsilon_t = \varepsilon_{\text{average}}$$

where:

E_i = total hydroelectricity produced

E_t = total thermoelectricity produced

ε_i = hydroelectric efficiency

ε_t = thermoelectric efficiency

$\varepsilon_{\text{average}}$ = average production efficiency

calculation 5

$$\frac{(E_i)}{(E_i + E_t)} \times \varepsilon_i + \frac{(E_t)}{(E_i + E_t)} \times \varepsilon_t = \varepsilon_{\text{average}}$$

where:

E_i = total hydroelectricity produced

E_T = sum of total energy (thermoelectric and thermal) produced

ε_i = hydroelectric efficiency

ε_t = efficiency (thermoelectric and thermal)

$\varepsilon_{\text{average}}$ = average production efficiency

calculation 6

$$\text{recovery efficiency} \left(\frac{\text{kWh}}{\text{kg}} \right) = \frac{\text{gross electricity produced (kWh)}}{\text{RDF (kg)}}$$

Gross electricity produced (kWh) = gross electricity produced at S. Vittore = (item 12)

calculation 7

$$\text{electric efficiency (\%)} = \frac{\text{electricity produced (kWh)}}{\text{RDF internal energy (kWh) + Natural gas internal energy (kWh)}}$$

where:

net electricity produced at S. Vittore = (item 12)

$$\text{natural gas internal energy (kWh)} = \frac{\text{natural gas (Sm}^3\text{)} \times \text{NCV}_n \left(\frac{\text{kcal}}{\text{Sm}^3} \right)}{860 \left(\frac{\text{kcal}}{\text{kWh}} \right)}$$

NCV_n = about 8,500 kcal/Sm³ (net calorific value of natural gas)

860 = energy conversion factor from kcal to kWh.

$$\text{RDF internal energy (kWh)} = \frac{\text{RDF (kg)} \times \text{NCV}_w \left(\frac{\text{kcal}}{\text{kg}} \right)}{860 \left(\frac{\text{kcal}}{\text{kWh}} \right)}$$

NCV_w = 3,583 kcal/kg (15,000 kJ/kg) - RDF average net calorific value

860 = energy conversion factor from kcal to kWh

calculation 8

$$\text{recovery efficiency} = \left(\frac{\text{kWh}}{\text{kg}} \right) = \frac{\text{gross electricity produced (kWh) at Terni}}{\text{pulper (kg)}}$$

Gross electricity produced (kWh) at Terni = gross electricity produced = (item 13)

calculation 9

$$\text{electric efficiency} = \frac{\text{Net electricity produced (kWh)}}{\text{pulper internal energy (kWh) + natural gas internal energy (kWh)}}$$

where:

electricity produced at Terni = (item 13)

$$\text{natural gas internal energy (kWh)} = \frac{\text{natural gas (Sm}^3\text{)} \times \text{NCV}_n \left(\frac{\text{kcal}}{\text{Sm}^3} \right)}{860 \left(\frac{\text{kcal}}{\text{kWh}} \right)}$$

NCV_n = about 8,500 kcal/Sm³ (net calorific value of natural gas)

860 = energy conversion factor from kcal to kWh.

$$\text{Pulper internal energy (kWh)} = \frac{\text{pulper (kg)} \times \text{NCV}_p \left(\frac{\text{kcal}}{\text{kg}} \right)}{860 \left(\frac{\text{kcal}}{\text{kWh}} \right)}$$

NCV_p = 3,635 kcal/kg (15,216 kJ/kg) - pulper average net calorific value

860 = energy conversion factor from kcal to kWh

EXPLANATORY NOTES TO THE ENVIRONMENTAL ACCOUNTS

The figures presented in the *Environmental Accounts* have been produced and audited by the pertinent divisions. Responsibility for the correct formation of the figures has been maintained within the individual production units, pending the implementation of a standardized Environmental Management System, capable of coding the procedures for obtaining a regular flow of numeric information. Before final acceptance, however, the official figures have been subject to a validation process which anticipated four control procedures:

1. comparison with the historical data in order to highlight and justify any significant discrepancies;
2. repetition at least twice of the acquisition process;
3. feedback to the divisions responsible for the final validation of the figures;
4. sample audit carried out by an auditing firm.

The figures have been divided up into three categories:

- estimated;
- calculated;
- measured.

In the event of estimated data, the greatest of attention was paid to checking the reasonableness of the underlying criteria used, with the aim of resorting as little as possible, in the future, to this form of measurement of the environmental parameters.

When the figures are the result of calculation, the algorithm used has been concisely specified in order to permit the full comprehension of the mathematical result.

When, lastly, the data has been measured, an estimate of the uncertainty to be associated with the number is provided.

ADDITIONAL INFORMATION ON FIGURES PROVIDED IN THE ENVIRONMENTAL ACCOUNTS

ENERGY SECTOR PRODUCTS

item no.	explanation – comment
1	Total gross energy produced by the Group. This figure is calculated.
2	Electricity produced net of losses due to just the production phase. This figure is calculated.
3=4+5	Total electricity produced by the Acea Produzione plants, gross of losses. It includes thermoelectric and hydroelectric energy. The figure is measured with uncertainty of less than $\pm 0.5\%$.
6=7+8+9	Electricity losses attributable to just the production phase of the Acea Production plants. Includes: internal consumption (thermo and hydro) and initial transformation losses. The figure is measured with uncertainty of less than $\pm 0.5\%$.
10	Electricity produced by the Acea Produzione plants, net of losses. This figure is calculated.
11	Gross energy produced by photovoltaic plants. The figure is measured with uncertainty of less than $\pm 0.5\%$.
12	Total losses in photovoltaic generation phase, due above all else to the Joule effect (dissipation with heating) in the equipment. Estimated figure.
13	Net photovoltaic energy made available by the generation plants. The figure is calculated.
14 = 15+16	Electricity produced by the waste to energy plants: San Vittore del Lazio plant and Terni plant belonging to Acea Ambiente. Note that the fuel used by the two plants (RDF- Refuse derived fuel - for San Vittore and industry pulper for the Terni plant) comprises both biodegradable organic material, therefore neutral with regard to the CO ₂ balance, and non-biodegradable organic substances (plastic, resins, etc.). In 2016 the renewable share for San Vittore was equal to 56%, the Terni share equal to 41%.
17	Internal consumption of the two waste to energy plants at San Vittore and Terni + transformation losses at San Vittore. The figure is measured with uncertainty of less than $\pm 0.5\%$.
18	Electricity produced by the two waste to energy plants at San Vittore del Lazio and Terni, net of internal consumption and transformation losses. This figure is calculated.
19	Thermal energy produced at the Tor di Valle co-generation plant, gross of losses. The item is measured with uncertainty of $\pm 2\%$ in correspondence with the delivery pipes of the boilers. The thermal energy is produced by the Gallery boilers and the co-generation plant, comprising a turbogas unit and superheated water regeneration generator powered by the hot exhaust fumes of the turbogas units.
20	Thermal energy losses of the district heating system, due to: heat dispersion, losses on the network, technical emissions due to maintenance work, thermal recoveries of the heat accumulation systems. The item is calculated as the difference between the thermal energy produced and that effectively supplied to the customers (billed).
21	Net thermal energy supplied to end customers. The item, calculated, was obtained from the reading of the billed consumption.
22	Electricity supplied by Acea Produzione to Acea Energy SpA involving infra-Group exchange. The item is marginal due to the decision made by the Acea Group to sell the electricity produced on the electricity exchange or by means of bilateral agreements.
23	Net electricity acquired on the market by: <ul style="list-style-type: none"> • Sole Buyer for 2,675.9 GWh • Imports for 390.2 GWh • Market for 7,732.5 GWh The item is measured with uncertainty of $\pm 0.5\%$.
24	Energy requested on the Rome and Formello distribution network by all the connected customers (free + protected markets). This item is estimated.
25	Electricity losses which take place during the distribution and transmission phase. These are attributable to: transformation and transport losses, fraud and erroneous measurements. This item is estimated.
26	Internal uses of electricity for the performance of distribution activities. The item is estimated.
27	Electricity transferred to third parties. This involves exchanges of energy between distribution companies. The item is measured with uncertainty of $\pm 0.5\%$.
28	Total net electricity conveyed to customers in free market connected to the Rome and Formello electricity distribution network. This includes both the portion of electricity sold by Acea Energia and that sold by other operators active on the free market. The item is measured with uncertainty of $\pm 5\%$ according to the CEI 13-4 standard.
29	Net electricity sold to customers in protected market. The downwards trend is the consequence of the progressive changeover of protected customers to the deregulated market, in other words it is the direct consequence of the process for de-regulating the electricity market underway in Italy since 1999 (Legislative Decree no. 79/99). The item is estimated on the basis of the readings of billed consumption.
30	Net electricity sold by Acea on the free market at Italian national level. Includes the sold on Rome and Formello (item 28). Total sales on the free and the protected market is obtained by summing the items (29) and (30). The figure is estimated.

ENERGY SECTOR PRODUCTS

item no.	explanation – comment
31	Lighting flux supplied by the public lighting system in Rome. The item, calculated, represents the product between the number of lamps installed and the related value of “rated” lighting flux.
32	Total number of gaugings/checks carried out benefiting the energy area. The item is calculated as the sum of the individual calculations made by the pertinent laboratories.

PRODUCTS – ENVIRONMENT

item no.	explanation – comment
33	Incoming total waste. These are the amounts arriving at Orvieto plant: municipal solid waste, organic fraction, green, non-hazardous industrial waste. This figure is calculated.
34	Landfilled waste, either directly or after processing. The figure is calculated.
35	Recovered waste - not sent to landfills. This is glass, paper and paperboard, iron and plastic. In 2014 the figure includes 2,983 tons of waste to energy residues, used for covering the landfill at the end of the day. The figure is calculated.
36	Compost produced at the Orvieto plant. With the change, in 2016, from single aerobic process to a combined aerobic / anaerobic process, the product has been optimised, becoming now High-Quality Compost. The data is measured with an uncertainty of $\pm 1\%$.
37	Reduction for stabilisation. Represents the mass loss caused by such as natural transformation of matter and evaporation water loss. This figure is calculated.
38	Incoming sludge. This is the amount of incoming sludge at the plants located at: Aprilia, Monterotondo Marittimo and Sabaudia. The item is measured with uncertainty of $\pm 1\%$.
39	Incoming green. This is the amount of green from parks, forests and other areas arriving at the composting plants located at: Aprilia, Monterotondo Marittimo and Sabaudia. The data is measured with an uncertainty of $\pm 1\%$.
40	Organic fraction from incoming waste collection at the composting plant located at Aprilia. It represents the total quantity of organic fraction resulting from recycling collection. The item is measured with uncertainty of $\pm 1\%$.
41	High Quality Compost. It represents the amount of high quality compost produced at the composting plants located at: Aprilia, Monterotondo Marittimo and Sabaudia. The composting plant at Aprilia restarted operation on 01.06.2016; the amount indicated is related to year 2016. The quantities actually sold were higher. In particular, in 2016 the compost sold was approximately 6,500 tons. The item is measured with uncertainty of $\pm 1\%$.
42	Non-compostable material to disposal. It is the non-biodegradable matter, as plastic, that is sent to disposal as unfit to be composted. The item is measured with uncertainty of $\pm 1\%$.
42 bis	Incoming waste liquids at Sabaudia and sent for treatment. The figure is calculated.
43	Total analytical controls. The item represents the total of analytical determinations made at the composting plants located at: Aprilia, Monterotondo Marittimo and Sabaudia. The item is calculated.

WATER SECTOR PRODUCTS

item no.	explanation – comment
44	Total drinking water withdrawn from the environment or from other systems. This is the sum of the water withdrawn by the Group companies: Acea Ato 2 (Rome), Acea Ato 5 (Frosinone); Gori (Sarnese Vesuviano); Acque (Pisa); Publicacqua (Florence); Acquedotto del Fiora (Grosseto); Umbra Acque (Umbria). The item is calculated.
45	Total drinking water delivered to the distribution networks of the companies listed under item 44 net of losses due to the water supply at sources. The figure is estimated.
46	Total drinking water supplied to the respective customers of the companies listed in item 44. The figure is estimated.
47	Total drinking water withdrawn from the sources except the high drains, by the company Acea Ato 2 and introduced into the aqueduct system of the Rome and Fiumicino historic network. It includes the water withdrawn from Lake Bracciano, treated. The item is measured with uncertainty of $\pm 3\%$.
48	Total drinking water sold to Municipalities located along the route of the aqueducts. The item is measured and is affected by a systematic error estimated as around - 5%.
49	Drinking water introduced onto non-drinking water network. These are events which take place in the case of maintenance or extraordinary measures which make the dedicated non-drinking water resource insufficient. The item is estimated.
50	Drinking water returned to the environment / technical operating volumes with reference to the Rome “historic” distribution network (Rome + Fiumicino). This figure is calculated.
51	Drinking water introduced onto the network (Parameter A09 of MD 99/97). It represents the drinking water transported to the Rome “historic” distribution network (Rome + Fiumicino), net of the losses due to the water supply at sources. The item is estimated.
52	Total drinking water supplied in the Municipality of Rome on the “historic” network (Rome + Fiumicino). The figure includes the consumption due to Acea Ato 2 users, drinking fountains, water houses, etc.

WATER SECTOR PRODUCTS

item no.	explanation – comment
53	Overall distribution losses – Rome “historic” network (Rome and Fiumicino). This is the parameter A17 of the MD No. 99/97 defined as the quantity of water lost during distribution: $A17 = A9 - (A10 + A11 + A12)$, overall losses in distribution, where, from 2014, the following applies: Parameter A9 of MD 99/97 – total volume of water introduced onto the network. Parameter A10 of MD 99/97 – gauged volume of water supplied to the end user. Parameter A11 of MD 99/97 – as established by the AEEGSI resolutions, the parameter is identified as the “not measured and not invoiced volume” of the used water (authorized) , estimated as $0.005 \times A10$. Parameter A12 of MD 99/97 – as established by the AEEGSI resolutions, the parameter is identified as the “not measured and not invoiced volume” of the used water (authorized) , estimated as $0.002 \times A10$. Parameter A14 of MD 99/97 – water lost apparently for not authorized/not billed consumption, totaling -as estimated by the AEEGSI- $0.002 \times A10$. Parameter A16 of MD 99/97 – water lost apparently for measurement errors due to utility meters installed, totaling -as estimated by the AEEGSI- $0.02 \times A10$ (Resolution n. 1/2016) and from 2015 as $0.03 \times A10$ (Resolution n.5/2016). The item is estimated.
54	Effective distribution losses – defined by the AEEGSI as $A09 - A10 - A11 - A12 - A14 - A16$. The figure is estimated.
55	Total non-drinking water taken from the environment, gross of losses. This item is estimated.
56	Total non-drinking water supplied to Rome and Fiumicino. The item, calculated, corresponds with total water billed.
57	Total non-drinking water supplied to Municipalities other than the Municipalities of Rome and Fiumicino. This is a small estimated quantity.
58	Total drinking water withdrawn from the sources except the high drains, by the company Acea Ato 2 and introduced into the Central Lazio Optimum Area of Operations ATO 2 (Rome “historic” network + Municipalities acquired) aqueduct system. The item is measured with uncertainty of $\pm 3\%$.
59	Total drinking water sold to other aqueduct systems. The item is measured and is affected by a systematic error estimated as around - 5%.
60	Drinking water introduced onto non-drinking water network. These are events which take place in the case of maintenance or extraordinary measures which make the dedicated non-drinking water resource insufficient. This item is estimated.
61	Drinking water returned to the environment / technical operating volumes with reference to the Acea Ato 2 distribution network (Rome and Fiumicino + Municipalities acquired as of 31 December 2016). This figure is calculated.
62	Total drinking water transported to the Acea Ato 2 distribution network (Rome and Fiumicino + Municipalities acquired as of 31 December 2016). The item is calculated.
63	Total drinking water supplied (i.e. gauged at the metres, where present) to the customers connected to the Acea Ato 2 network (Rome and Fiumicino + municipalities acquired as of 31 December 2016). The figure represents estimated consumption due to the entire territory served. It includes, from 2014, “water supplied to other aqueduct systems”, according to AEEGSI Resolutions.
64	Overall distribution losses – Acea Ato 2 network (Rome and Fiumicino + municipalities acquired as of 31 December 2016). This is the parameter A17 of the MD no. 99/97 defined as the quantity of water lost during distribution. See item 53 for details.
65	Effective distribution losses – Acea Ato 2 network (Rome and Fiumicino + municipalities acquired as of 31 December 2016). This is the sum ($A15 + A13$) of the MD no. 99/97. See item 54.
66,67,68	Respectively: quantity of water withdrawn from the environment, introduced onto the distribution network and supplied to its customers by Acea Ato 5 (Frosinone).
69	Overall distribution losses of Acea Ato 5 (Frosinone). This is the parameter A17 of the MD no. 99/97 defined as the quantity of water lost during distribution. See item 53 for details.
70	Effective distribution losses of Acea Ato 5 (Frosinone). This is ($A15 + A13$) of the MD no. 99/97. See item 54.
71	Total waste water conveyed to main treatment plants and treated, concerning: Acea Ato 2, Acea Ato 5, Gori, Umbra Acque, Publicacqua, Acque, Acquedotto del Fiora. This figure is calculated.
72	Total waste water conveyed to the main treatment plants of Acea Ato 2 and treated. This figure is calculated
73	Total waste water conveyed to the treatment plants of Acea Ato 2 and treated, including the quantities treated in the minor plants of the Municipality of Rome and in those outside the Municipality of Rome. This figure is calculated.
74	Total waste water conveyed to the treatment plants of Acea Ato 5 and treated. The figure is calculated.
75	Overall number of analytical controls carried out on drinking water by the Acea Group. The item includes the analysis carried out by Acea Elaborasi and the analysis carried out independently by the companies. This figure is calculated.
76	Overall number of analytical controls carried out on waste water by the Acea Group. The item includes the analysis carried out by Acea Elaborasi and the analysis carried out independently by the companies. This figure is calculated.

RESOURCES USED – ENERGY SECTOR

item no.	explanation – comment
77 = 78 + 79	Total quantity of natural gas used for the generation of electricity and heat at the Acea Produzione and Acea Ambiente waste to energy production plants. The item, expressed in normal cubic metres (volume at 0°C and 1 Atm), is measured with uncertainty of $\pm 0.5\%$. The figure is estimated.
80	Total quantity of gas oil used for the generation of electricity at the Acea Produzione Montemartini (turbogas) plant and for the operations of the Terni waste to energy plant. The consumption of the Montemartini plant is relevant in the last two years because the plant has produced more electricity in order to comply with the normal activities of periodic tests planned, and to carry out testing activities after extraordinary maintenance. The Terni plant consumption rose in 2016 due to the internalization of the transport service of a sector of the plant. This item is measured with uncertainty of $\pm 2\%$.
81	Quantity of RDF (Refuse derived fuel) sent to the waste to energy process at the San Vittore plant in Lazio. The item is measured with uncertainty of $\pm 1\%$.
82	Quantity of pulper sent to the waste to energy process at the Terni plant. The item is measured with uncertainty of $\pm 1\%$.
83	Total water taken from surface resources and from aqueducts (Salisano hydroelectric plant) for the production of hydroelectricity. This figure is calculated.
84	Total quantity of water used in the industrial processes. The various contributions were due to: - replenishment of losses on the district heating network. This is drinking water; - various uses in the San Vittore and Terni waste to energy plants. This is water from aqueduct and from wells. from aqueduct and from wells. This figure is calculated.
85	Quantity of drinking water used by the companies included in the energy sector for civil/sanitary use. This is represented by the uses of: Acea Produzione, Areti, waste to energy plants and 50% of the Parent Company consumptions. The item, calculated, refers to billed consumption.
86	This represents the total quantity of new dielectric mineral oil introduced into the primary and secondary substations. From 2014 the quantity of oil present in Petersen coils installed in some primary substations is included: about 225 tons in 256 Petersen systems. The total amount of new dielectric mineral oil entered into the production circuit (transformers, capacitors, storage depots etc.) includes both the figure for Areti and Acea Produzione. This item is estimated.
87	The item represents the total quantity of gaseous insulator (SF_6) in the systems of Areti. The item is estimated. The quantity of loss make-up gas represents the total new gaseous insulator (SF_6) added to the production circuit in the year. This item is estimated.
88	Quantity of refrigerating fluids in the system. The quantity of loss make-up fluids represents the refrigerating fluids used during maintenance of air-conditioning equipment, when the old fluid is recovered and replaced with new one. The item is calculated allocating the total amounts purveyed by the Parent Company in equal parts (50%) to the energy area and the water area. This item coincides with item 109.
89	Total chemicals used in the electricity and heat generation process at the plants of Acea Produzione and waste to energy plants of Acea Ambiente. From 2014 the activated carbon consumed in waste to energy plants has also been considered. This figure is calculated.
90	Amount of oils and lubricating greases used by Acea Produzione. The data is measured with an uncertainty of $\pm 0.5\%$.
91	This item coincides with item 25.
92	Coincides with the difference between the items 1 and 2.
93	Electricity consumed by the processes not directly linked with the production phases (offices). The item is calculated to an extent equating to 50% of the overall electricity consumed by the Parent Company. The remaining portion of 50% is assigned to the water sector.
94	Other uses of electricity in the energy sector. This figure is calculated.
95	Total electricity consumed by the product systems included in the energy sector. This figure is calculated.
96	Total electricity consumed for public lighting in the Municipality of Rome. The figure is calculated on the basis of the plants in operation in the year.

RESOURCES USED – ENVIRONMENT

item no.	explanation – comment
plant at Orvieto	
97	Quantity of water consumed at the plant in Orvieto. It should be noted that the resource comes in part from the marquises (rain water) and partly from the riverbed (river water). The figure is estimated.
98	Total chemicals used at the plant in Orvieto. In 2015 this figure is in sharp reduction for the revamping of the site ended in November 2015. The figure is calculated.
99	Electricity consumed at the plant in Orvieto. The 2014 and 2015 big reduction depends from the revamping processing going on from April 2014 (to November 2015). The data is measured with an uncertainty of $\pm 1\%$.
100	Total amount of gas oil consumed at the plant in Orvieto. The data is measured with an uncertainty of $\pm 2\%$.
101	Amount of water used for domestic purposes at the Orvieto plant. It is supplied by tankers because the plant is not connected to the aqueduct. The figure is estimated.
production of compost	
102	Quantity of water consumed at the plants located in Aprilia, Monterotondo Marittimo and Sabaudia. The figure is close to zero as at the plant of Aprilia almost all of the water used comes from recycling, after purification with reverse osmosis technology. At the plant in Sabaudia the consumptions are not significant, approximately 183 cubic meters; at the Monterotondo Marittimo plant about 3,700 cubic meters in 2016. Finally, water consumption not from recycling are negligible.
103	Total chemicals used at the plants in Aprilia, Monterotondo Marittimo and Sabaudia. The figure is calculated.
104	Electricity consumed at the plants located in Aprilia, Monterotondo Marittimo and Sabaudia. The sharp fall is due to the downtime of the plant in Aprilia in 2015. The data is measured with an uncertainty of $\pm 1\%$.
105	The total amount of fuels consumed at the plants located in Aprilia, Monterotondo Marittimo and Sabaudia. The data is measured with an uncertainty of $\pm 2\%$.

RESOURCES USED – WATER SECTOR

item no.	explanation – comment
106	The figure represents the sum of the consumption of reagents for drinking water and disinfection of the water in the water companies Acea Ato 2 and Acea Ato 5. In detail this includes: sodium hypochlorite - used as a disinfectant upon the request of the Health Authorities -, aluminium polychloride, caustic soda and ozone. This figure is calculated.
107	Total quantity of chemical reagents used by Acea Elabori for the performance of its duties, in other words the performance of analytical checks benefiting Acea Group companies. The item is measured.
108	Total volume of pure gas for analyses used by Acea Elabori. The item is measured.
109	Quantity of refrigerating fluids in the system. The quantity of loss make-up fluids represents the refrigerating fluids used during maintenance of air-conditioning equipment, when the old fluid is recovered and replaced with new one. Both items are calculated allocating the total gases purveyed by the Parent Company in equal parts (50%) to the energy area and the water area. This item coincides with item 88.
110	Electricity used for the drinking and non-drinking water pumping plants. The increase in 2015 and 2016 is mainly due to a particularly dry climate weather condition which resulted in some cases the use of pumping equipment. The item is measured with uncertainty of $\pm 1\%$.
111	Electricity consumed by the processes not directly linked with the production phases (offices). The figure, equal to item 93, is calculated to an extent equating to 50% of the total electricity consumed by the Parent Company.
112	Electricity used by Acea Elabori. It includes all the energy relating to the various fields of activities of Acea Elabori, not only the laboratory analysis activities. This item is estimated.
113	Total electricity consumed in the water sector. The figure for the previous year was modified after partial data corrections. This figure is calculated.
114	Quantity of drinking water used by the companies Acea Ato 2 and Acea Ato 5 for civil/sanitary use. The item, calculated, refers to billed consumption.
115	Quantity of water consumed for civil/sanitary uses within the installations not directly linked with the production phases (offices). From 2016 the methodology of estimation of the entire quantity has changed. The item is calculated to an extent equating to 50% of the overall water consumed by the Parent Company.
116	The figure is calculated as the sum of items 114 and 115.
117	Total quantity of chemicals used in the waste water treatment process. It is derived from the sum of the consumptions recorded for the following substances: polyelectrolyte, sodium hypochlorite, ferric chloride, lime. This figure is calculated.
117 bis	Total amount of lubricating oil and grease used for the equipment of the water sector (pumps, centrifugal pumps, motors, etc.). The figure is calculated.
118	Electricity used for the running of the waste water treatment plants and for the running of the sewage network. The item is measured with uncertainty of $\pm 1\%$.

FUELS USED BY THE GROUP (VEHICLE FLEET AND CONDITIONING)

item no.	explanation – comment
119	Total quantity of petrol used for the Acea Group's vehicle pool. A density value of 0.73 kg/l was used to convert from volume (litres) to mass (kg) (source: Defra, conversion factors 2016). From 2015 older vehicles – petrol ones, were decommissioned. This item is measured with uncertainty of $\pm 0.5\%$.
120	Total quantity of diesel used by Acea Group's vehicle fleet. A density value of 0.84 kg/l was used to convert from volume (litres) to mass (kg). (source: Defra, conversion factors 2016). The considerable increase in 2016 is due to the new WFM model which resulted in an increase in operational capacity against more vehicles at once. This item is measured with uncertainty of $\pm 0.5\%$.
121	Total quantity of gas oil used to heat workplaces and to power generators. For 2015-2016 it represents only the consumptions of Acea Ato 2 and Acea Ato 5. This item is measured with uncertainty of $\pm 0.5\%$.
122	Total quantity of natural gas used for heating working environments. The boundary includes: Acea, Areti; Acea Produzione (offices of via aeronautica), Acea Ato 2, Acea Ato 5, Acea Ambiente, Acea Elabori, Crea Gestioni, Acea Energia, Acea Illuminazione Pubblica. This item is measured with uncertainty of $\pm 0.5\%$.
123	Total quantity of LPG (liquid petroleum gas) used for heating working environments. A density value of 0.550 kg/l was used to convert from volume (litres) to mass (kg). This item is measured with uncertainty of $\pm 0.5\%$.

SPILLS AND WASTE – ENERGY SECTOR

item no.	explanation – comment
124	Total quantity of carbon dioxide emitted into the atmosphere as a consequence of the generation of thermoelectric energy from fossil fuels and from the waste to energy treatment of RDF and pulper. The item includes the CO ₂ equivalent estimated on the basis of the SF ₆ replenishments. The figure is calculated as the sum of the items 125, 126 and 127. The item is estimated.
125	Quantity of carbon dioxide emitted into the atmosphere by the Acea Produzione plants. This item is calculated according to current legislation.
126	Quantity of carbon dioxide equivalent estimated on the basis of the SF ₆ replenishments, considering that 1 t of such gas has a warming potential (WP) equal to 22,800 times the CO ₂ WP.
127	Quantity of carbon dioxide emitted into the atmosphere by the Acea Ambiente waste to energy plants. On 30.09.2016 also line 1 of the waste to energy plant of San Vittore went into service, with a result in increased emissions. The figure is calculated according to the existing regulations.
128	Total quantity of nitric oxides (NO + NO ₂) emitted into the atmosphere as a consequence of the generation of thermoelectric energy from fossil fuels and from the waste to energy treatment of RDF and pulper. Their presence in trace form in the emissions is due to the secondary undesirable reactions which take place at a high temperature between the nitrogen and the oxygen in the air. This figure is calculated.
129	Quantity of nitric oxides (NO + NO ₂) emitted into the atmosphere as a consequence of the generation of thermoelectric energy from fossil fuels in the Acea Produzione plants. This figure is calculated.
130	Quantity of nitric oxides (NO + NO ₂) emitted into the atmosphere by the Acea Ambiente waste to energy plants. This figure is calculated.
131	Total quantity of carbon monoxide (CO) emitted into the atmosphere as a consequence of the generation of thermoelectric energy from fossil fuels and waste to energy process. The presence of this pollutant in the emissions is due to incomplete combustion reactions and represents a symptom of decline in the combustion reaction efficiency. This figure is calculated.
132	Total quantity of carbon monoxide (CO) emitted into the atmosphere as a consequence of the generation of thermoelectric energy from fossil fuels in the Acea Produzione plants. This figure is calculated.
133	Quantity of carbon monoxide (CO) emitted into the atmosphere by the Acea Ambiente waste to energy plants. This figure is calculated.
134	Total quantity of sulphur dioxide (SO ₂) emitted into the atmosphere as a consequence of the generation of thermoelectric energy from fossil fuels and from the waste to energy treatment of RDF and pulper. The use of natural gas and gas oil with a low sulphur content in the plants made it possible to sharply contain this type of emission. This figure is calculated.
135	Quantity of sulphur dioxide (SO ₂) emitted into the atmosphere as a consequence of the generation of thermoelectric energy from fossil fuels in the Acea Produzione plants. This figure is calculated.
136	Quantity of sulphur dioxide (SO ₂) emitted into the atmosphere by the Acea Ambiente waste to energy plants. This figure is calculated.
137	Total quantity of dust (microscopic particles with an average aerodynamic diameter equal to or less than 10 thousandths of a millimetre) emitted into the air as a consequence of the generation of thermoelectric energy using fossil fuels and from the waste to energy treatment of RDF and pulper. This mainly involves unburnt amorphous carbon, with traces of other compounds of a mixed composition obtained as a by-product of the combustion when this does not take place completely. This figure is calculated.
138	Quantity of dust emitted into the atmosphere as a consequence of the generation of thermoelectric energy from fossil fuels in the Acea Produzione plants. This figure is calculated.
139	Quantity of dust emitted into the atmosphere by the Acea Ambiente waste to energy plants. This figure is calculated.
140	Total quantity of waste water treated, deriving from thermoelectric production activities. This item is gauged with uncertainty of $\pm 2\%$.
141	Total cooling water in the thermoelectric plants. During last three years, as the combined cycle did not produce energy, it was not necessary to use the cooling water for the Tor di Valle plant. This item is estimated.

SPILLS AND WASTE – ENERGY SECTOR

item no.	explanation – comment
142	Total quantity of hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by Acea Group companies with the exclusion of the waste to energy sector. The item is measured with uncertainty of $\pm 2\%$.
143	Hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of from the waste to energy sector. This basically involves light ash and slag deriving from incineration. The item is measured with uncertainty of $\pm 2\%$.
144	Total quantity of non-hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by the Acea Group companies with the exclusion of the waste to energy sector. The item is measured with uncertainty of $\pm 2\%$.
145	Non-hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of from the waste to energy sector. This is essentially heavy ash and slag, deriving from incineration. The item is measured with uncertainty of $\pm 2\%$.

SPILLS AND WASTE – ENVIRONMENT

item no.	explanation – comment
146	Hazardous waste (Legislative Decree no. 152/06) disposed from the plants at Aprilia, Monterotondo Marittimo and Sabaudia. The figure is calculated.
147	Non-hazardous waste (Legislative Decree no. 152/06) disposed from the plants of Aprilia, Monterotondo Marittimo and Sabaudia. The figure is calculated.
148	Hazardous waste (Legislative Decree no. 152/06) disposed of by the plant at Orvieto. The data is measured with an uncertainty of $\pm 2\%$.
149	Leachate derived from activities at the composting plants and at Orvieto plant. The data is measured with an uncertainty of $\pm 2\%$.
150, 151, 152, 153	Among the emissions in Environment, the following are described: dust, Volatile Organic Compounds, ammonia, volatile inorganic acids. The data refer only to the plant at Aprilia. 2015 COT, ammonia and SIV data are calculated from the concentrations measured by third party laboratories. The presence of this symbol “ \leq ” locates concentration equal to or below the limits of detection of the instruments used by the laboratory, therefore indicates only an upper limit. The figures have decreased in 2016 because of the sequestration of the plant from July 2014 to December 2015, and also because of extraordinary maintenance for renovation; the plant was again into operation from June 2016. The data are calculated from the measurement of concentrations.

SPILLS AND WASTE – WATER SECTOR

item no.	explanation – comment
154	Total quantity of sludge disposed of by Acea Ato 2 and Acea Ato 5. This sludge is non-hazardous waste. The item is measured with uncertainty of $\pm 2\%$.
155	Total quantity of sludge disposed of by Acea Ato 2. The item is measured with uncertainty of $\pm 2\%$.
156	Total quantity of sludge disposed of by Acea Ato 5. The item is measured with uncertainty of $\pm 2\%$.
157	Total quantity of sand and sediment disposed of by Acea Ato 2 and Acea Ato 5. The item is measured with uncertainty of $\pm 2\%$.
158	Total quantity of sand and sediment disposed of by Acea Ato 2. The 2015 figure includes 16,932 tonnes of sand and sediment removed in the plant of Rome South, for extraordinary cleaning of the oxidation compartment. The item is measured with uncertainty of $\pm 2\%$.
159	Total quantity of sand and sediment disposed of by Acea Ato 5. The item is measured with uncertainty of $\pm 2\%$.
160	Total quantity of hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by Acea Ato 2, Acea Elabori and Acea Ato 5 plus a portion produced by the Parent Company ascribed in equal parts to the two areas of activities, energy and water. The figure is calculated.
161	Quantity of hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by Acea Ato 2 and Acea Elabori. The item is measured with uncertainty of $\pm 2\%$.
162	Quantity of hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by Acea Ato 5. The item is measured with uncertainty of $\pm 2\%$.
163	Quantity of hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by the Parent Company and attributed to the Water Area. The same amount has been attributed to the Energy Area.
164	Total quantity of non-hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by Acea Ato 2, Acea Elabori and Acea Ato 5 plus a portion produced by the Parent Company ascribed in equal parts to the two areas of activities, energy and water. The item is calculated.
165	Total quantity of non-hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by Acea Ato 2 and Acea Elabori. The item is calculated.
166	Total quantity of non-hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by Acea Ato 5. The data is estimated.
167	Quantity of non-hazardous waste (pursuant to Legislative Decree no. 152/06) disposed of by the Parent Company and ascribed to the Water Area. The same amount has been attributed to the Energy Area.
168	Total quantity of aggregates (non-hazardous waste - pursuant to Legislative Decree no. 152/06) disposed of by the water companies Acea Ato 2 and Acea Ato 5. The item is calculated.

ACEA GROUP EMISSIONS FROM VEHICLES AND AIR-CONDITIONING

item no.	explanation – comment
169	Total quantity of carbon dioxide emitted by the Acea Group vehicle fleet. The figure was recalculated for 2015. For 2014-2016 it is calculated using the fuel consumptions and the emission coefficients (ISPRA 2015). The increase in 2016 is primarily dependent on the new WFM model which resulted in an increase in operational capacity against more vehicles simultaneously working.
170	Total quantity of nitric oxides emitted by the Acea Group vehicle fleet. The item was calculated using Sinanet emission factors (www.sinanet.isprambiente.it). For the density of petrol and diesel Defra 2016 values were used: https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting .
171	Total quantity of carbon monoxide emitted by the Acea Group vehicle fleet. The item was calculated using Sinanet emission factors (www.sinanet.isprambiente.it).
172	Sulphur dioxide emissions by vehicles were not calculated, as they were extremely small amounts deriving from combustion of modest quantities of sulphur found in latest-generation fuels.
173	Total quantity of carbon dioxide emitted by the air-conditioning systems in the work environments. From 2015 figures are calculated using the fuel consumption and emission coefficients (ISPRA 2015).

2016

SUSTAINABILITY REPORT

ACEA GROUP

ACEA SPA

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