

RELATIONS WITH  
THE ENVIRONMENT







## ENVIRONMENTAL SUSTAINABILITY AND THE PRIMARY CHALLENGES

The primary challenges for environmental sustainability are identified in the **Green Deal**, the European Union growth strategy and the tool to launch the “**Next Generation EU**”. The European post-COVID plan sets the goal of climate neutrality by 2050, through progressive transformation of the economy, with large-scale **investment in renewable energy, energy efficiency, transport with low environmental impacts and upgrading of buildings**, in the context of a **circular economy**, with **inclusivity and innovation** as universal foundations.

As 2020 was struck by the health emergency, the European guidelines remained unchanged and also represent the reference framework for Companies like Acea, which continues its path of growth in a **circular-economy context**, and has taken up the challenge of **combating climate change** through **increased use of renewables and green energy in internal consumption**, increased **resilience of electrical and water infrastructure**, a focus on safeguarding **water resources and technological innovation** applied to infrastructure management.

With regard to **climate change**, the Group is undertaking initiatives aimed on the one hand at the process of **adaptation** to these changes, for example, by making infrastructure more resilient and incorporating the analysis of critical scenarios into operations, and on the other hand at the **mitigation** process through the progressive reduction of climate-changing emissions. In 2020, Acea participated in the **CDP – Carbon Disclosure Project**, confirming its presence in the Leadership class and inclusion on the “A-List” (see also *Corporate identity* info. box in the chapter *Strategy and sustainability*), it launched a new **project for alignment with the International Recommendations of the Task Force on Climate-related Financial Disclosures – TCFD** (see info. box) and it set the foundations to proceed with definition of a **science-based target** for reducing climate-change gas emissions.

In the context of the project launched by the Eni Enrico Mattei Foundation, entitled “**De Risk-Co**”, in September 2020, Acea participated in a meeting on “The evolution of business climate disclosure. The perspective of stakeholders”, presenting its own path

regarding the reporting of climate-related themes, from the CDP, which the Company joined in 2006, to the most recent developments mentioned above.

With regard to the **management of water**, in agreement with the relevant institutions, Acea continued preparatory actions for the **construction of the new upper section of the Peschiera-Le Capore Aqueduct** to safeguard the water supply in Rome and the Province of Rome. **The design of infrastructure** of strategic importance, together with that of the Marcio aqueduct, is developed following the **Envision protocol procedures, the first rating system for the creation of sustainable infrastructure, which assesses the economic, environmental and social sustainability of the infrastructure**. In addition, the wastewater reuse project has continued, important both for preserving water resources and for the circular economy, and is awaiting completion of the authorisation procedure.

Acea has been investing in the **circular economy** for some years now, with the aim of **reducing waste of resources**, for example by using process waste, and achieving **recovering energy, secondary raw materials and “critical” raw materials**.<sup>99</sup> In this regard, it is important to highlight the “**Sludge Mining**” project, aimed at recovering critical raw materials (see info. box in the chapter *Environment segment – waste management*).

The Group contributes to the achievement of several goals defined in the four European Directives of the “circular economy package”. Specifically, **at the Ecomondo event**, Acea Ambiente and Acea Ato 2 presented projects aimed at **development of local composting, the recovery of matter in urban treatment plants and the reduction of sludge** (see info. boxes for details in this paragraph, in the chapter *Environment Segment – waste management* and in the chapter *Customers and communities*, in the section *Communication, events and solidarity*).

With regard to **technological innovation** particular attention is paid to applications that concern the **management of networks and their evolution** (see also the chapter *Institutions and the Company*).

<sup>99</sup> The most important raw materials from an economic perspective, which present a high level of procurement risk, are classed as “critical raw materials”, and these include: vanadium, cobalt, tungsten, metallic silicon, niobium, phosphorus, etc., Brussels, 03/09/2020 COM (2020) 474 final.

Once again this year, Acea participated in Ecomondo, the most important international sustainable-development trade fair in the Euro-Mediterranean area held in Rimini with a digital format. Acea Ambiente, the Group Company operating in the circular-economy sector, contributed to the annual event, **with a conference on the topic of recovery of the organic fraction from the waste processing chain**, on the opportunities and goals of the **new centralised composting and anaerobic digestion plants**, including **biomethane production**, and on research projects underway into **“Utilising compost for precision farming”** and their integration with Companies in the agricultural sector at a regional and national level.

The **projects presented** with reference to the **circular economy** include: “Utilisation of treatment sludge: the experience of the SLUDGE 4.0 project”, “P2Me: Plastic to Methanol”, “Acea and local composting – Acea Smart Comp”, and, in the **water segment**: “Fast method to look for SARS-CoV-2 in wastewater”, presented by Acea Ato 2.

In the field of **biodiversity**, Acea Ambiente presented the **bio-monitoring project using bees** at San Vittore del Lazio. Finally, there was the **LabSharing project**, conducted by Acea and Enea for synergies between laboratories, technology and know-how, supporting research and monitoring in the environmental field.

## ENVIRONMENTAL AND CLIMATE RISKS: IN-DEPTH ANALYSIS AND DISCLOSURE

### CLIMATE RISKS

Climate change is one of the most important environmental and social challenges of our times. Whilst the Covid-19 pandemic has represented the most serious emergency of 2020 and beyond, the issues of economic crisis and climate change have certainly not gone away. The **European Union has defined ambitious measures and goals to reduce its greenhouse-gas emissions** and has set emissions targets for the principal areas of the economy. Specifically, on 5 March 2020 the European Council adopted the long-term strategy for the EU for development with low greenhouse-gas emissions, which was submitted to the United Nations Framework Convention on Climate Change (UNFCCC), as established by the Paris Agreement. The strategy reaffirms the commitment of the EU and the Member States to the Paris Agreement and refers to the approval, by the European Council, of the zero-climate-impact goal for 2050. The EU and the Member States have agreed on an ambitious social and economic transformation, through which they intend to demonstrate that the passage to climate neutrality is not only imperative, but feasible and beneficial<sup>100</sup>.

The next United Nations **Conference of the Parties (COP26)** on climate, organised by the United Kingdom in collaboration with

Italy, has been postponed by one year, to November 2021. Following postponement of the Conference, the Minister for the Environment, Sergio Costa, stated: “*we are determined to maintain our commitment to the challenge of climate change. Tackling climate change requires decisive, ambitious, global action. We will continue to work with our British partners for the success of COP26. Furthermore, between now and November 2021, we will also have a chance to discuss Conference topics through events such as the G20, under the Italian Presidency and the G7, organised under the Presidency of the United Kingdom*”<sup>101</sup>.

In this context, **Acea** has strengthened its **climate-change mitigation and adaptation strategy** i) with an increase in the energy efficiency of Companies and, regarding water, with the reuse of purified wastewater in agriculture and production of drinking water from the Tiber ii) implementing actions aimed at increasing the resilience of infrastructure, and iii) adopting a plan to **significantly increase generation from renewables**<sup>102</sup> and with the dual objective of achieving a **high level of efficiency for final internal usage and usage in energy processes**, and **reducing carbon intensity** (gCO<sub>2</sub>/kWh produced). The results obtained to date are shown in table no. 64 on energy intensity indices and table no. 70 on emission intensity indices.

As mentioned, Acea has initiated alignment with the Recommendations of the **Task Force on Climate-related Financial Disclosures (TCFD)** and since 2019 it has already evaluated climate risks, dividing them into physical and transition risks (see info. box for more details).

### THE ACEA PROJECT FOR ALIGNMENT WITH THE INTERNATIONAL RECOMMENDATIONS OF THE TCFD

In 2017, the Task Force of the Financial Stability Board (**Task Force on Climate-related Financial Disclosures – TCFD**) published the document Recommendations of the Task Force on Climate-related Financial Disclosures, which, right from the introduction, highlights the **potential impacts on the global economy of climate change** and global warming caused by GHG emissions.

The **11 Recommendations on Climate-Related Financial Disclosures** currently represent the benchmark model at international and EU level. They are **applicable to all organisations**, are **focused on risks and opportunities** connected to climate change and increasing the capacity for a panorama based on **precise analyses of scenarios**.

In June 2019, the European Commission, with the intent of providing Companies with guidelines for integration of the non-financial disclosures governed by directive 2014/95 – which in Italy gave rise

to Legislative Decree no. 254/2016 –, issued a Communication entitled *Guidelines on non-financial reporting: Supplement on reporting climate-related information*, which, whilst not binding, “encourages companies” to adopt the recommendations of the TCFD.

The Acea Group, in relation to the business managed has significant CO<sub>2</sub> equivalent emissions, which originate primarily from the generation of electricity, in particular from waste-to-energy plants, and indirectly from consumption of electricity. It has therefore embraced **the global challenge to combat climate change**, aware both of the environmental importance of the issue and the potential opportunities, also of an industrial nature, presented by the energy transition. Starting from the Company’s experience in the context of the CDP, it decided to launch a project to improve management around this issue, **developing analysis of the climate scenario** and climate disclosure

<sup>100</sup> <https://www.consilium.europa.eu/it/press/press-releases/2020/03/05/climate-change-council-adopts-eu-long-term-strategy-for-submission-to-the-unfccc/>

<sup>101</sup> <http://www.governo.it/it/articolo/rinviata-al-2021-la-conferenza-sul-clima-cop26/14659>

<sup>102</sup> More specifically, in 2020 Acea Produzione purchased some photovoltaic systems for 16 MW of power, reaching a total of 52.5 MW.

reporting, according to the approach set out by the Task Force on Climate-related Financial Disclosures (TCFD project).

In particular, the actions initiated, with the support of a qualified consultant, in 2020 included:

- **internal stakeholder engagement;**
- development and assessment of **analyses of climate risk scenarios (both physical and transition related)**, conducted in collaboration with

the main Group Companies and Functions of the Holding Company;

- a **High-Level Session** that was held in December.

The project will continue in 2021, with updating of the processes for analysis of Acea's risks, for improved integration of "climate risks" in ERM, identified via the scenario analyses. The analysis of financial impacts and the definition of a form of climate-related financial disclosure that can be integrated with financial reporting or be independent.

## ENVIRONMENTAL MANAGEMENT

The **Management Systems** integrated and certified according to the UNI EN ISO standards are implemented, or in the process of implementation in the majority by the Company (see the chapter *Corporate governance and management systems* in the section *Corporate identity*). The parent Company itself has an **Integrated Quality, Environment, Safety and Energy Management System** components that facilitates environmental compliance, and a **Sustainability Policy and QESE System** that guides the Group's approach to respecting and protecting the environment, also consistent with the principles set out in the Code of Ethics.

The commitment of the Operating Companies to maintaining the efficiency of the Management System for environmental matters does not entirely exclude situations, usually provoked by contingent circumstances, that generate **non-conformities** that may be challenged by the competent Control Bodies.

During the year the main operating Companies of the group received **around 30 environmental fines**, with the consequent payment of **approximately € 41,500**. An additional **80 environmental disputes** are currently being settled.

The Aprilia plant, seized in 2017 by the Latina Public Prosecutor's Office for aspects related to odorous emissions, since 2019 has operated close to full capacity<sup>103</sup>.

Environmental problems of greater significance are forwarded to the Units responsible, which establish the facts reported and request the necessary action, as well as providing feedback to the Bodies involved. Exceptionally, it may happen that the Company receives significant reports from individual persons; in this case they will be checked and, where needed, it will intervene to resolve them.

With respect to electricity distribution, Areti may receive observations regarding alleged environmental damage in the case of buildings housing electrical plants. However, this concerns **installations indispensable for the correct exercise of the electricity distribution network**, created by the Company following **authorisations granted by Bodies which are custodians of the land** and therefore fully compliant with the legislation of reference, including both town planning and environmental legislation<sup>104</sup>. The Assets and Special Projects Unit, which protects the Company's assets, receives the notes of dispute from the owners of the immovable properties that host **transformer substations** or are adjacent to power lines, and subsequently the Areti Risk & Compliance and Safety Unit **carries out the instrumental checks** in response to the disputes. During 2020, **12 environmental checks were processed and closed** with a positive outcome concerning electromagnetic fields and transformer substations.

## THE MANAGEMENT AND CONTROL OF ACTIVITIES WITH ENVIRONMENTAL IMPACTS

The Group monitors the processes which have the **potential capacity to generate environmental impacts** and in particular the activities which necessitate the use, or envisage the presence in installations, of **materials which are intrinsically dangerous**, such as for example sulphur hexafluoride, radon and dielectric oil. With regard to the latter, in particular, in 2020 Areti continued its **experimentation with vegetable oil**, launched some years ago. Indeed, **dielectric oil** is a substance used as an insulating and cooling fluid in power transformers, which has advantageous technological characteristics and also some environmental issues related to its chemical nature as a derivative of petroleum. The experiment is based on the use of an insulating **liquid of vegetable origin (natural esters)**, which has electrical and physical characteristics similar to oil of a mineral origin, but the significant advantages of a **higher temperature of flammability** and total **biodegradability** and **reusability** at the end of its life. The ongoing experiments, having the precautionary aim of maximising confidence with this new product by minimising any risks and/or defects connected with its use, concerns **three MV/LV transformers designed and built for this purpose** (two with 400 kVA power and the third with 630 kVA power put into operation in 2015). At the moment, **the analyses conducted have not identified changes/anomalies in the composition of the oil** and the planned experimental service life is a minimum of 10 years, during which further checks will be performed on the quality of the dielectric oil. Once the results are in, a decision will be made regarding whether to roll-out the approach.

## SAFEGUARDING OF LAND AND BIODIVERSITY

Areas connected to conservation and the promotion of biodiversity have an increasingly important role in the environmental agenda of leading international institutions. These are clearly set out in the UN Sustainable Development Goals (SDGs) (**Agenda 2030**) and, in turn, the loss of biodiversity is also a focus of the **European Green Deal**, concentrating on the main causes of this degradation, including methods of land use and water basins, excessive exploitation of natural resources and pollution. The guidelines indicate setting binding goals for the recovery of ecosystems that have been damaged, improving the health of protected habitats and species, reducing pollution and making our cities greener. Furthermore, in May 2020, the European Commission published the **EU**

<sup>103</sup> The Aprilia plant was placed under seizure in 2017, for aspects related to odorous emissions. On 14 April 2018, the Public Prosecutor authorised the resumption of operations by removing the seals from the Aprilia plant, without prejudice to the seizure. In 2019 and 2020, the plant operated close to full capacity, although all activities were subject to daily control by a judicial custodian.

<sup>104</sup> In this case, the environmental regulatory reference is D.P.C.M. of 8 July 2003.

**Biodiversity Strategy for 2030** (COM (2020) 380 final) and biodiversity is one of the six environmental goals around which the **Taxonomy of Sustainable Activities** is built.

The Group Companies conduct activities that could potentially have **impacts on biodiversity**, such as processing waste, operation of power plants (thermoelectric, waste-to-energy and even hydroelectric), management of water sources and treatment plants and the distribution of electricity. On this basis, Acea **focuses closely on safeguarding the ecosystems in areas where it operates**, as defined in the procedures of the **Environmental Management Systems** in the context of assessments for the **planning and creation of plants**, as well as **management of operational areas**. Moreover, as required by the Authorisations of existing plants and every time an Integrated Environmental Authorisation (IEA) is renewed for a plant, this is managed by **protecting the flora and fauna** present in the local area and safeguarding the natural environment.

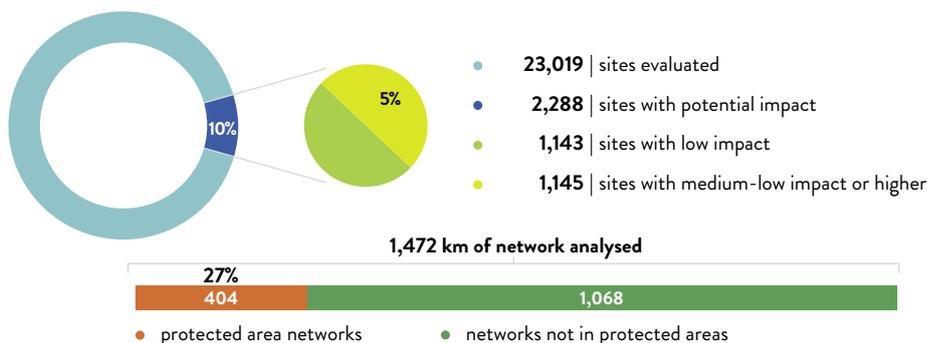
In 2020, the Sustainability Planning & Reporting Unit, in technical partnership with Acea Elabori and in collaboration with Group Companies, conducted a **mapping of the main Operating Companies** (Acea Ato 2, Acea Ato 5, Gori, Gesesa, AdF, Acea Ambiente, Acea Produzione and Areti), **aimed at identifying sites located in areas with high levels of biodiversity**. Specifically, using **QGIS**, an open-source GIS application that allows viewing, organisation, analysis and presentation of spatial data, **each layer**

**of the sites/plants** of the Companies, has been overlaid with the **Protected Natural Areas (EUAP) defined at national level and Sites of the Natura 2000 Network (SCIs/SCZs and SPAs)**<sup>105</sup> defined at European level.

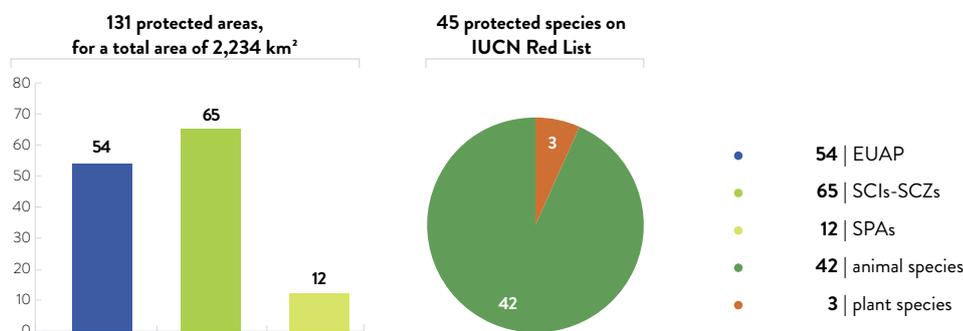
Further analysis has allowed **identification of potential risks and impacts of the different types of Group sites/plants in the areas with high levels of biodiversity affected**, taking into consideration design, operational and management phases, and excluding sites with minor impacts (e.g. Acea Ato 2 Water Kiosks, Areti secondary substations and photovoltaic plants equivalent to residential plants of Acea Produzione).

Analysis **conducted on over 23,000 sites**, including pylons but excluding the networks and pipelines, has shown that **2,290 sites**, corresponding to **approximately 10%**, represent **potential interference with the system of protected areas**. Considering, instead, **only the sites which could have a more significant impact on biodiversity**, the number drops to **1,145** and the total percentage to **5%**. The analyses conducted on the **overhead electricity distribution network (1,472 km analysed)** showed interference with protected areas for approximately **27%**, corresponding to **404 km of network**. The number of natural areas intersected by sites/networks with a significant impact **total 131** (54 EUAP Protected Natural Areas, 65 Sites of Community Interest (SCIs)/Special Conservation Zones (SCZs) and 12 Special Protection Areas (SPAs)<sup>106</sup> for a **total area of 2,234 km<sup>2</sup>**.

**CHART NO. 46 – ACEA SITES/PLANTS AND KM OF NETWORK ANALYSED AND WITH POTENTIAL IMPACTS ON BIODIVERSITY**



**CHART NO. 47 – NATURAL AREAS INTERSECTED BY ACEA PLANTS/NETWORKS AND PROTECTED SPECIES IN IUCN RED LIST PRESENT**



<sup>105</sup> The Protected Natural Areas (EUAP) at national level are those areas recognised officially by the State pursuant to Framework Law 394/91. The Natura 2000 Network, established pursuant to “Habitat” Directive 92/43/EEC, is the main policy instrument of the European Union for the conservation of biodiversity. It is composed of Sites of Community Interest (SCIs) which are then designated as Special Conservation Zones (SCZs), and also includes the Special Protection Areas (SPAs), established by “Birds” Directive 2009/147/EC on the conservation of wild birds. The areas composing the Natura 2000 network are not reserves where human activities are excluded: the Directives intend to guarantee the protection of nature whilst also taking “account of economic, social and cultural requirements and regional and local characteristics”.

<sup>106</sup> Where SCIs/SCZs and SPAs coincide, the areas are counted once amongst SCIs/SCZs.

The detailed results of the analyses conducted, **by individual Company**, are provided in table no. 47.

**TABLE NO. 47 – OPERATIONAL SITES IN PROTECTED AREAS**

operations-Company	protected areas affected (no.)				% sites intersected in protected areas of sites analysed	type of protected areas (land or undersea)	location of sites in protected areas (regions-provinces)	land area affected (km <sup>2</sup> or km)
	activity	EUAP	SCIs-SCZs	SPAs				
Water – Acea Ato 2		20	17	7	13%		Lazio – Rome, Frosinone, Rieti	1,291 km <sup>2</sup>
Water – Acea Ato 5		6	7	5	3%		Lazio – Frosinone, Latina; Campania – Caserta	94 km <sup>2</sup>
Water – AdF	Integrated Water Service (pipelines, drains and treatment)	12	12	11	3%	 	Tuscany – Siena, Grosseto	14 km <sup>2</sup>
Water – Gori		5	11	6	10%	 	Campania – Naples, Salerno	634 km <sup>2</sup>
Water – Gesesa		2	9	3	16%		Campania – Benevento; Molise – Campobasso	25 km <sup>2</sup>
Environment – Acea Ambiente, Acque Industriali	WTE and waste treatment plants	0	0	0	0%	-	-	-
Generation – Acea Produzione and associated PV companies	Production of electricity	3	5	3	13%		Abruzzo – Chieti; Lazio – Rome; Umbria – Terni	54 km <sup>2</sup>
Networks – Areti	Electricity transmission and distribution – primary substations and pylons	14	1	0	3%		Lazio – Rome	122 km <sup>2</sup>
	Electricity transmission and distribution – overhead networks (HV, MV and LV)	19	7	2	27%		Lazio – Rome	404 km

**NOTE** where SCIs/SCZs and SPAs coincide, they are only considered once.

In the areas affected, there are many **animal and plant species**, including some on the **International Union for Conservation of Nature (IUCN) “Red List” of Threatened Species** (in the categories “vulnerable”, “endangered” and “critically endangered”)<sup>107</sup>, i.e. at risk of extinction in the short or medium term. These species therefore

represent a conservation priority. **A total of 45 species are potentially affected.** Specifically, there are **3 plant species** (1 critically endangered and 2 endangered) and **42 animal species**, of which 7 are critically endangered, 9 are endangered and 26 are considered vulnerable (see table no. 48 for details).

**TABLE NO. 48 – SPECIES LISTED IN THE IUCN RED LIST WITH HABITAT IN THE PROTECTED AREAS INTERSECTED**

Total number of species	Mammals	Birdlife	Amphibians	Fish	Molluscs and crustaceans	Reptiles	Flora
<b>Critically endangered (CR)</b>		Numenius tenuirostris		Acipenser sturio, Anguilla anguilla, Scardinius scardafa	Belgrandia bonelliana, Margaritifera auricularia	Eretmochelys imbricata	Isoetes sabatina
<b>Endangered (EN)</b>		Neophron percnopterus	Bombina pachypus	Barbus caninus, Chondrostoma soetta, Romanogobio benacensis, Squalius lucumonis	Austropotamobius pallipes, Melanopsis etrusca	Chelonia mydas	Bryum versicolor, Pilularia minuta
<b>Vulnerable (VU)</b>	Balaenoptera physalus, Lepus corsicanus, Miniopterus schreibersii, Myotis capaccinii, Nyctalus lasiopterus, Phylseter macrocephalus	Aquila clanga, Aythya ferina, Larus audouinii, Melanitta fusca, Passer italiae, Podiceps auritus, Puffinus yelkouan, Streptopelia turtur		Alburnus albidus, Cobitis zanandreae, Cyprinus carpio, Neogobius nigricans, Salmo fibreni	Alzoniella cornucopia, Astacus astacus, Belgrandia latina, Radomaniola callosa	Caretta caretta, Dermochelys coriacea, Vipera ursinii	

<sup>107</sup> There are 11 risk categories, from Extinct (EX), applied to species for which there is definitive evidence that the last individual example has died, and Extinct in the Wild (EW), assigned to species for which there are no longer natural populations but only individuals in captivity, through to the category Least Concern (LC), applied for species that are not at risk of extinction in the short or medium term. Between the categories of Extinct and Least Concern, there are the threatened categories, which identify species at progressive risk of extinction in the short or medium term: Vulnerable (VU), Endangered (EN) and Critically Endangered (CR).

Awareness of potential interferences represents a starting point for operations with an increasing focus on safeguarding ecosystems. Plants in the **energy segment**, active in the generation of electricity using fossil fuels and waste-to-energy, are incompatible with protected areas and therefore do not fall within them. Nevertheless, Acea still adopts tools in operational areas for the **monitoring of possible impacts** on the surrounding environment (see the info. box on bees for biomonitoring of environmental quality below). The activities conducted by **Acea Produzione** in areas with high levels of biodiversity primarily regard **hydroelectric plants**, with withdrawals and inputs of water managed in line with the Concessions issued by the competent authorities and applicable regulations. In fact, **Management Projects** have been prepared for all reservoirs (pursuant to Italian Decree of the Ministry for the Environment of 30 June 2004), with relevant impact studies for those in protected areas. For example, on the Castel Sant'Angelo hydroelectric power station, in the context of preparatory and authorisation activities regarding geotechnical assessments aimed at seismic verification of the Casoli dam, an Environmental Impact Study and a Landscape Report were conducted, in order to safeguard the SCI area near the site. On hydroelectric sites, the Company provides for the protection of the habitats of all species present in order to **mitigate the effect of the artificial barrier of the dams**, which interferes with the natural migration of fish and the gradual sedimentation of the riverbed, with consequent variation of the native flora of the banks. In addition, protection of the aforementioned basins ensures the living conditions of the "resident" and "migratory" birds, which use these sites for reproduction/ feeding even during migration.

The activities involved in the **Integrated Water Service**, even though conducted in part on protected sites, are aimed at the **maintenance of optimal environmental conditions** and sites that exist where water is drawn, near to springs, are managed with the utmost attention to the **conservation of existing ecosystems and the preservation of the water flow**.

Likewise, with **treatment activities**, the primary goal is that **discharges**, after appropriate treatment, comply with the limits established by regulations in the sector and are therefore **compatible with the natural habitats of the receiving bodies of water**. In implementation of this commitment, targets have been established for **improved treatment efficiency** for certain Water Companies (see the paragraph *Strategy and sustainability*, sub-section *The 2020-2024 Sustainability Plan and operational goals*).

In addition, some Companies have launched projects aimed at identifying specific impacts, also those of a positive nature, on areas of activity and the species present. Specifically, to check for any critical issues in the habitats surrounding the **major treatment plants** in Rome, **Acea Ato 2** has conducted special monitoring of **areas it is responsible for and the surroundings**. The results of the studies performed at the Roma Nord and Roma Sud treatment

plants have shown that the plants **have a positive effect** on the ecosystem, constituting **synanthropic biodiversity hotspots**, i.e. places where species that coexist or are learning to coexist with humans through mechanisms of evolution and natural selection tend to form a rich and stable ecological community. Indeed, the specific ecological conditions combined with the low impact of man-made structures facilitates the presence of an extremely particular wildlife community. For a number of years, Acea Ato 2 has also been monitoring the presence of **Peregrine Falcons** in part of the **Acqua Vergine springs** area, a **species** which despite preferring open, wild areas, can nest in artificial structures, such as towers and bell towers in heavily built-up areas. Every year a large community including scholars, ornithologists and simple enthusiasts follows the lives of the Peregrine Falcons who live among the Acqua Vergine springs, thanks to a webcam managed by Ornis Italica, an association of researchers promoting the Birdcam.it project, which broadcasts images of a nest situated on Acea infrastructure ([www.birdcam.it](http://www.birdcam.it)).

In the context of the project for development of the Water Safety Plan for the water systems fed by the waters of the Santa Fiora springs (see also the sub-section *Water Safety Plans*), **AdF** launched a **scientific partnership agreement with the Institute of Geoscience and Georesources of the CNR (National Research Council)** of Pisa, also aimed at assessing the vulnerability of the aquifer as a scientific knowledge base for definition of appropriate protection areas by the competent Authorities.

Finally, in order to **limit the potential impacts** of overhead infrastructure for the **distribution of HV and MV electricity on birds**, **Areti employs risk mitigation initiatives** in collaboration with the relevant authorities, making use of the best technological solutions for problems that are likely to occur in sensitive areas or areas of particular naturalistic value. Specifically, through the *Memorandum of Understanding for the Rearrangement of the Electricity Network*, signed by Areti, Terna and the Municipality of Roma Capitale in 2007, works were planned to **dismantle and demolish overhead power lines** within **highly important protected areas**. For details of the works performed in 2020, see the paragraph *Energy distribution*. The electricity network rationalisation works contained in the Memorandum of Understanding include operations within the Veio Park, and for this reason, the Company and the Park Authority **signed a pledge of commitment**, in which **Areti** guarantees the financial and operational support to implement a **plan for monitoring of birdlife within the Park for a period of ten years**. Areti's commitment included the printing of **two illustrated volumes providing information** on nesting and wintering **birds**, a study on fatality rates of birdlife along high-voltage and medium-voltage power lines, updating and reprinting of the tourist map of the Veio Park with addition of the paths of power lines involved in the work.

## 150,000 BEES FOR BIOMONITORING OF ENVIRONMENTAL QUALITY

In line with the goals of the European Green Deal and the principles set out in the Integrated QESE and Sustainability Policy of the Group, Acea Ambiente promotes sustainable industrial growth with a focus on protection and safeguarding of land and biodiversity.

The Company has therefore decided to adopt an additional tool to monitor **ecosystem quality** in areas where its plants are located, and in spring 2020, at the San Vittore del Lazio (Frosinone) waste-to-energy plant, it launched the project "**UrBees**", in collaboration with bee-keeping experts and the Sacro Cuore Catholic University (Pia-

cenza and Cremona section), aimed at environmental monitoring by observing the **behaviour of bees, as bioindicator insects**.

Biomonitoring is an innovative tool for environmental control that allows the **effects of pollution to be identified**, observing living organisms and their biological parameters through the study of ecological changes due to the effects of one or more polluting substances present in the various areas of the biosphere.

Honeybees are one of the best "environmental sentinels", supporting plant biodiversity and they enable the determination of **qualitative and**

## 150,000 BEES FOR BIOMONITORING OF ENVIRONMENTAL QUALITY (continued)

**quantitative data regarding the health or lack thereof of a specific ecosystem.** The beehive becomes an **environmental control unit** in which all information collected by the bees in the environment is converted. At the San Vittore del Lazio plant, **three beehives** have been installed, for a total of approximately **150,000 bees** on average, which have enabled acquisition of data for an area of **7 km<sup>2</sup>**, calculated based on the average flight range of the bees, equal to 1.5 km. Both the bees and honey have provided **useful indicators for analyses** aimed at understanding the state of health of the surrounding environment. The foraging bees are sampled on a monthly basis, analysing fine particles or other pollutants identified on the wings. The analyses performed on dead bees in their natural life cycle, and collected

weekly, have allowed detection of other traces, as have those on the honey produced in the summer. The observations made have **highlighted the overall good health of the bees and the absence of instances of unexpected illnesses or depopulation.** The wild areas and woodlands present in the area without intensively farmed fields, have offered an abundant source of nectar for the bees, which produced approximately 10 kg of honey. Amongst the particles collected for analysis, although the bees are excellent sensors for the detection of particulates, particularly PM10 and PM2.5 particles and ultra-fine dusts, **no traces of emissions from the waste-to-energy plant chimney were detected**, but instead only indicators of traffic, local processing and handling of materials.

## MANAGEMENT OF WATER RESOURCES, SPRINGS AND PROTECTED AREAS

Through the Companies **Acea Ato 2, Acea Ato 5, Gori and Gesesa**, the Group mainly uses springs located in uncontaminated areas for water supply.

**The supply system** of the area managed by Acea Ato 2 is composed of **seven large aqueduct systems** that transport water from **14 main sources to the distribution networks** and from numerous

smaller local sources (mainly wells), for a **total flow that exceeds 21,000 litres/second.** The drinking water distribution network extends for, more than **13,500 km.** In addition to this priceless natural resource, Lake Bracciano, and following recent upgrading works on the Grottarossa drinking water plant, also the river Tiber, represent water reserves, after appropriate treatment, to be used only in the event of water emergencies and subject to receipt of all necessary authorisations in the case of the drinking water plant.

## EVALUATION OF THE GROUNDWATER AVAILABILITY

In accordance with that established by the criteria of the Water Framework Directive (WFD, 2000/60/CE), investigation of the availability, in quantitative terms, of potential groundwater resources and the possible impacts associated with the withdrawal of water resources from springs can be performed through monitoring of certain variables and in particular through implementation of a model for the assessment of the hydrological balance.

Regarding the latter, the main aspects can be identified as precipitation (rain and snow), evapotranspiration, surface run-off and therefore infiltration into the soil in the area where the balance is assessed. On this basis, for the refilling areas representative of the aquifers managed by **Acea Ato 2**, a continuous calculation methodology was implemented (from 1990 to today), spatially distributed for quantification of the components of the hydrological balance at a daily level.

**Acea Ato 5** has continued a study on water availability performed on certain important sources. Analysis of precipitation and with-

drawals has been performed for the years 2017-2020. The results clearly show that in 2020, generally, there was a reduction in precipitation and therefore in water availability compared to the previous year, highlighting how rainfall patterns influence refilling of springs. The method used for the study also highlighted how lower available amounts can be forecast.

At **AdF**, in order to monitor the impacts of water withdrawals on sources used, a dedicated report was prepared on sources, which, on a monthly basis, allows assessment of significant changes in methods of utilising wells and significant reductions in the available resources from the source. In addition, a document is monitored and updated on a three-monthly basis and for seasonal forecasts, which is shared with relevant stakeholders (Tuscan Water Authority – ALT), regarding a possible state of water emergency, with indication of critical issues involving “drought” (lack of resources) and management or infrastructural works planned.

In the Municipalities that fall within OTA 5 Lazio Meridionale – Frosinone, **Acea Ato 5** manages **77 sources**, with 44 wells/well fields and 34 springs. In addition to these sources, the Company purchases/sells water through exchange points with other operators and Municipalities. From the sources, the water is transported to the Municipalities through a supply network, which follows a complex distribution network beginning with tanks and dividing elements before reaching all users served, and totalling approximately **5,900 km.**

**Gesesa**, which operates in district 1 Calore Irpino in the Campania Region, for the supply of drinking water, manages approximately **2,040 km** of network, springs, primarily seasonal, and collects the majority of the water utilizing groundwater wells. There are three large collection systems: the Benevento plain, constituted of two well fields, Pezzapiana and Campomazzoni, a

well located at the aquifers of Monte Taburno and a well located near to the Grassano spring.

**AdF**, which operates in Optimal Territorial Conference no. 6 “Ombrone” (ex OTA 6), manages the drinking water system through a network that stretches approximately **8,270 km.** Almost 50% of the water is drawn from the **Fiora springs** located on the slopes of Monte Amiata, while in the Siena area, the most significant systems are the Luco well field and the Vivo aqueduct, which takes water from the three springs of Amiata Ermicciolo, Ente and Burlana, located in the Vivo d’Orcia area. The water system managed by **Gori** in the **Sarnese Vesuviano** territorial district has three main subsystems: Vesuviano, Monti Lattari and Ausino. The Vesuviano System is the most extensive of the three and arises from the functional integration of the Sarno aqueduct and the Vesuviano aqueduct, in turn in-

terconnected with external elements of the Campano aqueduct, the West Campania aqueduct and the Serino aqueduct. This is responsible for supplying the majority of the OTA 3 municipalities. The Monti Lattari System serves the territory of the Sorrento Peninsula, the Island of Capri, and the Stabiese plain. Finally, the Ausino System, represents the supply framework for the municipalities of the OTA that occupy the eastern edge of the territory. The water drawn from endogenic sources represents approximately one third of the total,

while the remainder originates from systems outside the OTA. All of the Companies guarantee operation and correct maintenance of collection infrastructure, primary and secondary water plants, supply systems and distribution networks and user meters. Particular commitment has been invested in extraordinary maintenance works, which can include reconstruction, modernisation and expansion of water plants and networks to meet the real demand and guarantee appropriate updating of technology.

## SUSTAINABLE PLANNING OF WORKS ON STRATEGIC INFRASTRUCTURE: PESCHIERA-LE CAPORE AND MARCIO AQUEDUCTS

In 2019, after the approval issued by the relevant Bodies, Acea Ato 2 began the planning of important works on the Pescara-Le Capore and Marcio aqueducts aimed at **ensuring the continuity and security of the supply** to Rome and the territory of OTA 2. These works are essential for the **resilience of drinking-water system infrastructure**, also in terms of adapting to climate change.

The works to **double the upper section of the Pescara-Le Capore aqueduct system**, which reached the **final design stage** in 2020, involve the construction of **a second 27 km line** that will connect the Pescara spring with the Salisano node. The size of the infrastructure, and the reasonable duration to be guaranteed, have dictated innovative design choices, inspired by the most advanced execution techniques and monitoring technologies, for the definition of which recognised experts in the various engineering fields have been involved. For the works on the Marcio aqueduct, which has the goal of overcoming a series of problems

due to the age of the infrastructure and limited management flexibility, 2021 will see definition of the final design for the works and launch of the authorisation phase.

Furthermore, both designs are developed following the Envision protocol procedures, the first rating system for the creation of sustainable infrastructure, which assesses the economic, environmental and social sustainability of the infrastructure. Specifically, for the Pescara works, the preliminary assessment for the Envision Certification was successfully passed (*Verified* level) and the activities for the design integration were planned in order to obtain the maximum level of certification (Platinum). An assessment of the carbon footprint of the infrastructure is also underway for these works. Also regarding sustainability, in 2020, a call for tenders was issued for the recovery of earth and rock originating from tunnel excavation, classified as a “by-product” under applicable regulations, with an estimated quantity of approximately 800,000 m<sup>3</sup>.

Table no. 49 indicates the location and surface **areas** in square metres of the **zones subject to absolute protection**<sup>108</sup>. It is noted that the sources illustrated are all drawn in “areas under water stress”, as defined at international level<sup>109</sup> by the World Bank Institute. The

water drawn is freshwater<sup>110</sup>, apart from 4% of the amount drawn by AdF, corresponding to approximately 2 million cubic metres, which is from groundwater. The amounts drawn by the Companies from the springs listed are indicated in the *Environmental Accounts*.

**TABLE NO. 49 – THE PRINCIPAL SOURCES UNDER PROTECTION**

sensitive area	municipality	area (m <sup>2</sup> ) <sup>(1)</sup>
<b>IN OTA 2 – CENTRAL LAZIO</b>		
Pesciera springs	municipality of Cittaducale (Rieti, Lazio)	375,322
Le Capore springs	municipality of Frasso and Casaprota (Rieti, Lazio)	997,848
Acqua Marcia spring	municipalities of Agosta-Arsoli-Marano Equo (Rome)	1,181,979
Acquoria spring	municipality of Tivoli (Rome)	17,724
Pantano Borghese Acqua Felice springs	municipality of Zagarolo (Rome)	779,143
Simbrivio springs and wells	municipality of Vallepietra (Rome)	194,755
Pertuso springs	municipality of Trevi – Filetino (Lazio)	13,3711
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
Laurentina wells	municipality of Ardea	13,661
Pescarella wells	municipality of Ardea	2,433
Lake Bracciano	municipality of Rome	169,200
<b>IN OTA 5 – SOUTHERN LAZIO <sup>(1)</sup></b>		
Posta Fibreno wells	municipality of Posta Fibreno (Frosinone)	20,000

<sup>108</sup> The areas of absolute protection are the areas immediately surrounding the catchments or off-springs, as defined in Legislative Decree no. 152/2006.

<sup>109</sup> <https://www.wri.org/aqueduct>

<sup>110</sup> Water with total dissolved solids ≤ 1,000 mg/l.

**TABLE NO. 49 – THE PRINCIPAL SOURCES UNDER PROTECTION (cont.)**

Tufano wells	municipality of Anagni (Frosinone)	18,000
Capofiume spring	municipality of Collepardo (Frosinone)	10,000
Madonna di Canneto spring	municipality of Settefrati (Frosinone)	10,000
Forma d'Aquino wells	municipality of Castrocielo (Frosinone)	20,000
Carpello wells	municipality of Campoli Appennino (Frosinone)	15,000
Mola dei Frati wells	municipality of Frosinone	5,000
<b>IN THE PROVINCE OF BENEVENTO – OTA – CALORE IRPINO</b>		
12 wells	municipalities of Benevento, Telesse Terme, Castelpagano, Vitulano, Melizzano, Sant'Agata de' Goti, Cautano and Forchia	9,110
Ciesco spring	Castelpoto	307
Faitillo and Orto dei Ciuffi spring	San Giorgio La Molara	2,412
Gradola spring	Tocco Caudio	707
Monticelli spring	Castelpagano	358
Pietrafitta and Ruggiero spring	Torrecoiso	2,242
San Vito spring	Frasso Telesino	249
Voneventa spring	Molinara	516
<b>IN THE SARNESE VESUVIANO DISTRICT</b>		
Vado spring	municipality of Bracigliano (Salerno)	1,338
Forma spring	municipality of Gragnano (Naples)	322
Imbuto spring	municipality of Gragnano (Naples)	187,159
S.M. Lavorate spring	municipality of Nocera Inferiore (Salerno)	5,971
S.M. La Foce spring and well field	municipality of Sarno (Salerno)	60,202
Fontana Grande source	municipality of Castellammare di Stabia (Naples)	330
centres of Murata, Pugliana, Casaliciello, Santa Lucia and Tartaglia	municipalities of Cercola, Ercolano, Pollena Trocchia, Roccarainola and San Giorgio a Cremano (Naples)	15,473
centre of Monte Taccaro and Angri well field	municipality of Angri (Salerno)	43,072
well field of Suppezza, Gragnano, San Mauro Montalbino, Mercato Palazzo and Santa Lucia	municipalities of Castellammare di Stabia, Gragnano, Nocera Inferiore and Sarno (Salerno)	46,610
wells of Traiano, Stromboli-Vesuvio and Petraro	municipalities of Castel San Giorgio, Mercato San Severino and Nocera Superiore (Salerno)	7,203
21 wells in the province of Salerno	municipalities of Bracigliano, Castel San Giorgio, Corbara, Fisciano, Mercato San Severino, Nocera Inferiore, Nocera Superiore, Pagani and Siano (Salerno)	10,657
4 wells in the province of Naples	municipalities of Castellammare di Stabia, Palma Campania, Roccarainola and San Giorgio a Cremano (Naples)	1,529
<b>IN OPTIMAL TERRITORIAL CONFERENCE NO. 6 "OMBRONE"</b>		
spring of Galleria Alta – Galleria Bassa – Fonte Carolina	municipality of Santa Fiora (Grosseto)	37,046
Ermicciolo spring	municipality of Castiglione d'Orcia (Siena)	3,885
Arbure spring	municipality of Castel del Piano (Grosseto)	7,443
Ente spring	municipality of Arcidosso (Grosseto)	327
Burlana spring	municipality of Seggiano (Grosseto)	2,442
Luco well field	municipality of Sovicille (Siena)	10,063

(\*) The surface area data is estimated.

For the **monitoring of the area** where the springs are located, for several years now **Acea Ato 2** has also used "**satellite observation**". Surveillance is concentrated in the places showing – on the basis of the comparison between two images taken from space at a distance of several months – an **unjustified or suspect morphological variation**, such as new, unsurveyed con-

structions, earth movements, small landfills. The Company performs checks on site to identify any threats to water resources, ensuring **precise monitoring**. In fact, **in 2020**, thanks to the use of a satellite to perform change detection and additional inspections carried out along the supply and collection network, **73 violations were identified**.

# ENERGY SEGMENT

## SCOPE

The chapter *Energy Segment* includes Acea Produzione, the PV Companies under Acea Sun Capital, Areti, the Acea Ambiente and Ecogena energy production plants (Ecogena is only included for data on energy produced and Energy Efficiency Certificates). Waste-to-energy activities are also described in the chapter *Environment Segment – waste management*.



**916 GWh** TOTAL ENERGY  
PRODUCED: **68% FROM**  
RENEWABLES (**625 GWh**)



**210,000 t** OF **CO<sub>2</sub>** SAVED  
THROUGH PRODUCTION OF  
**electricity FROM renewables**  
INSTEAD OF TRADITIONAL SOURCES



**16 MW** OF **PV** PURCHASED, FOR A  
TOTAL OF **52.5 MW** installed

The Group **oversees the entire electricity supply chain** thanks to the operations of independent Companies, as required by the regulation of the electricity market. In particular, Acea is active in the **production** of electricity and heat, in the **distribution** of electricity in the Rome and Formello areas, including the management of public lighting; and in the **sale** of electricity, heat and gas.

Acea focuses on **innovation applied to network management** – remote control, IoT and smart grids – which also supports an **increase in resilience of infrastructure** and optimal management of **prosumers** connected to its energy distribution network, which are constantly increasing in number (see also the chapters *Customers and communities and Institutions and the Company*).

## ENERGY PRODUCTION: FOSSIL AND RENEWABLE ENERGY SOURCES

Acea intends to promote and **increase production of electricity from renewables** and has launched a path of growth in the **photovoltaic** generation sector, with the goal of reaching an installed capacity of 747 MW in 2024, as set out in the 2020-2024 Business Plan. In 2020, 16 MW were purchased, thus reaching 52.5 MW of installed capacity.

### GROUP PLANTS

Through the Companies **Acea Produzione, Acea Sun Capital and Acea Ambiente, the Group produces electricity** primarily from

renewables. **The majority of production is provided by hydroelectric plants and another significant portion, also partially renewable, from waste-to-energy plants utilising paper-mill waste and Solid Recovered Fuel (SRF)<sup>111</sup>.**

**Acea Produzione** is equipped with plants for generation from renewables, both hydroelectric and photovoltaic, and fossil fuels (thermoelectric), with the latter primarily involving the **high-efficiency co-generation plant**. The power park includes:

- **7 hydroelectric power stations** located in the Lazio and Abruzzo regions for a total of **122 MW**;
- **2 thermoelectric power stations**, located within the Municipality of Rome area: Montemartini (78.3 MW)<sup>112</sup> and Tor Di Valle (19.0 MW), for **97.3 MW<sub>e</sub> total available installed capacity**;
- one **photovoltaic park**, for a total of **52.5 MW<sub>p</sub>**, of which 16 MW purchased in 2020<sup>113</sup>.

The generation of energy from waste-to-energy processing is assigned to **Acea Ambiente**, taking place at **two plants** located in San Vittore del Lazio and Terni, and both with percentages of **biodegradable** material (renewable source) varying between 40% and 50%. The total gross electrical power currently available is approximately **58 MW<sub>e</sub>**.

In addition, Acea Ambiente produces electricity using **biogas** derived from the anaerobic digestion process at the Orvieto Technology Hub and the composting plants of Aprilia and Monterotondo Marittimo.

**TABLE NO. 50 – INSTALLED POWER OF THE ELECTRIC POWER STATIONS OF ACEA PRODUZIONE**

hydroelectric power stations	thermoelectric power stations
A. Volta di Castel Madama (Rome) power station – gross power <b>9.4 MW</b>	Tor di Valle power station: high-efficiency cogeneration (CAR) section (*) (Rome) methane fuel – gross power <b>19.0 MW</b>
G. Ferraris di Mandela (Rome) power station – gross power <b>8.5 MW</b>	Montemartini power station (Rome) gas oil fuel – gross power <b>78.3 MW</b>
Salisano power station (Rieti) – gross power <b>24.6 MW</b>	
G. Marconi di Orte power station (Viterbo) – gross power <b>20.0 MW</b>	
Sant'Angelo power station (Chieti) – gross power <b>58.4 MW</b>	
Cecchina power station (Rome) – gross power <b>0.4 MW</b>	
Madonna del Rosario power station (Rome) – gross power <b>0.4 MW</b>	
<b>general total: gross capacity 219 MW</b>	

(\*) The CAR plant in Tor di Valle provides district-heating service in the area south of Rome.

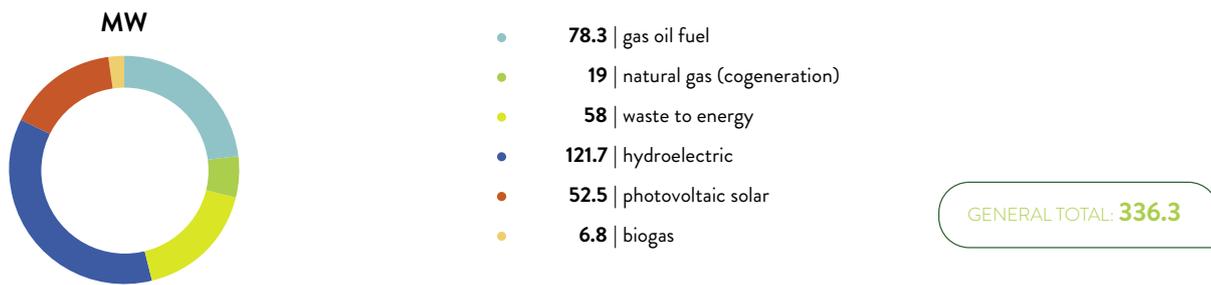
<sup>111</sup> A primary energy source, derived from waste.

<sup>112</sup> The power station is operational only in the event of extraordinary energy demand, and operation can also be managed remotely from the control room at the Tor di Valle Power Station.

<sup>113</sup> The photovoltaic plants purchased are the property of the Company Acea Sun Capital.

The installed capacities of the Group, which overall amount to approximately 336 MW<sup>114</sup>, are presented in chart no. 48, distinguished by energy source.

**CHART NO. 48 – INSTALLED ELECTRICAL POWER OF THE GROUP BROKEN DOWN BY ENERGY SOURCE (MW) (2020)**



**ELECTRICITY PRODUCED**

In 2020, total gross electricity production remained stable, around 916 GWh, -0.4% compared to the 920 GWh of the previous year. On the one hand, low rainfall reduced hydroelectric production and certain issues with the line turbines of the waste-to-energy plants led to reduced energy performance. Meanwhile, there was greater photovoltaic production, due to plants purchased during the year, and biogas production, due to production almost at full capacity for the composting plants of Monterotondo Marittimo and Aprilia, in addition to production of the Orvieto plant.

The share of electricity generated by renewable sources, about 625 GWh, is predominant, corresponding to approximately 68% of the total, with the following contributions:

- 376 GWh from hydroelectric power;
- 147 GWh from waste-to-energy;
- 27 GWh from biogas (Orvieto, Aprilia and Monterotondo Marittimo plants);
- 75 GWh from solar panels (see chart no. 49 and table no. 51).

In January 2020, Acea Produzione completed work to upgrade and increase the efficiency of hydroelectric plants: the last being the Galileo Ferraris di Mandela hydroelectric power station in the province of Rome. This made it possible to optimize the use of available water resources, under the same conditions of installed and licensed power.

The Company also implemented a project at the Tor di Valle High

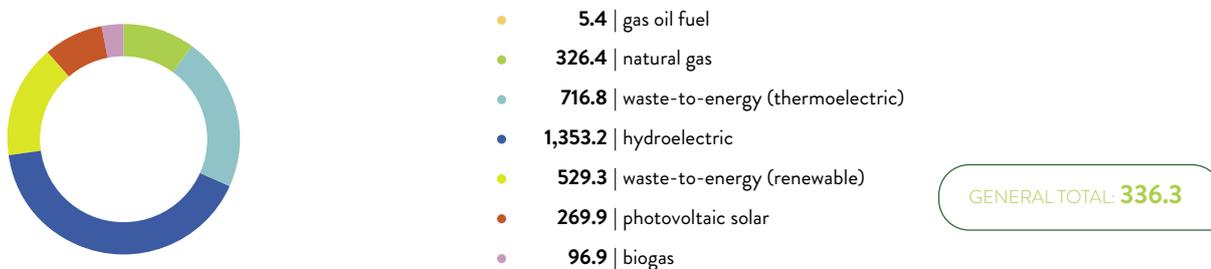
Efficiency Cogeneration Plant (CAR), involving installation of a further two 1.5 MW<sub>e</sub> internal combustion engines, that will be powered by the biogas from the adjacent Acea Ato 2 Roma Sud treatment plant. The Tor di Valle plant will in turn provide the treatment plant with thermal energy to heat the sludge in the digesters<sup>115</sup>. Construction of a 267.3 kW<sub>p</sub> photovoltaic plant has been authorised at the same power station. Works began in November 2020 and will be completed by April 2021.

With regard to the share of green energy from waste-to-energy production, in 2020 the figure was approximately 42% for both plants, being associated to the combustion of the biodegradable fraction of waste used as a primary source. In particular, the renewable share of the fuel (SRF) entering the San Vittore del Lazio plant was equal to 42.5% of the total of waste-to-energy, while in the Terni plant this share was around 42.4%. The percentage was lower than in recent years, particularly at the San Vittore del Lazio plant, due to the change in the composition of SRF for reasons connected to the Covid-19 pandemic: municipal waste was altered, probably due to closures in the initial months and the significant restrictions in subsequent months in the restaurant sector and public services, such as schools, as well as in commercial and industrial settings regarding canteens.

The decrease in energy produced by hydroelectric power plants, equal to about 12% compared to 2019, is primarily due to the lower rainfall recorded during the year.

With regard to thermoelectric energy, the increase in production is due to a greater availability of the Tor di Valle plant.

**CHART NO. 49 – ELECTRICITY PRODUCED SUBDIVIDED BY PRIMARY ENERGY SOURCE (TJ) (2020)**



**NOTE** The values reported in the chart are expressed in TJ (1 GWh = 3.6TJ).

<sup>114</sup> The total installed power includes the Acea Produzione plants, the waste-to-energy plants and the Orvieto, Aprilia and Monterotondo Marittimo plants (Acea Ambiente) for the production of biogas.

<sup>115</sup> In January 2021, the request was submitted to the Ministry for the Environment (MATTM) for preliminary verification for application of an EIA.

**TABLE NO. 51 – ELECTRICITY PRODUCED (BY PRIMARY ENERGY SOURCE) (2018-2020)**

	2018	2019	2020
<b>PRIMARY ENERGY SOURCE</b>	<b>TJ (GWh) (*)</b>		
<b>ELECTRICITY PRODUCED (BY PRIMARY ENERGY SOURCE)</b>			
gas oil fuel	2.0 (0.6)	4.9 (1.4)	5.4 (1.5)
natural gas (cogeneration)	261.9 (72.8)	320.1 (88.9)	326.4 (90.7)
waste-to-energy (approximately 58% of the total in 2020)	718.4 (199.5)	643.8 (178.8)	716.8 (199.1)
<b>total thermoelectric</b>	<b>982.3 (272.9)</b>	<b>968.8 (269.1)</b>	<b>1,048.6 (291.3)</b>
hydroelectric	1,715.5 (476.5)	1,533.4 (426.0)	1,353.2 (375.9)
waste-to-energy (approximately 42% of the total in 2020)	684.6 (190.2)	642.2 (178.4)	529.3 (147.0)
biogas	67.1 (18.6)	71.2 (19.8)	96.9 (26.9)
photovoltaic solar (**)	36.7 (10.2)	95.0 (26.4)	269.9 (75.0)
<b>total renewables</b>	<b>2,503.9 (695.5)</b>	<b>2,341.8 (650.5)</b>	<b>2,249.2 (624.8)</b>
<b>general total</b>	<b>3,486.2 (968.4)</b>	<b>3,310.6 (919.6)</b>	<b>3,297.8 (916.1)</b>

(\*) 1 GWh = 3.6 TJ.

(\*\*) Photovoltaic includes the production at the plants located on sites of the water area (Acea Ato 2 and Acea Ato 5) and at the Orvieto hub, for a total of 1.9 GWh produced. The figure for 2019 has been updated to include energy produced by the plants purchased in the second half of the year.

### THERMAL ENERGY PRODUCED

The **Tor di Valle** thermoelectric power plant generated **approximately 94 GWh of thermal energy**. The heat generated was used to serve 39,852 residents in the area south of Rome (Mostacciano, Torino and Mezzocammino) by means of a district-heating network which provides a volume equal to 3,627,911 cubic metres<sup>116</sup>. In 2020, **30 of the current 361 thermal substations serving the district-heating network were replaced**, with the goal of constantly increasing process efficiency and service reliability for users (see also the paragraph *Strategy and sustainability, the 2020-2024 Sustainability Plan and the operational goals*). were replace

The Company **Ecogena**, certified as an ESCo (Energy Services Company) in accordance with UNI CEI 11352:2014, **develops**

**the energy efficiency initiatives for the Group** and reports their results to Gestore dei Servizi Energetici (GSE) for the awarding of Energy Efficiency Certificates (EEC).

The activities assigned to Ecogena include also the design and building of cogeneration and trigeneration plants<sup>117</sup> for the production, in combined mode, of **electrical, heat and cooling energy**.

In **2020 cogeneration plants were managed, combined with district-heating networks for a total of 4.9 MW of electrical power**. The production of electricity and thermal energy saw a decrease due to the **drop in power draw following the restrictions imposed to contain the Covid-19 pandemic, the closure of many manufacturing and commercial enterprises** and also due to the milder winter compared to the previous year (see table no. 52).

**TABLE NO. 52 – THE PRODUCTION OF ENERGY BY ECOGENA PLANTS AND ENERGY EFFICIENCY CERTIFICATES EEC (2018-2020)**

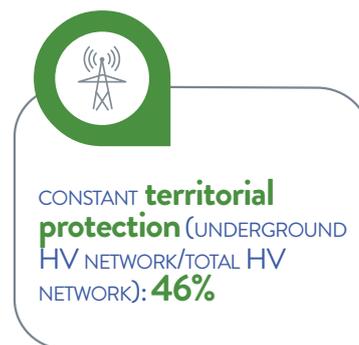
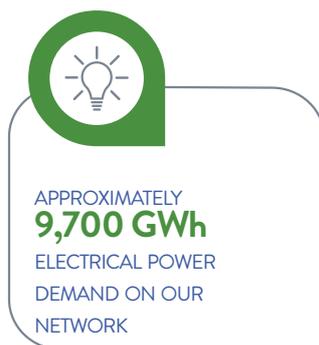
	2018	2019	2020
<b>energy produced</b>	<b>TJ (GWh)</b>		
electricity	54.1 (15.0)	51.5 (14.3)	36.0 (10.0)
of which plants owned by Ecogena	50.3 (14.0)	49.0 (13.6)	32.2 (8.9)
of which plants owned by third parties	3.9 (1.1)	2.7 (0.7)	3.9 (1.1)
thermal energy	95.4 (26.5)	103.3 (28.7)	87.2 (24.2)
of which plants owned by Ecogena	81.1 (22.5)	89.2 (24.8)	73.2 (20.3)
of which plants owned by third parties	14.3 (4.0)	14.0 (3.9)	14.0 (3.9)
refrigeration energy (all owned plants)	34.5 (9.6)	37.6 (10.5)	37.6 (10.5)
	<b>EECs</b>		
<b>Total EECs (all from plants owned by Ecogena)</b>	<b>1,359</b>	<b>954</b>	<b>943</b>

**NOTE** Other information on EECs is provided in the *Energy savings* section of the chapter *The use of materials, energy and water*.

<sup>116</sup> The data is from December 2020.

<sup>117</sup> Cogeneration, i.e. the combined production of electrical and thermal energy, allows high efficiencies to be achieved, between 80 and 90%. Trigeneration, which is a special application of cogeneration, allows use of a part of the thermal energy recovered in order to produce cooling energy in the form of cooled water for air conditioning in rooms or for industrial processes.

## ENERGY DISTRIBUTION



### THE DISTRIBUTION NETWORKS

Areti manages the **electricity distribution network** of Rome and Formello, extending over **approximately 31,000 km** and capable of supplying about **2.8 million residents**. In terms of volumes of electricity distributed, about 9,700 GWh in 2020, Acea is the third largest Italian operator in the sector.

Table no. 53 presents the principal plant data of the Company, including the number of primary and secondary substations, the trans-

formers<sup>118</sup> and the km of overhead and underground distribution lines. **The environmental indicator** related to the **protection of the region**, calculated as a percentage share of the **underground high-voltage network (HV) in relation to the total of the HV lines in use** (overhead and underground), **has improved in recent years, and in 2020 was stable compared to the previous year, equal to 46%**. This also as a result of the ongoing **transformation and modernisation** of the high and very-high-voltage electricity distribution grid.

**TABLE NO. 53 – NUMBER OF OVERHEAD AND UNDERGROUND DISTRIBUTION LINES AND PLANTS (2018-2020)**

Areti				
SYSTEMS AND OUTPUT	u. m.	2018	2019	2020
HV/HV – HV/MV primary substations	no.	70	70	70
HV/HV and HV/MV transformers	no.	166	170	171
transformation power	MVA	7,631	7,781	7881
substations in use	no.	1,3211	13,238	13,292
MV/MV – MV/LV transformers	no.	12,838	12,883	12,897
transformation power	MVA	6,236	6,282	6,298
OVERHEAD AND UNDERGROUND NETWORKS				
high voltage network – overhead lines	km	282	282	282
high voltage network – underground lines	km	243	243	243
medium voltage network – overhead lines	km	424	422	421
medium voltage network – underground lines	km	10,166	10,470	1,0211
low voltage network – overhead lines	km	1641	1642	1,642
low voltage network – underground lines	km	18,306	18,417	1,8511

### MEMORANDUM OF UNDERSTANDING FOR THE REARRANGEMENT OF THE ELECTRICITY NETWORK

2020 saw the continuation of the **plan to modernize the high voltage electricity distribution grid (150 kV)**, defined in the **Memorandum of Understanding** signed in 2010 among Areti SpA, the Municipality of Rome and Terna SpA. The activities conducted are aimed at the pre-defined targets for reduction of environmental impacts, in particular through the demolition of lines and the removal of pylons, as well as energy savings with the completion or launch of works for rearrangement and optimisation of the HV network:

- works continued for dismantling of HV lines no longer in use, with removal of 12 pylons on the 150 kV Flaminia 2 – Smistamento Est 2 line (total of 22.6 km and 74 pylons);

- works were completed for construction of the 150 kV Roma Nord-San Basilio line, involving the new stretch from the Roma Nord Electrical Station for a length of 4 km;
- works have begun for creation of the new underground stretch of the 150 kV Roma Nord-San Basilio line between the Latte Station and the Parco Azzurro terminal area, with a planned length of 3.4 km.

On completion of the works set out in the Plan, in addition to improved service quality, there will be environmental benefits due to lower energy losses and expected energy savings (estimated at approximately 58,000,000 kWh, which is equivalent to the average annual consumption of approximately 20,000 households).

<sup>118</sup> With regard to polychlorinated biphenyls (PCBs), pursuant to Legislative Decree no. 209/99 and Law no. 62/05, Acea disposed of transformers with PCBs above the 500 ppm threshold in 2009. In 2020, 122 transformers with PCBs above 50 ppm but below the 500 ppm threshold, including 28 for public lighting, were reported to Arpa, and 8 transformers were disposed of, for a total weight of 11,320 kg and a quantity of PCBs of 681 ppm.

The management of the electricity distribution network of Rome and Formello is characterized by the **continuous improvement of the performance**, with a particular focus on energy efficiency. Areti implements **initiatives to reduce network losses**, which include the reclassification of medium voltage levels from 8.4 kV to 20 kV and the installation of MV/LV transformers with very low losses. For further information see the *Energy savings* section, in the chapter *The use of materials, energy and water*.

The initiatives launched to **improve the resilience of networks and optimise their management, through technological innovation** applied to the infrastructure, are illustrated in the chapter *Institutions and the Company*.

Also as a result of the activities mentioned above, **energy losses on the network** during the year amounted to **approximately 6% of the total transported**, a decrease compared to the 7% of 2019.

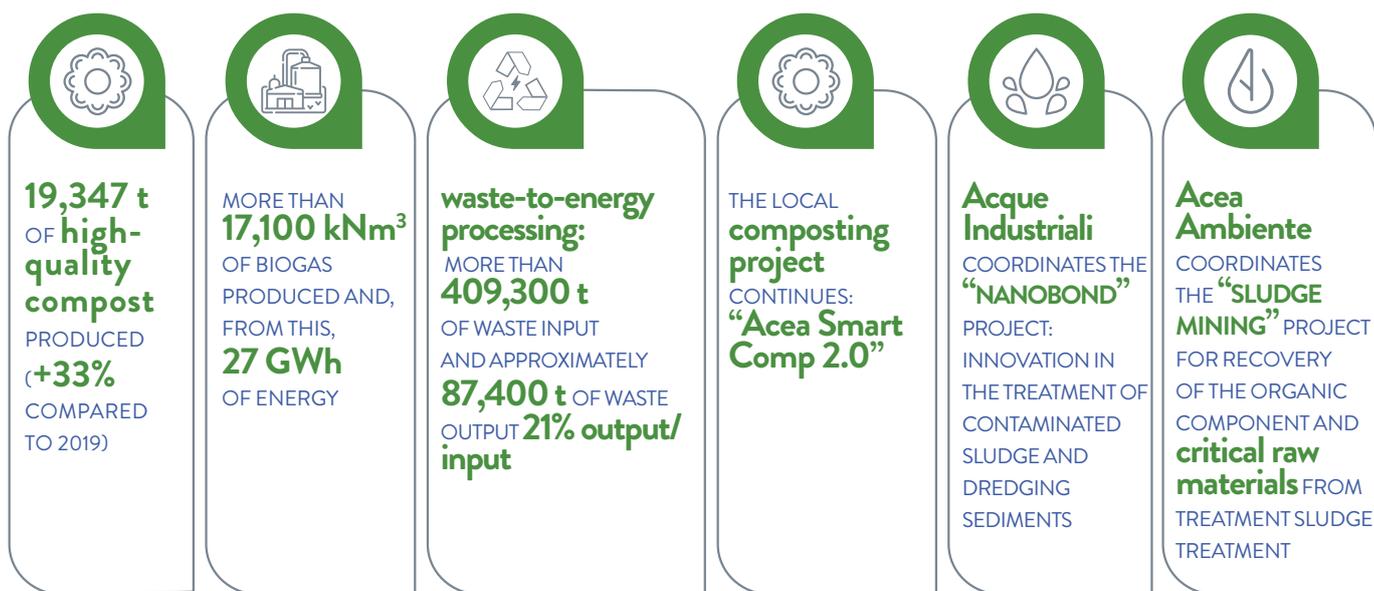
Furthermore, in 2020 Areti began the **replacement of traditional meters with 2G electronic devices**, for a total of 1.7 million units. In addition to the expected benefits for customers (see the sub-section *Service quality* in the paragraph *Customers and communities*), the initiative will also generate positive environmental impacts, with a **forecast reduction in emissions by 2024 of 200 t of CO<sub>2</sub>** due to the convergence of several factors:

- a reduction in operational actions, with consequent decrease in vehicle journeys and kilometres travelled by personnel in the field or by personnel of the contractors performing readings of meters that cannot be reached remotely;
- a reduction in paper bills, no longer issued to end customers upon replacement of the meter;
- a reduction in polluting emissions and carbon dioxide output with the obligation to use electric or low-emissions vehicles, imposed on contractors involved in mass replacement of meters.

## ENVIRONMENT SEGMENT – WASTE MANAGEMENT

### SCOPE

The chapter includes ACEA Elabari, for the project “Smart Comp”; the activities of the waste treatment hub, waste-to-energy plants and compost production plants, all within Acea Ambiente; and the activities of Aquaser and Acque Industriali.



Acea manages the end part waste cycle in order to **recover, recycle and reuse waste in the best possible way** and, when possible, **recover energy**. Specifically, it oversees:

- the **treatment of municipal solid waste (MSW)** and other types of waste (like green waste from separate collection, industrial waste, etc.), **for the recovery of material** and disposal of only the residues in landfills;
- the **treatment of liquid wastes** such as leachates and liquid sludge;
- **incineration with energy recovery** with consequent reduction of the soil needed for disposal;
- the **production of high quality compost** for agriculture.

The management of solid and liquid waste is performed **using advanced technology and modern systems**, recently upgraded or expanded, in order to improve and renew processes and increase recovery of material and/or energy. The Companies operating in waste management **carry out research**, also in collaboration and partnerships with university institutions and

Companies in the circular-economy field. Included in this context is the “**Acea Smart Comp**” **local composting** activity performed by Acea Elabari, the “**Sludge Mining**” project for the **recovery of critical raw materials** coordinated by Acea Ambiente and the “**NANOBOND**” project coordinated by Acque Industriali (see specific info. boxes).

During 2020, **Acea Elabari**, with the support of the University of Tuscia and Enea, has continued with the “**Acea Smart Comp**” **local composting** project. This project will enable the Company to become organic waste free during 2021 and to patent the system for its industrialisation. In 2020, research and development activity led to the creation of a new Smart Comp Unit prototype, which will form the basis of the new version “**Acea Smart Comp 2.0**”, and there are plans for the creation and installation of new-generation machines at Enea, FS, Porte di Roma, Centro ELIS and serving barracks of the Italian Carabinieri military police force.

The “**Sludge Mining**” project, coordinated by Acea Ambiente as the leader in this area, aims to contribute to identification of solutions to two significant problems: the lack of plants for recovery and disposal of treatment sludge, with the goal of offering sector operators, at sustainable costs and in line with circular-economy principles, forms of disposal that promote the recovery and reduction of certain raw materials considered “critical” (*Critical Raw Materials*) by the European Union, such as minerals, nutrients and fossil fuels, due to intensive exploitation of mines and deposits.

The design solution proposed **combines advanced industrial technology and innovative processes for the recovery both of the organic component and materials of value contained within treatment sludge, transforming waste into a resource.** “**Sludge Mining**” combines technologies for upgrading of products obtained from the hydrothermal carbonization reaction, referred to as hydrochar, and the liquid phase. The aim of the process is to **extract the highest-value in-**

**ert products from the solid** (*critical raw materials*), including **phosphorus, silicon and magnesium**, and reduce the content of ash, increasing the concentrators of **carbon**. The carbon produced will be used as a replacement for coal, for the production of advanced materials and innovative biological products, thus contributing to achievement of the goals for **reduction in the use of fossil fuels** in manufacturing and energy industries. The liquid phase will be processed by anaerobic digesters to produce biogas, which will be separated to form biomethane. The process will enable optimised energy efficiency throughout the system. A demonstration plant will be developed aimed at validation of the project.

The project partners, in addition to Acea Ambiente, are the National Interuniversity Consortium of Materials Science and Technology, The University of Florence, the University of Pisa, the University of Siena, the Politecnico di Milano university and the Renewable Energy Consortium for Research and Demonstration.

The following paragraphs provide further details of operational aspects of activities in the circular-economy field.

## WASTE MANAGEMENT: COMPOSTING, WASTE-TO-ENERGY, DISPOSAL OF LIQUID WASTE AND RELATED SERVICES

### INTEGRATED WASTE TREATMENT – ORVIETO PLANT

In Umbria, the Company **Acea Ambiente** manages an important **systems hub for waste treatment, recovery and disposal**, ensuring the integrated cycle of municipal solid waste and equivalent materials, produced in the regional basin that includes all municipalities in the province of Terni. The landfill site is also authorised to receive special waste.

The main plant sections are mechanical biological treatment of municipal solid waste, composting and refining of the organic fraction of the sorted waste and disposal in landfills. Management takes place in accordance with the certified Management Systems (see the section *Management systems* in the chapter *Corporate identity*), with the goal of **maximising recovery of materials** (production of high-quality compost) and supporting both the **production of renewable energy** (utilising biogas produced for energy) and the **reduction of waste sent to landfill**.

In 2020, total waste entering the plant was **106,477 tonnes**. 64% (approximately 67,700 tonnes) was sent to landfill and almost all of the remainder was sent to the **anaerobic digestion and composting** section of the treatment plant for the **production of biogas and compost**. Biogas, used for the production of electricity, is also produced naturally by the landfill (see the *Environmental Accounts* for details). At the Orvieto site there are **two energy production plants** powered respectively by the biogas produced by the anaerobic section of the treatment plant and by the biogas produced by the landfill. The electricity generated is broken down as follows:

approximately **2.5 Mm<sup>3</sup> of biogas** and **5.3 GWh of energy** were produced at the treatment plant in 2020;

- approximately **8.3 Mm<sup>3</sup> of biogas** and **12.3 GWh of energy** were produced at the landfill.

**Overall, approximately 16.5 GWh of electricity was fed into the grid.** The Orvieto hub is also equipped with a **photovoltaic plant** owned by Acea Produzione, which generated about 239 MWh in 2020, used to **cover part of the plant’s electricity consumption**.

### HIGH-QUALITY COMPOST PRODUCTION

Experimentation is currently underway with the University of Tuscia on high-quality compost produced by the Orvieto plant hub, totalling 4,618 tonnes in 2020, for use as agricultural fertiliser, applying the direct product and sowing wheat crops on land at the plant itself.

In addition to the Orvieto site, Acea Ambiente has **three other composting plants** in Aprilia, Monterotondo Marittimo and Sabaudia respectively.

The Aprilia plant, still under seizure, is now operating almost at full capacity, and was the subject of an expansion completed in 2020, which **will enable the recovery of 120,000 tonnes of organic fraction per year**, while the **Monterotondo Marittimo plant**, which has undergone expansion and revamping over the last two years, now has a **recovery capacity of 70,000 tonnes/year for organic waste fraction, green fraction and sludge**. Both sites have implemented a **new anaerobic digestion and composting section**, which has enabled **recovery of electricity and thermal energy**, starting from 2020. For details on the quantities of biogas and energy produced, see the chapter *Energy segment* and the *Environmental Accounts*.

**At the Sabaudia plant**, operations were suspended from 31/10/2019, to allow **upgrading work** on the plant<sup>119</sup>. The liquid waste treatment section is currently inactive. The plant has a treatment capacity of 20,000 tonnes of compostable material per year and the aim is to proceed with upgrading to achieve a capacity of 60,000 tonnes/year.

### INTERMEDIATION AND TRANSPORT OF WASTE

<sup>119</sup> During 2021, it is hoped that the pending authorisation procedures will be concluded so that the tender procedure for the executive design and construction of the new composting plant can be published. The upgrading project will increase the treatment capacity to 60,000 t/year of incoming waste.

In 2020, **Aquaser**, which **loads, transports, recovers and disposes of waste produced by treatment plants**, managed a total of **493,000 tonnes of waste** (580,000 tonnes in 2019).

With regard to **intermediation**, during the year Aquaser took charge of **approximately 207,000 tonnes of waste**, of which **152,000 tonnes of sludge** is attributable to the **Group's water companies<sup>120</sup>**, and in particular approximately **93,400 tonnes to Acea Ato 2, AdF and Acea Ato 5**. The dried out and dehydrated sludge coming from these Companies was sent to the following end destinations:

- 58% to material recovery operations (pretreatments aimed at agricultural use and composting);
- 8% to recovery of energy (waste-to-energy);
- 34% for disposal.

Also this year, due to regulatory constraints direct spreading was not used in agriculture.

Aquaser in particular **used its own means** to transport approximately **52,000 tonnes of non-hazardous waste**.

## WASTE-TO-ENERGY

Energy recovery from waste is an important part of the circular economy, which provides energy and economic advantages, it leads to a **notable volumetric reduction and the biological stabilisation of waste**, avoiding as far as possible the disposal of this waste in landfills as such.

In addition to the activities already described of waste treat-

ment and anaerobic digestion, **Acea Ambiente** also manages the waste-to-energy process through the plants of San Vittore del Lazio and Terni. The two plants are operated according to the certified Environmental Management Systems and registration with the European EMAS III scheme (see also the chapter *Corporate identity, Management systems*).

In its current configuration, the San Vittore del Lazio plant is **the largest in the Lazio Region** and plays an important role in the management of municipal waste, both for the advanced technologies used for its construction and for its considerable treatment potential<sup>121</sup>. It is composed of **three independent lines** of waste-to-energy designed to be fed with refuse-derived fuel (RDF), now called Solid Recovered Fuel (SRF), with these characteristics:

- 52 MW<sub>t</sub> of thermal power for line 1 and 56.7 MW<sub>t</sub> of thermal power installed for each of the other two lines;
- 13.9 MW<sub>e</sub> of electric power for line 1 and 15.1 MW<sub>e</sub> for each of the other two lines, for a total power of approximately 44 MW<sub>e</sub>;
- approximately 400,000 t/year of SRF, sludge and other waste at full capacity.

In 2020, approximately **319,100 tonnes of waste** has undergone waste-to-energy processing, and approximately **269 GWh** of electricity has been produced. There has been a slight decrease in this activity, primarily due to a plant shutdown for technical reasons.

**The Terni plant** is composed of **a waste-to-energy line** and has

**TABLE NO. 54 – THE SAN VITTORE DEL LAZIO WASTE-TO-ENERGY PLANT: OPERATING DATA (2018-2020)**

	u. m.	2018	2019	2020
incinerated fuel	t	357,174	340,531	319,122
gross electricity produced	GWh	306.73	276.27	269.38
conversion efficiency <sup>(*)</sup>	kWh/kg SRF	0.86	0.81	0.84

(\*) Relationship between gross electricity produced and quantity of SRF converted to energy.

the following characteristics:

- 52 MW<sub>t</sub> of thermal power installed;
- 13.6 MW<sub>e</sub> of electrical power installed;
- 120,000 t/year of pulper waste (paper mill waste resulting from the pulping of waste paper), as the maximum potential for incoming waste.

The waste-to-energy plant is **also equipped with photovoltaic**

**systems**, the primary system on the pulper waste pre-treatment area and a secondary system on the adjacent building, which in 2020 generated approximately 483 MWh of electricity, with around 54% consumed on site and the remainder sold to the grid. For data on the emissions of both waste to energy plants see the chapter *Air emissions*, in addition to the data in the *Environmental accounts*.

## DISPOSAL OF LIQUID WASTE

**TABLE NO. 55 – TERNI WASTE-TO-ENERGY PLANT: OPERATING DATA (2018-2020)**

	u. m.	2018	2019	2020
pulper waste converted to energy	t	99,971	94,092	90,215
gross energy produced	GWh	82.41	80.93	76.77
conversion efficiency <sup>(*)</sup>	kWh/kg pulper waste	0.82	0.86	0.85

(\*) Relationship between gross electricity produced and quantity of pulper waste converted to energy.

The Company **Acque Industriali<sup>122</sup>**, which is part of Environment Operations, performs intermediation services and treatment of liquid waste for private and public companies, as well as activities connected to the integrated water cycle, primarily consisting of the **recovery and disposal of organic sludge**, through management of **four main platforms** located in Pontedera, Pisa Nord, Empoli and Poggibonsi. In 2020, the

four plants received over **111,000 tonnes of liquid waste**. For details of the type of incoming waste, the resources used, the waste produced and other specific information, see the *Environmental Accounts*.

Acque Industriali use technologies that **support recovery of raw materials contained in waste, energy savings and efficient use of resources**, such as stripping/absorption of ammonia in a closed

<sup>120</sup> The data detailed here for the sake of completeness concerns sludge for which Aquaser has managed the entire supply chain, from loading to transport and final disposal, originating from the following Group Companies: Acea Ato 2, Acea Ato 5, AdF, Umbra Acque, Publiacqua, Acque, Acea Molise and Umbria2.

<sup>121</sup> With reference to Decree Law 133/2014 (referred to with the name "Sblocca Italia"), the plant has been defined as a strategic structure of primary national interest for the protection of health and the environment, as per Lazio Regional Decree no. 199 of 24/04/2016.

<sup>122</sup> The Company Acque Industriali was included within the reporting scope of the 2020 Consolidated Non-Financial Disclosure.

cycle that enables **recovery of ammonium sulphate**, which can be used as an agricultural conditioner. In 2020, **255,000 tonnes** of this were produced. The Company also provides services for design, creation and management of plants for the treatment of wastewater for third parties, decontamination of polluted sites and environmental consulting for the management of plants, investing in research and development in the relevant sectors, in collaboration with recognised Research Bodies. Included in this context is the “NANOBOND” project, coordinated by

Acque Industriali, which combines traditional technology and innovation to develop an **integrated treatment system for the management of contaminated sludge and dredging sediments**, based on the use of **innovative nanostructured materials** with eco-compatible and environmentally sustainable characteristics. The project, amongst many expected benefits, will also enable **waste to be transformed into a resource**, from a circular-economy and environmental-protection perspective (see info. box for details).

### ACQUE INDUSTRIALI COORDINATES THE “NANOBOND” PROJECT: TREATMENT OF CONTAMINATED SLUDGE AND SEDIMENTS

The project **coordinated by Acque Industriali**, entitled “**NANOBOND**” – **Nanomaterials for the decontamination associated with dewatering of environmental materials** – approved for regional co-financing through the **European Development and Research Fund (POR-FESR 2014-2020)**, proposes the development of a new integrated treatment system for the management of contaminated sludge and dredging sediments, based on the use of innovative nanostructured materials with eco-friendly and environmentally sustainable characteristics. **The project aims to implement tubular elements in draining geotextile for the dehydration of sludge and sediments (dewatering), integrating this with the decontaminating action of nanostructured materials (nanoremediation).** This will allow the removal of contaminants present in wastewater and sediments, significant reduction of the volumes and relative costs of transport and transformation of processed sediments from “**waste**” into a **resource**, for the **management of riverbanks**, recovery of the water component and other possible applications.

Through development of **nanoremediation techniques associated with dewatering**, “**NANOBOND**” approaches dredging and management of sludge and sediments, connected with the **stabilization of watercourses**, providing tangible solutions for hydrogeological instability and maintenance of port areas, increasingly subject to build-up

of sand. This technique is **efficient in terms of its capacity to reduce contaminants and implementation times**, and it is easily scalable for on-site applications on a large scale with competitive costs.

The system **has been tested** on dredging of marine sediments (Port of Livorno), brackish waters (Navicelli Canal) and freshwater (drainage channels), where the need to remove variable quantities of contaminated sediments has become an absolute priority at the regional, national and European level. There has been a particular focus on the choice of **raw materials from renewable sources**, also from **recycling**, starch from tubers and waste paper pulp for the synthesis of nanomaterials/structures, with competitive production and process costs, and environmental compatibility. These are the principles underlying green nanotechnology for the development of nanotechnologies that are safe for the environment and human health (**nano-ecosafety**), which minimise the risks linked to production and use throughout their life cycle.

In addition to Acque Industriali, heading up the project, partners include: the National Interuniversity Consortium of Materials Science and Technology, the Universities of Siena, Pisa, Turin, and the Politecnico di Milano, ISPRA, ERGO (start-up of the Scuola Superiore Sant’Anna high school in Pisa), LABROMARE, BIOCHEMIE Lab and the BARTOLI paper mill for the production of (nano)materials and ASEV Ag. for development and Technology District.

## WATER SEGMENT

### SCOPE

The scope includes the Companies Acea Ato 2, Acea Ato 5, AdF, Gori and Gesesa.

Acque, Publicacqua and Umbra Acque, water Companies not included in the scope of the *Consolidated Non-Financial Disclosure* (pursuant to Legislative Decree no. 254/2016). They have been

included only in the water graphs, with evidence of their contribution, and in a few other global data (water fed into the system and analytical calculations). Specific data concerning these Companies are provided in a separate chapter: *Water Company data sheets and overseas activities*.



**6.1 million** CITIZENS SERVED AND **480 Mm<sup>3</sup>** OF DRINKING WATER SUPPLIED BY ACEA ATO 2, ACEA ATO 5, GORI, ADF AND GESESA



APPROXIMATELY **34,100 km** OF DRINKING-WATER NETWORK MANAGED BY ACEA ATO 2, ACEA ATO 5, GORI, ADF AND GESESA



**769,888 analytical tests** ON DRINKING WATER (ACEA ATO 2, ACEA ATO 5, GORI, ADF AND GESESA)

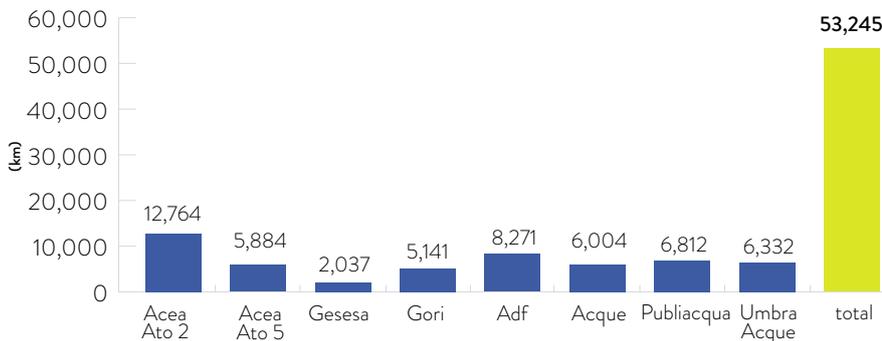
The Acea Group is a national leader in terms of number of citizens served and one of the primary operators in the water sector. Activities regarding **management of water resources** for all phases defined by the **integrated water service** are performed with an increasing focus on preservation and safeguarding of water and natural ecosystems (from springs to receiving bodies of the water returning into the environment).

Safeguarding of water resources translates into the priority action of **recovering leaks** (see the section *Attention to water consumption*), the **circular economy**, activities to combat **climate change**, **protection of springs** (see the paragraph *Protection of the territory*) and also increasingly precise **monitoring** of internal water consumption, with the end goal of reducing consumption.

The **total** pool of users served in Italy by the Group<sup>123</sup> is about 8.5 million residents, with **volumes of drinking water fed into the network in 2020** equal to approximately **1,360 million cubic**

**metres**. The distribution networks of the main Group Companies operating within the integrated water service stretches over 53,000 km (see chart no. 50).

**CHART NO. 50 – THE WATER DISTRIBUTION NETWORK OF THE GROUP IN ITALY (2020)**



**NOTE** The kilometres of network include the aqueducts.

The **volumes of drinking water drawn and delivered by Acea Ato 2, Acea Ato 5, Gori, AdF and Gesesa** are equal to approximately **1,074 million cubic tonnes**, with total issue<sup>124</sup> of 480 million cubic metres for **6.1 million citizens served**. For specific data on the three Companies, see the *Environmental Accounts*.

99.9% of the volumes drawn are fresh water, with the remainder, approximately 2 million m<sup>3</sup> being seawater and drawn in the Tuscany area. The sources are located in areas at potential risk of water stress, as defined by the *Aqueduct Water Risk Atlas*, the map drawn up by the World Resources Institute (WRI)<sup>125</sup> that compares water availability with communities present, taking into consideration risks caused by climate change, pollution and ex-

treme weather events (drought and flooding). The Companies in the water segment implement various initiatives to mitigate the impacts associated with these risks, including Water Safety Plans (see the section *Water Safety Plans - WSPs*), investments to secure water supplies and actions to minimise leaks on distribution networks.

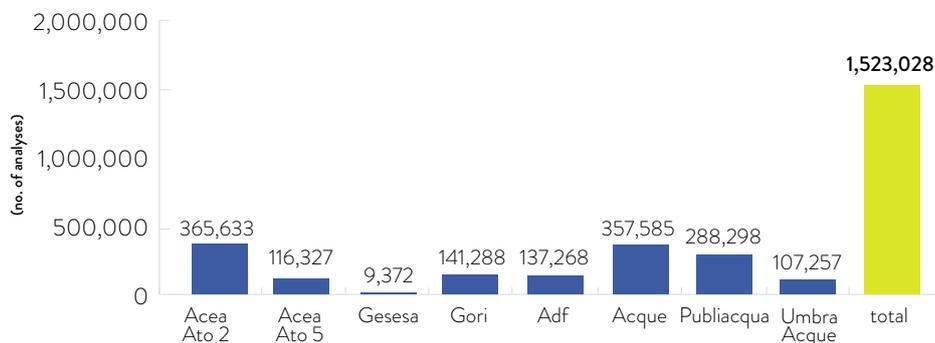
In **OTA 2 – Central Lazio** alone, comprising the city of Rome and 111 other municipalities – of which 79<sup>126</sup> under management at 31 December 2020, in line with 2019 – **the volume of water withdrawn and fed into the network** serving the approximately 3.7 million inhabitants was approximately **691 million cubic metres**<sup>127</sup>.

## WATER QUALITY

Water quality is monitored by all of the Companies of the relative industrial area (see chart no. 51). The **checks**, in addition to those performed by the Local Water Authorities, are performed on a scheduled, ongoing basis and regard both drinking water issued and

wastewater issued back into the environment following the treatment process. The **analyses** on the **drinking water** distributed to users play an **essential role** for the resulting health related effects. Analyses with compliant results, for all Companies, are always above 89% of the total<sup>128</sup>.

**CHART NO. 51 – TESTS OF DRINKING WATER, TOTAL AND BY COMPANY (2020)**



**NOTE** For Acea Ato 2 it is noted that out of a total of 365,633 analyses, 340,178 were performed by Acea Elabori.

<sup>123</sup> The data of the total inhabitants served by the water business, of the volume fed into the network, and the size of the networks and checks on the water (shown in special graphs) include the main Operating Companies of the Group, also those not included within the scope of the *Consolidated Non-Financial Disclosure*.

<sup>124</sup> This refers to the total amount of drinking water dispensed and billed in the network by the Companies within the scope.

<sup>125</sup> For identification of areas under water stress, as indicated by the standard GRI 303, the *Aqueduct Water Risk Atlas* was employed, available on the World Resource Institute website: <https://www.wri.org/aqueduct>.

<sup>126</sup> In 18 other municipalities the integrated water service was managed partially.

<sup>127</sup> The items of the water balance of the past three years were calculated using the calculation criteria supplied by ARERA. See the *Environmental Accounts* for details.

<sup>128</sup> The figure ranges from 89% for Acea Ato 5 to 99% compliance for Acquedotto del Fiora.

In **Rome**, the qualitative characteristics of the resource collected and distributed are monitored through **continuous testing**, with instruments located along the water systems and through **daily sampling** at the collection points and in the distribution network. In Lazio there are areas of volcanic origin where the water has potability problems, linked to the natural presence of some substances in greater concentrations compared to those permitted by the relevant legislation. In these areas, Acea Ato 2 has taken various actions over the years aimed at resolving these problems, increasing the number of drinking water plants capable of removing unwanted substances, reducing them to concentrations well within legal limits.

Regular monitoring of the chemical/biological parameters of the water which circulates in the distribution network of the water system allows the quality safety level to be kept high. Overall, in 2020, 365,633<sup>129</sup> analyses were performed in the area managed by OTA 2, for a total of 11,875 samples, of which 340,178 anal-

yses on 9,311 samples of drinking water were performed at the Grottarossa Laboratories managed by Acea Elabori.

**The Company Acea Elabori, accredited pursuant to the ISO/IEC 17025 standard** (in 2020 it obtained ISO/IEC 17025:2018 certification), performs and certifies chemical and microbiological analyses in different substrates, including water (see table no. 56 for the analyses performed on Rome drinking water). **Gesesa** instead uses two outside laboratories (see the *Environmental Accounts* for aggregate and detailed data). **AdF**, which outsources analyses to Publiacque SpA, took 3,987 samples, identifying representative withdrawal points in the context of districts, with equivalent characteristics, into which the entire network of the aqueduct is divided. All withdrawal points are georeferenced using the GPS system and area available in WebGis. In 2020, AdF launched a development project for creation of an in-house laboratory from as early as 2021, with plans for accreditation pursuant to standard ISO IEC 17025:2018.

**TABLE NO. 56 – ANALYSES IN ROME (2018-2020) AND MAIN QUALITY PARAMETERS OF THE DRINKING WATER DISTRIBUTED IN LAZIO, IN CAMPANIA AND IN TUSCANY (2020)**

**ANALYSES PERFORMED BY ACEA ELABORI ON DRINKING WATER – ROME HISTORICAL NETWORK (2018-2020)**

withdrawal area	no. withdrawal points		no. samples			no. analyses		
	2020	2018	2019	2020	2018	2019	2020	
collection	53	437	329	227	21,119	11,968	13,579	
water system and water feed pipes	21	130	164	135	5,167	5,617	4,950	
tanks/water centres	22	152	203	85	6,306	7,096	3,048	
distribution networks	436	3,326	3,095	3,619	109,571	99,835	120,372	
<b>total</b>	<b>532</b>	<b>4,045</b>	<b>3,791</b>	<b>4,066</b>	<b>142,163</b>	<b>124,516</b>	<b>141,949</b>	

**MAIN AVERAGE CHEMICAL AND MICROBIOLOGICAL CHARACTERISTICS OF THE DRINKING WATER DISTRIBUTED IN LAZIO, IN CAMPANIA AND IN TUSCANY (2020)**

parameters	measurement unit	average value Acea Ato 2 (Rome and Fiumicino)	average value Acea Ato 5	average value Gori	average value Gesesa	average value AdF (all Municipalities)	parameter Legislative Decree no. 31/01
chlorides	mg/l Cl	7.2	6.4	59	17.8	25.0	< 250
sulphates	mg/l SO <sub>4</sub>	16.3	11.6	26	28.8	39.0	< 250
calcium	mg/l Ca	101.3	124.2	134	exempt (*)	61.0	not applicable
magnesium	mg/l Mg	19.1	18.4	33	exempt (*)	9.6	not applicable
sodium	mg/l Na	5.5	3.8	42	17.7	16.0	< 200
potassium	mg/l K	2.4	1.0	14	exempt (*)	2.2	not applicable
calculated fixed residue	mg/l	409.3	454.6	663	374.7	297.0	(**)
nitrates	mg/l NO <sub>3</sub>	3.5	4.5	18	12.1	4.6	< 50
fluorides	mg/l F	0.16	0.17	0.46	0.3	0.14	< 1.50
bicarbonates	mg/l HCO <sub>3</sub>	406.3	467.2	580	exempt (*)	196.0	not applicable

(\*) In accordance with Legislative Decree no. 31/01 and in agreement with the health authority, Gesesa is exempted from supplying the parameter.

(\*\*) Maximum value recommended: 1,500 mg/l.

## WATER SAFETY PLANS (WSPS)

The implementation of a **Water Safety Plan (WSP)** is required for all water systems pursuant to the Decree of the Italian Ministry of Health of 14/06/2017, in implementation of European Union Directive 2015/1787, which adopted the WSP methodology developed by the World Health Organization (WHO). The WSP enables **prevention and reduction of the risks inherent**

**in the drinking water service**, assessing dangerous events along the entire water supply chain (collection, treatment and distribution to the user's meter). The risk is calculated on the basis of the severity and probability of the pollution event or water shortage and after such assessment, the following are defined: **actions to mitigate risks, monitoring systems, operating procedures** under normal and emergency conditions, the **water quality control plan**, the methods for **informing** the public and the competent authorities.

<sup>129</sup> The data on analyses of drinking water from 2018 also include tests on aqueducts acquired recently (Civitavecchia and others).

The WSPs must be constantly updated, taking into account changes to plants, evolution of the regulatory context and climate and environmental changes. Finally, their implementation involves internationally recognised methods established by the WHO. In Italy, the Istituto Superiore di Sanità (ISS) has adopted WHO guidelines and will approve WSPs on a case-by-case basis. The first WSP implemented in 2019 in **Acea Ato 2** concerned the water system fed by the new Grottarossa plant for generation of drinking water using water from the River Tiber and, subsequently, the Company launched the WSPs for major aqueduct systems managed. Overall, implementation of the **Water Safety Plans in Acea Ato 2** will involve 100% of the population served by aqueduct systems managed by Acea Ato 2. So far, site surveys have been completed, along with **preparation of checklists for six aqueduct systems. For three aqueduct systems, the WSP documents have been sent to the Ministry of Health.**

In 2019, AdF also launched a project for development and implementation of a **Water Safety Plan**, focused on the aqueduct systems fed by the **Santa Fiora springs**. After the first year of work dedicated to organisation, definition of the project team and mapping of the drinking water system, in 2020 **infrastructure risk analysis** was conducted, with an approach based on the **FMEA methodology** (Failure Mode and Effect Analysis). The results of the analysis highlighted the main critical areas of plants and water networks for which it is necessary to identify and plan structural/management actions. In addition, to perform a detailed assessment of the potential vulnerability of the aquifer, in 2020, AdF launched an agreement for scientific partnership with the Institute of Geoscience and Georesources of the CNR (National Research Council) of Pisa (see also the section *The commitment to research and innovation* in the chapter *Institutions and the Company*). The study will form a scientific knowledge base for the definition of appropriate protection areas by the competent Authorities. During the year, **Gori** created a cloud environment for sharing information regarding the entire drinking water supply chain and useful knowledge for the **WSP implementation and approval process**, to make available also to Institutions. In the context of these activities, a meeting was organised with the ASL NA3 local health authority of Naples, the Campania regional authority and the Istituto Superiore di Sanità for dialogue and preparatory technical training on WSP development, with a particular focus on aqueduct systems and the entire drinking water supply chain. In 2020, **Gesesa** continued with training plans and authorisations on the draining necessary to manage WSPs, which will be prepared in collaboration with the University of Sannio. After mandatory training for personnel that will draft the Water Safety Plans (WSPs), in 2020, **Acea Ato 5** proceeded with acquisition of information on water collection sources.

## WATER LEAKS

Sustainable management of water also requires **minimising leaks from distribution networks** and all Group Companies operating in the water sector are involved in this important area. During 2020, in line with the previous year, there was **intensive activity to search for leaks**, quantified as presented in chart no. 52, in order to recover the greatest possible quantity of water. In particular, this was done by division of the network into districts, i.e. areas not connected to each other and with measured inputs. Dividing the network into water districts makes it possible to

optimize operating pressures with an immediate advantage in terms of reducing lost volumes, facilitating targeted searches for leaks in the most critical districts. The system enables optimisation of network management, supporting repair works and reducing their frequency. With greater control of the individual parts of the network, it is possible to reduce the formation of leaks and promptly and simply identify their existence or other problems. Overall, to date, **Acea Ato 2** has created 399 measurement districts for over 7,000 km of distribution network. The activity consisted of surveys, flow and pressure measurements, map production, user analysis and water balancing, creation of measurement stations, installation of shut-off and adjustment elements, mathematical modelling and searches for leaks. The results of efficiency actions were imported into the GIS systems. Further actions implemented in 2020 to safeguard water resources included: verification and calibration of water meters installed on large water sources and the installation of flow meters on all “minor” sources and in drinking water plants, with the goal of optimising the quality of process measurements, continuation of survey activity and georeferencing of networks under management. **The actions implemented enabled a reduction in water-loss volumes of approximately 4% compared to 2019.**

In 2020 **Acea Ato 5** continued analysis of water networks in 27 municipalities. The Company created **235 districts**, covering 2,026 km of network and, on the basis of precise water-leak identification activity, primarily through acoustic systems, it identified **382 leaks**, of which 97 not acted upon (false positives, unsuccessful, leak already repaired, etc.), **215 repaired** and 70 awaiting works. Finally, using innovative technology such as satellite and aerial searches for leaks, during the year another 25 leaks were identified, some of which are under repair.

In 2020, **Gesesa** continued with development of the division of the water networks into districts, extending the reduction of pressures, in order to cover all municipalities managed. Specifically, three new water districts were created. Following an analysis of the networks, about **7 km of infrastructure was reclaimed.**

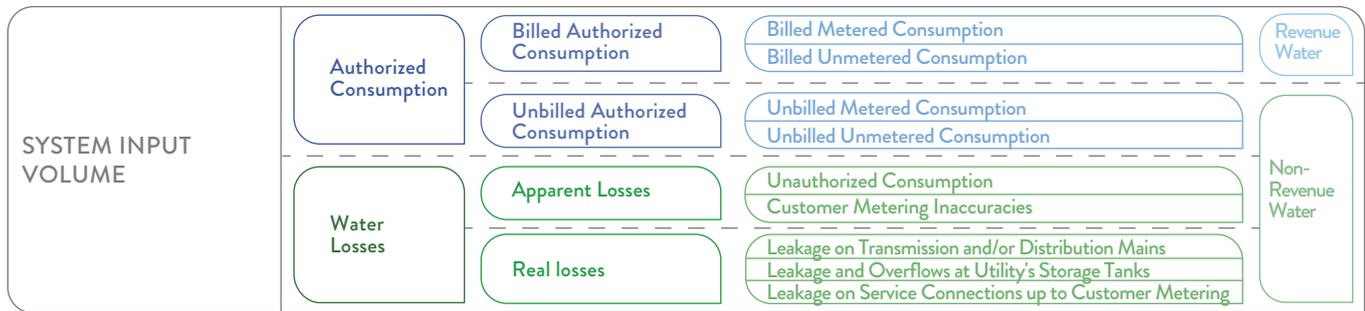
**AdF** conducted intensive activity to search for system leaks on its own water networks. In total in 2020, the Company inspected approximately 2,800 km of distribution network. In the context of division of the network into districts, approximately 280 km of water network has been placed under monitoring and remote control, for a total coverage of 88% of the distribution network. In addition, AdF has launched three pilot studies that will continue in 2021, with experimentation of innovative technologies in the context of network management. Specifically, a satellite monitoring project has been launched for the location of water leaks, covering approximately 600 km of network, and a project for monitoring and management of pressures with automation of water regulation valves. AdF is also experimenting with a **predictive methodology**, which uses historical geomorphological and water data to precisely identify the zones at the highest risk of breakages, reducing investigation areas. The goal is to identify 70% of leaks and probable breakages in 30% of the network. The activities launched have allowed a significant reduction in the volume of water lost, corresponding to approximately 1.5 million m<sup>3</sup> (-5% compared to 2019).

In 2020 **Gori** conducted searches for leaks on 1,608 km of water network, of which 834 km of network was analysed using “systematic” searches for leaks, and 774 km on the basis of “faults”. The “systematic” search for leaks primarily involved the Municipalities of Angri, Capri, Castellammare Di Stabia, Gragnano, Lettere, Marigliano, Massa Lubrense, Nocera Inferiore, Nola, Pagani,

Pomigliano D'Arco, Sant'Agnello, Sarno and Vico Equense, while "fault" searches were spread over the entire territory managed. In addition, in 2020, Gori installed 41 pressure and flow regulation valves and carried out reclamation works on over 60 km of water network, distributed across almost all OTA 3 Municipalities. These

actions enabled a recovery of water resources estimated at approximately 146 l/s over the whole of OTA 3. In the 2020-2024 Sustainability Plan, all of the Companies defined targets for reduction in water-loss volumes.

### CHART NO. 52 – WATER LOSSES



**NOTE** The image refers to the model of the International Water Association.

Thanks to efforts to improve the efficiency of metering and to combat illicit use, at **Acea Ato 2** the overall losses for the year fell to about 42% (they were equal to 44% in 2019). Furthermore, in line with the downward trend of the previous two years, total losses on the Rome network were down by 29.5% (34% in 2019 and 38% in 2018). For **Acea Ato 5**, due to the actions taken, 2020 losses were equal to approximately 68% (76% in 2019) of the total issued into the aqueduct system. Following the actions described above, **Gori** saw a reduction in global losses from 53.2% to 52.4%.

For **Gesesa** annual losses came to around 59.5% of water issued into the aqueduct system. An improvement is expected from 2021, with launch of a Water Resource Recovery Plan that involves replacement of pipes in some Municipalities and implementation of remote-control systems. For **AdF** the works performed enabled a reduction in the figure for losses from 46% in 2019 to 44% in 2020. See the *Environmental Accounts* for details on individual water balances.

## SEWERAGE SERVICE AND TREATMENT SYSTEM



APPROXIMATELY **13,500 km** OF SEWERAGE NETWORK AND **484 treatment plants** MANAGED BY ACEA ATO 2, ACEA ATO 5, GORI AND GESESA, FOR **714 Mm<sup>3</sup>** OF TREATED WASTE WATER



APPROXIMATELY **124,590 tonnes of sludge** produced BY ACEA ATO 2, ACEA ATO 5, GORI AND GESESA, OF WHICH **44% recovered**

The water resource, after uses for the various civil purposes, is **collected through the sewer pipes** and **sent to the treatment plants**. There, **pollutants are removed via physical processes** (filtering, sedimentation, flocculation) **and biological methods** (aerobic and/or anaerobic decomposition of the organic substance with bacteria). With **around 868 treatment plants** (of which **484** are managed by Acea Ato 2, Acea Ato 5, AdF, Gori and Gesesa), the total volumes of water processed by the Group<sup>130</sup> in 2020 was approximately **914 Mm<sup>3</sup>**, of which **714 Mm<sup>3</sup>** by Acea Ato 2, Acea Ato 5, Gori, AdF and Gesesa<sup>131</sup>. The total number of Group treatment

plants has decreased, from 895 in 2019 to 869 in 2020, on the basis of the **project for centralisation of treatment of wastewater** in order to streamline the service, which involves all Companies (see info. box for details on Acea Ato 2). For the Companies Acea Ato 2, Acea Ato 5, Gori, AdF and Gesesa, the percentage coverage of the sewerage and purification services, out of the total users served by the water service, and the volumes of wastewater treated are given in table nos. 56 and 57. The sewerage networks managed amount to about **22,100 km**, of which **13,492 km** relate to the five Companies cited.

<sup>130</sup> Again in this case, the data relating to the number of treatment plants, the volumes treated, the size of the networks and the controls refer to the main Group Companies operating in the water sector, including those not included in the full scope of consolidation.

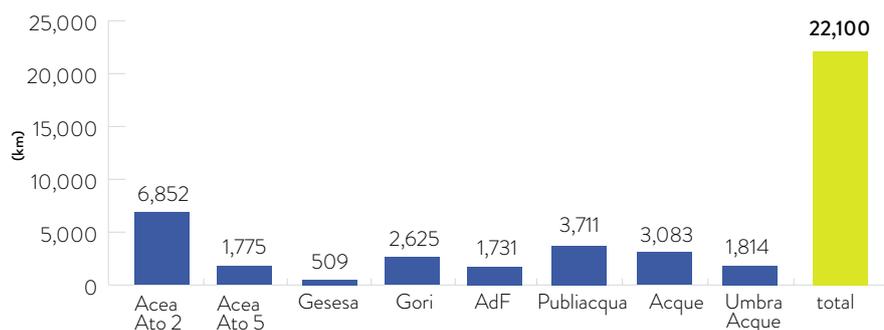
<sup>131</sup> Gesesa started installing the first flow meters on certain plants in 2020 and estimating the quantities of wastewater treated.

**TABLE NO. 57 – VOLUMES OF WASTEWATER TREATED BY WATER COMPANIES OPERATING IN LAZIO, IN CAMPANIA AND IN TUSCANY (2018-2020) (Mm<sup>3</sup>)**

Company	2018	2019	2020	destination
Acea Ato 2	582.7	599.8	596.9	returned to the environment (river/channel)
Acea Ato 5	21.2	21.3	21.3	surface water body (river)
Gori	7.7	45.2	70.1	surface water body and sea (4% in sea)
AdF	25.4	25.8	23.3	surface water body and sea (0.9% in sea)
Gesesa (*)	n/a	n/a	2.2	surface water body (river)

(\*) In 2020, Gesesa began installing flow meters at the entry to treatment plants. The 2020 figure is estimated.

**CHART NO. 53 – SEWER NETWORKS OF THE GROUP IN ITALY (2020)**



**TABLE NO. 58 – PERCENTAGE COVERAGE OF THE SEWER AND PURIFICATION SERVICES OVER THE TOTAL USER ACCOUNTS OF THE WATER COMPANIES IN NFD (2018-2020)**

Company	2018		2019		2020	
	sewer	purification	sewer	purification	sewer	purification
Acea Ato 2	91.6%	88.2%	91.5%	88.1%	91.7%	88.4%
Acea Ato 5	66.9%	56.1%	66.5%	55.9%	66.8%	57.3%
Gori	82.2%	65.7%	82.3%	66.0%	84.0%	70.4%
Gesesa	80.2%	27.3%	80.3%	30.4%	80.6%	33.9%
AdF	86.8%	75.9%	86.8%	75.0%	86.8%	75.0%

The water in output from the plants cited, after having undergone the purification treatments described, has chemical and biological properties compatible with the life of the receiving body of water and in accordance with the values of the parameters which must not be exceeded in order to guarantee full compatibility (as per Legislative Decree no. 152/2006).

Almost 100% of the wastewater treated, which can be defined entirely as “fresh water”, containing less than 1,000 mg/l of total dissolved

solids, ends up in bodies of surface water. Only 0.9% of the water treated by AdF is discharged into the sea and 4% of the water treated by Gori, equal to approximately 1% of total water treated<sup>132</sup>. The portion of water discharged into the sea travels through underwater pipes, following treatment at the coastal treatment plants of the Sorrento Peninsula (Sorrento, Massa Centro and Marina del Cantone) and the island of Capri (Gasto, Occhio Marino and La Selva). The main basins affected by discharge are presented in table no. 59.

**TABLE NO. 59 – HYDROGRAPHIC BASINS AFFECTED BY DISCHARGES OF COMPANIES MANAGING THE IWS**

Company	hydrographic basins affected
Acea Ato 2	basins of rivers Tiber, Aniene, Mignone and Arrone
Acea Ato 5	basins of rivers Gari, Sacco, Cosa and Liri; Fosso della Maddalena, tributary of the River Sacco, Fosso del Diluvio, tributary of Lago di Canterno
Gesesa	basins of rivers Calore, Sabato, Isclero and Tammara
Gori	hydrographic basin of the river Sarno and Regi Lagni canals
AdF	basins of the rivers Ombrone, Orcia, Fiora, Albegna and Elsa Pecora

NOTE Prior to discharge, wastewater is treated in the treatment plants managed by the Companies themselves.

<sup>132</sup> The discharge of water, as for intake, occurs in areas at potential risk of water stress, as defined by the cited Aqueduct Water Risk Atlas.

## CENTRALISATION OF ACEA ATO 2 TREATMENT PLANTS

To improve the quality of treated water, Acea Ato 2 has defined a Centralisation Plan for treatment plants aimed at streamlining the treatment service, centralising treatment, where sustainable, at a limited number of sites identified through analysis of the territory from a geomorphological and urban-planning perspective.

In fact, with a high number of small and medium-sized treatment plants (127 treatment plants with capacity below 10,000 P.E.), service coverage is guaranteed primarily by large and medium-large treatment plants (42 treatment plants with capacity above 10,000 P.E.). From the date of acquisition of the Integrated Water Service (2003), 22% of treatment plants with a low capacity have already been elim-

inated. The reduced fragmentation in favour of medium-large plants, combined with integration of sewerage collector systems, has allowed **greater control of treatment efficacy** and **optimisation of management and energy costs**.

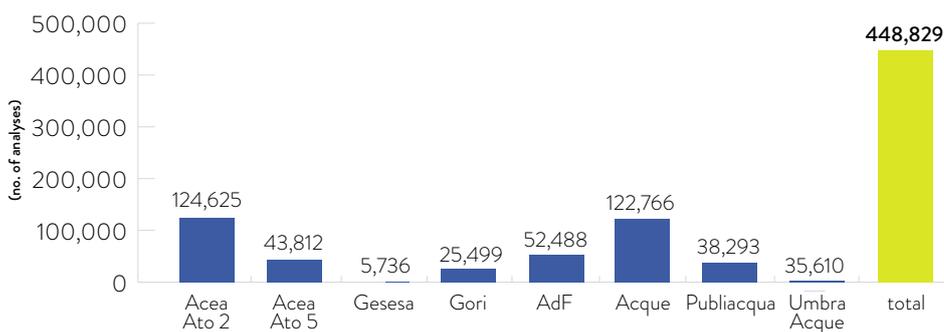
Acea Ato 2 has therefore prepared a rationalisation plan, which it keeps up to date, choosing between centralisation and upgrading of small plants on a case-by-case basis. The optimal solution depends on many factors that must be carefully evaluated for the specific case, in the context of assessing the entire life cycle of a treatment system. In 2020, the Centralisation Plan reached the goal of **eliminating a further 7 minor treatment plants**.

The Company manages treatment processes pursuing the maintenance and improvement of efficiency, in line with the provisions of the authorisations required for each plant and on the basis of the regulatory context in which they operate. The discharge limits are established for each plant, through an authorisation issued by the competent administrative body, which, on the basis of technical and environmental assessments during evaluation, may set stricter parameters compared to those applicable nationally. In this regard, for example, the regulatory framework in which Acea Ato 2 operates is characterised by prescriptive standards for discharge which are slightly higher compared to the national regula-

tory reference level, and similarly, for Acea Ato 5, in the Province of Frosinone, authorisations regarding the quality of water discharged are stricter than those established by sector-wide regulations. This is a precautionary approach.

The Company that performs analyses to verify the proper treatment of waters precisely indicated the percentages of non-compliance with discharge limits, which are nevertheless very low, relative to the total quantities analysed: 3.5% for Acea Ato 2, approximately 2% for Gesesa, 0.6% for Gori and 0.9% for AdF. Acea Ato 5 has zero non-compliance. In 2020, no hazardous substances were identified in analyses of Group wastewater.

**CHART NO. 54 – ANALYTICAL CHECKS ON WASTEWATER, TOTAL AND BY COMPANY (2020)**



Specifically, for **Acea Ato 2**, more than **124,600 analyses performed confirm the high purification performance** achieved by the treatment process.

In the “historic” area managed by Acea Ato 2, which includes **Rome and Fiumicino, the main treatment plants treated in 2020 approximately 512 million of cubic metres of wastewater**, a figure that is in line with the previous year (514 million cubic metres in 2019). Considering also the smaller treatment systems

and the plants of the municipalities acquired in OTA 2 (a total of 164) a total **volume of approximately 597 million cubic metres of wastewater treated**, in line with 2019 (approximately 600).

Table no. 60 shows the details of the main parameters from the main treatment plants of Acea Ato 2, Acea Ato 5, Gori, AdF and Gesesa. Other indicators of the efficiency of purification are described in the section *Key environmental performance indicators – Water segment* of the *Environmental Accounts*.

**TABLE NO. 60 – OUTPUT PARAMETERS OF THE MAIN TREATMENT PLANTS MANAGED BY ACEA ATO 2, ACEA ATO 5, GORI, ADF AND GESESA (2020)**

parameter	Acea Ato 2	Acea Ato 5	Gori	AdF	Gesesa (Benevento)	concentration limits in surface water (Legislative Decree no. 152/06)
	average of values (mg/l)					
BOD <sub>5</sub>	5	4	9	7	11	≤ 25
COD	16	22	20	36	21	≤ 125
SST	8	6	15	8	9	≤ 35
nitrogen (ammoniacal, nitrate, nitrous)	10	7	8	19	7	-
phosphorous	2	1	1	3	0	-
quantity output (t)						
COD	13,905	1,159	1,231	585	41	-
SST	7,465	356	1,004	136	32	-

The **sludge produced** during the purification process is **mostly sent for recovery of material** (see the section *Intermediation and transport of waste in Environment segment*).

In 2020, numerous actions were taken aimed at reducing the **quantity of sludge produced by treatment plants** managed by the Group Companies. Specifically, **Acea Ato 2** launched works for the **new dehydration section for sludge at the Roma Sud treatment plant**. For the **Ostia treatment plant**, where testing was completed during the year of the **mobile dryer**, **installation of a fixed thermal dryer** is underway. On the basis of these actions, a reduction in the quantity of dehydrated/dried sludge is expected in 2021, in line with the goals established in the 2020-2024 Sustainability Plan. In 2024, it is expected that the sludge produced will be dried at the largest plants (Roma Est, Roma Nord, Roma Sud, Ostia and COBIS). It is also noted that, again in 2024, creation of a new line at the San Vittore del Lazio waste-to-energy plant, all of the sludge produced by Acea Ato 2, stabilized and dried, will be subject to energy recovery.

During 2020, **AdF** continued works at the Grosseto San Giovanni plant for **centralisation and thermochemical hydrolysis of all sludge produced** by treatment plants under its management, which will be launched in 2021. Monitoring and optimisation of performance of the centrifuges serving the main plants in any

case enabled a significant reduction of approximately 19% in sludge produced compared to 2019.

For **Acea Ato 5**, growing attention on the identification of innovative technological solutions aimed at **recovering material from treatment sludge**, as well as the decision to apply **circular-economy** principles in the waste-treatment sludge sector, led the Company to opt for the use of a high-efficiency treatment plant with residual capacity, with selection of the Fiuggi Colle delle Mele plant, for the treatment of liquid waste produced, rather than using smaller plants (in terms of equivalent residents) and without sludge lines. Planning is also underway for the dryer at another plant.

In 2020, **Gesesa** installed a centrifuge for dehydration of sludge at the main treatment plant serving the town of Benevento. **Gori**, which already has a sludge drying plant serving the Scafati treatment plant, at the end of 2020 launched operations of a drying plant at the Angri treatment plant, already created according to plans but held out of service by the previous management. For the plants of Nola and Nocera Superiore, annexed in 2019 under the old scope of treatment plants managed, authorisation and technical activity is underway for upgrading of existing dryers and activation is expected during the next two years.

#### EXPERIMENTATION OF GORI ON AGRICULTURAL USE OF TREATMENT SLUDGE

In 2020, experimental works were carried out in the context of two university theses conducted at the Nocera Superiore treatment plant in 2019 by students of the Department of Biology and Chemistry at the University of Salerno and the Department of Biology of the Università degli Studi di Napoli Federico II in Naples, which investigated the **potential agricultural use of treatment sludge produced**. The treatment sludge of the plant in question, in fact, is characterised by a significant component of **plant origin**, derived from wastewater produced by canned/preserved food industries that contain waters used to wash tomatoes. The study compared

the application of commercial compost and sludge produced at the Nocera plant, and evaluated the effects on soil quality, to verify maintenance of fertility and function. This initial verification identified that application of treatment sludge, in line with application directives regulating spreading, did not have negative ecotoxicological effects, but demonstrated very limited benefits in terms of fertility. Therefore **further experimental activities to proceed with** were identified, for a full understanding of the actual potential for agricultural use of sludge produced by the Nocera Superiore treatment plant.

In 2020, **Acea Ato 2** continued with **preparatory activities for the production of biomethane**, as an **opportunity for operators in a circular-economy context**, with a project aimed at future production of more than 2 million Sm<sup>3</sup> of biomethane/year (1 Sm<sup>3</sup>/year in 2024, as per the Sustainability Plan), utilising the biogas available in the two large treatment plants for civil wastewater from Roma Est and Roma Nord. For the Roma Nord plant, a landscape authorisation was obtained from the Lazio Regional Authority. For the Roma Est plant, an authorisation was obtained regarding landscape aspects from the

Lazio Regional Authority, as the plant is located within the Valle dell'Aniene Nature Reserve, and for water purposes, for the location of the plant in a water risk area of the River Aniene. Finally, for both, positive opinions were received from the ASL local health authority and the plants are awaiting amendment of the Emissions Authorisations. In addition the procedures have been formally initiated for creation of interconnection systems with the gas network, in collaboration with Italgas, the operator of the gas distribution network, both for Roma Nord, since December 2019, and Roma Est, since November 2020.

#### ACEA ATO 2 – BIOMETHANE

The Acea Ato 2 project involves the creation of a **biogas upgrading (refinement) section**, composed of a line with selective membranes with a nominal capacity of 230 Sm<sup>3</sup>/h and a regulation and measurement unit to control the quality and amount of biomethane produced. The purpose of the project is to “isolate” the methane contained in the biogas, optimising its subsequent usage. Today, biogas is primarily used for the generation of heat for digesters. With the project underway, **the methane obtained from the refinement process will instead be input into the existing gas network and destined specifically to power vehicles through**

**appropriate “certification” of the quantities produced and input into pipes**. In this way, it will be possible to access new incentives available under current legislation, ensuring the sustainability of this large investment, with a total value of € 8 million, required for performance of engineering works. Each processing system will have a production capacity of approximately 1,300,000 Sm<sup>3</sup> annually of biomethane, and will benefit from a significant improvement in the management of biogas produced, alongside all the other **benefits from an energy, economic and environmental perspective**.

# THE USE OF MATERIALS, ENERGY AND WATER



INCREASED ENERGY EFFICIENCY (ARETI AND THE WATER SEGMENT): APPROXIMATELY **6.9 GWh of savings/year** AND **2,300 t OF CO<sub>2</sub> EMISSIONS AVOIDED**



AROUND **425 GWh of electricity consumption** OF THE GROUP COMPANIES **from renewable energy** WITH GUARANTEE OF ORIGIN AND **142,800 t OF CO<sub>2</sub> EMISSIONS AVOIDED**

## CONSUMPTION OF MATERIALS

The main materials used in production processes differ according to the business sector. For the **Companies in the Environment segment**, the most important resources are **incoming waste for production of compost and electricity** (waste-to-energy from pulper waste and SRF). Thermoelectric plants, managed by **Acea Produzione**, use **fossil fuels (natural gas and gas oil)** for the **production of electricity**. For the electricity distribution process, managed by **Arete**, a primary component is sulphur hexafluoride

(SF<sub>6</sub>) used in medium and high-voltage plants for its high insulating capacity, which allows use of less space.

Meanwhile, **Companies in the water segment** use significant quantities of **chemical products**, which are essential for the management of processes, e.g. reagents for the production of drinking water, disinfection and purification of wastewater. Finally, **Acea Energia** and the water Companies responsible for the management of commercial aspects use **paper** for billing customers. Please see table no. 61 and the *Environmental Accounts* for details of resources used by each area.

TABLE NO. 61 – TYPE AND CONSUMPTION OF MATERIALS BY THE MAIN COMPANIES IN THE GROUP (2018-2020)

materials	u.m.	2018	2019	2020
incoming waste for composting and landfill	t	119,857	153,330	221,950
pulper	t	99,971	94,092	90,215
SRF	t	357,174	340,531	319,122
methane	Sm <sup>3</sup> x 1,000	21,420.2	23,703.0	23,495.6
gas oil	l	230,350	574,405	587,028
SF <sub>6</sub>	t	21.7	21.9	22.3
various chemicals of water Companies	t	11,672	15,652	16,964
paper	t	336	356	352

**NOTE** Data on incoming waste includes waste sent for anaerobic and aerobic treatment at the Orvieto landfill and waste processed for the production of compost (sludge, green, OFMSW and other agrifood waste). Pulper and SRF for waste-to-energy are resources with a renewable component linked to the biodegradable fraction of the waste. In 2020, the renewable and biodegradable portions of pulper waste and SRF were approximately 42%. The data for chemicals and paper in the 2018-2019 two-year period have been updated with AdF consumption. The data for paper are related to the billing of the Companies Acea Energia, Acea Ato 2, Acea Ato 5, Gori, AdF and Gesesa.

## ENERGY CONSUMPTION

### THE GROUP'S ENERGY CONSUMPTION

**Total energy consumption**, both **direct and indirect**, is approximately **12,600 TJ**, with an increase of 2.7% compared to 2019, due primarily to greater energy use of biogas and SRF/pulper waste for waste-to-energy production. Indirect consumption was in line with 2019, with a slight increase of 0.3%. It is worth noting the **decrease of 9% in the percentage, out of the total input, of losses on the electricity distribution network**, attributable to electricity

transformation and transport phases, and the **reduction of 4.4% in consumption for public lighting**, correlated with the installation of LED technology (see table nos. 62 and 63).

It should also be highlighted that **electricity consumption of the principal Companies** connected to the distribution of drinking and non-drinking water, treatment, waste-management plants and consumption of facilities, **for a total of approximately 425 GWh, originate from renewable sources with a Guarantee of Origin**, corresponding to 57% of total consumption (Table no. 63).

The trends of **energy-consumption intensity indexes** are presented in table no. 64 and denote **improvements in energy efficiency**.

TABLE NO. 62 – DIRECT ENERGY CONSUMPTION OF THE MAIN COMPANIES IN THE GROUP (2018-2020) <sup>(\*)</sup>

	2018	2019	2020
<b>ENERGY PER SOURCE</b>	<b>TJ (GWh)</b>		
RDF/SRF and pulper waste (waste-to-energy) – non-renewable share	3,665.5 (1,018.2)	3,283.0 (911.9)	2,849.4 (791.5)
biogas (100% renewable – waste management and water segment)	206.3 (57.3)	243.9 (67.7)	424.6 (117.9)
SRF and pulper waste (waste-to-energy) – non-renewable share	3,875.6 (1,076.6)	3,280.8 (911.3)	3,859.1 (1,072.0)
methane (for electricity generation, district heating, processes, water area dryers and heating for offices)	974.4 (270.7)	1,084.9 (301.4)	1,066.9 (296.3)

**TABLE NO. 62 – DIRECT ENERGY CONSUMPTION OF THE MAIN COMPANIES IN THE GROUP (2018-2020)<sup>(\*)</sup> (continued)**

LSC oil for process (disposal of Acque Industriali wastewater)	2.5 (0.7)	1.8 (0.5)	2.0 (0.6)
PG (heating)	0.2 (0.1)	0.7 (0.2)	0.8 (0.2)
gas oil (for electricity generation and other uses, composting plants)	22.8 (6.3)	37.9 (10.5)	39.2 (10.9)
petrol (road haulage)	3.2 (0.9)	3.8 (1.1)	7.1 (2.0)
diesel (road haulage)	138.1 (38.4)	122.7 (34.1)	121.3 (33.7)
<b>total</b>	<b>8,888.6 (2,469.1)</b>	<b>8,059.5 (2,238.8)</b>	<b>8,370.3 (2,325.1)</b>

(\*) The data for 2018 and 2019 have been restated to include the consumption of AdF and the Acque Industriali plants.

NOTE The energy produced by the Group plants and fed into the network is illustrated in the *Environmental Accounts (Products – Energy Segment)*.

**TABLE NO. 63 – INDIRECT ENERGY CONSUMPTION OF THE MAIN COMPANIES IN THE GROUP (2018-2020)<sup>(\*)</sup>**

TYPES OF INDIRECT CONSUMPTION	2018	2019	2020
	TJ (GWh)		
electricity losses on the distribution networks and transport	1,204.6 (334.6)	1,188.4 (330.1)	982.8 (273.0)
losses and self-consumption in the production of electricity	245.5 (68.2)	233.1 (64.8)	251.5 (69.9)
losses of heat in the district heating network	104.1 (28.9)	109.7 (30.5)	99.8 (27.7)
consumption for public lighting	302.3 (84.0)	252.3 (70.1)	241.1 (67.0)
<b>consumption for production processes, distribution of electricity and thermal energy and public lighting</b>	<b>1,251.7 (347.7)</b>	<b>1,783.8 (495.5)</b>	<b>1,575.2 (437.5)</b>
electricity consumption for waste management plants (**)	30.8 (8.6)	33.1 (9.2)	32.9 (9.1)
electricity consumption for distribution of drinking water (***)	1,288.70 (358.0)	1,477.5 (410.4)	1,719.6 (477.7)
electricity consumption for wastewater purification (***)	840.7 (233.5)	904.8 (251.3)	902.7 (250.7)
consumption of electricity for the offices (**)	34.8 (9.7)	32.4 (9.0)	27.2 (7.5)
<b>electricity consumption for other operating processes (Integrated Water Service, waste management, offices, etc.)</b>	<b>2,195.2 (609.8)</b>	<b>2,447.7 (679.9)</b>	<b>2,682.4 (745.1)</b>
<b>total indirect energy consumption</b>	<b>4,051.5 (957.5)</b>	<b>4,231.3 (1,175.4)</b>	<b>4,257.6 (1,182.7)</b>

(\*) The figures for the two-year period 2018-2019 have been restated to include those of AdF and Acque Industriali to make them comparable.

(\*\*) Energy with G.O. certification (Guarantee of Origin).

(\*\*\*) Energy with G.O. certification (Guarantee of Origin) for 54%. The increased consumption of electricity in the 2019-2020 period is primarily due to an increase in consumption of the Company Gori, which in 2019 acquired the management of various plants previously managed by the Campania regional authority, as well as the low rainfall during the year.

**TABLE NO. 64 – ENERGY INTENSITY INDICES (2018-2020)**

energy consumption intensity index	u.m.	2018	2019	2020
electricity consumed for public lighting per lamp (*)	TJ/lamp	0.00134	0.00112	0.00106
total electricity consumed by Acea Ato 2, Acea Ato 5, Gori, AdF and Gesesa/water issued by aqueduct systems (**)	TJ/Mm <sup>3</sup>	4.027	4.392	4.639
electricity consumed by Acea Ato 2, Acea Ato 5, Gori, AdF and Gesesa for sewer service and treatment/water treated (***)	TJ/Mm <sup>3</sup>	1.32	1.31	1.26

(\*) The decrease in the intensity index is due to the 4.4% reduction in consumption for public lighting, thanks to adoption of LED technology.

(\*\*) The increased consumption of electricity is primarily due to increases in consumption by Gori, which in 2019 acquired and launched management of plants previously controlled by the Campania regional authority.

(\*\*\*) The decrease in electricity consumed against wastewater treated is primarily due to the increase in wastewater treated by the Company Gori.

## ENERGY CONSUMPTION OUTSIDE OF THE GROUP

Since 2015, Acea has conducted **monitoring of the energy consumption outside the Group**, along the supply chain, requesting a representative panel of its suppliers to fill out a specific questionnaire. In December 2020 the questionnaire was sent to 79 suppliers, the principal parties in terms of value of orders for the year. Thanks to the results from 37 of those contacted (equal to 44% of the total Acea expenditure for the procurement of goods/services and works), the total energy consumption for all suppliers was estimated at approximately 150,662 GJ<sup>133</sup>. Since 2020, the questionnaire also included a specific section on water consumption (see the section *Attention to water consumption*, further on in the document).

## ENERGY SAVING

Ecogena is the appropriate body to develop the **energy efficiency initiatives of the Group Companies** and report their results to the Gestore dei Servizi Energetici (GSE) for the **awarding of Energy Efficiency Certificates (EECs)**. At 31/12/2020, a total of **8,508 EECs** had been obtained pursuant to the Ministerial Decree of 5 September 2011.

To make it possible for **Areti** to achieve its **energy savings** goal, the actions were focused on the purchase of EECs on the market managed by the electricity market operator (EMA) equal to **136,904 EECs** for 2020, to which is added the residual portion of the 2019 obligation equal to 48,947 EECs with respect to the initial 122,369 EECs, and the residual portion relating to the 2018 obligation equal to 10,102 EECs.

<sup>133</sup> The figure is obtained by readjusting the consumption of respondents relative to the total purchased during the year.

## ENERGY EFFICIENCY ACTIONS

In 2020, Acea launched **actions aimed at recovery of energy efficiency**, in particular at the headquarters and the **Companies of the operating segments of Water, Energy Infrastructure and Environment**. At the headquarters, works were completed for reconstruction of the balcony air-conditioning system, along with partial replacement of lighting systems with LED technology. Compartmentalization of the air-conditioning system of the Cedet headquarters was also performed. Consumption also decreased due to the health emergency.

For the **Water** segment, although numerous actions were taken to increase efficiency, as described below, there was a **10% increase in electricity consumption** compared to 2019, due primarily to low rainfall during the year, which led to an increase in consumption due to higher flow rates. The **energy efficiency measures** carried out by the Companies on ordinary activities **partly offset the overall increase in consumption**.

In this regard, **Acea Ato 2** achieved a **total savings of 6.7 TJ** (1.86 GWh) in 2020, against an expected annual energy savings target of 4.3 TJ (1.2 GWh). In particular, consumption has been reduced for energy used in the recovery of water losses in Roma, through significant measures taken to recover the resource, **with a saving of approximately 2.7 TJ** (0.74 GWh), and for the treatment section, **energy saved through efficiency measures was 4 TJ** (1.11 GWh), on the basis of optimisation works in the oxidation section of the Crocetta di Pomezia treatment plant and elimination of the two minor treatment plants (Sonnino and Colle Pisano). For **Acea Ato 5** increased efficiency, saving approximately **1.4 TJ** (0.38 GWh), was due to replacement of the pumps, inverter installation and upgrading of systems for the three well fields. **Gori**

implemented efficiency measures for a total saving of **9 TJ** (2.5 GWh), primarily due to new remote-control management methods and inverter installation. **AdF** increased efficiency for a saving of **2.7 TJ (0.7 GWh)** through the establishment of districts, management of pressure and searches for leaks, implementation of the “WPOM (Wastewater Pumps On-condition Maintenance)” project for maintenance in the sewerage segment, and the introduction of electric vehicles to its fleet.

For the **Environment** segment, activities to **increase energy efficiency** at the **San Vittore del Lazio plant** in 2020, involved the replacement of electric motors with new more efficient models, with works continuing in 2021, and at the **Terni waste-to-energy plant** inverters and new electric motors were installed that will increase efficiency for an annual saving of 220,000 kWh and increase plant production by approximately 4%, corresponding to approximately 3 GWh/year extra.

In the Networks segment, the Company **Areti** continued in 2020 **with works to increase efficiency** on the electricity distribution network managed, including:

- the use of **277 MV/LV transformers** with **very low losses**, which allowed a reduction in electricity consumption of 317 MWh;
- other **actions on the HV/MV/LV distribution network** aimed at optimising the structure of the MV network and adjustments for the HV and LV lines, for a total of 1,150 MWh saved.

Table no. 65 shows the types of actions and relative energy savings for Areti, for the last three years. In **2020**, the total **energy saving was 5.4 TJ** (1.5 GWh) and approximately 500 tonnes of **CO<sub>2</sub> emissions were avoided**<sup>134</sup>.

**TABLE NO. 65 – ENERGY EFFICIENCY IN ARETI (2018-2020)**

ENERGY SAVINGS ACHIEVED (GJ)			
action	2018	2019	2020
reduction in losses from the network	25,200	4,860	4,140
of which reduction in losses through the purchase of new transformers	1,112	1,454	1,141
transformation of air conditioning and domestic hot water production system into heat pumps	47	94	94

In 2020, **consumption for public lighting fell to about 67 GWh** (241 TJ) (70 GWh and 252 TJ in 2019), particularly due to the installation of **LED lamps**: from 191,200 in 2018 to 207,870 in 2020, out of a total of 226,635 lamps.

A further positive contribution was provided by the **25 electric vehicles** already in use in 2019 by the Company’s staff in the context of a car-sharing scheme (Renault ZOE cars). 100 electric Renault Kangoo cars were also purchased, destined for 24-hour

personal work use, of which 20 were already in use at the end of 2020.

Areti monitored distances travelled, recording a total of 53,100 km in 2020, consumption of approximately 8 MWh and a net saving of 5,300 kg of CO<sub>2</sub> related to the absence of use of diesel-powered vehicles. Analysing the data for car-sharing electric vehicles only, the number of journeys and kilometres travelled are presented in chart no. 55.

**CHART NO. 55 – CAR SHARING DATA (2020)** (\*)



(\*) The chart refers to the ZOE model cars in the car-sharing scheme. It does not include Renault Kangoo vehicles assigned individually.

<sup>134</sup> Calculations for estimation of CO<sub>2</sub> emissions avoided in the entire section *Relations with the environment* have been carried out using the 2020 Terna location-based conversion factor, equal to 0.336 tonnes of CO<sub>2</sub>/MWh. In the Sustainability Plan reporting, the same estimate is made using the 2019 conversion factor, in line with the calculation for definition of the 2024 target.

The Company **Acea Ato 2** will also soon be equipped with electric vehicles, for personnel involved in operation of treatment plants: in 2020 there was a call for tenders for the supply of **15 electric box trucks**. For recharging of the vehicles, the Company Ecogena has been contracted for the supply and installation of 11 recharging stations within the sites of the Roma Sud, Ostia, Roma Nord, Roma Est and Cobis treatment plants. Installation began in December 2020 and will be completed in the first two months of 2021.

## ATTENTION TO THE USE OF WATER RESOURCES

The Group promotes rationalisation of water resources, **also along the supply chain**, raising awareness amongst suppliers through use of a questionnaire (see also the section *Energy consumption outside of the Group*, under *Energy consumption*), which requests reporting of water withdrawal, amongst other aspects (see info. box for details).

The **main water intake of the Group** is related to **production processes**, such as the production of thermal energy at the Tor di Valle plant, that of electricity at the waste-to-energy plants and the production of compost. Water resources are used in treatment processes, for the dehydration of sludge, cleaning of sections, backwashing fine grilles and anaerobic digestion sectors. Furthermore, water is also used in laboratory activities, albeit in small quantities.

The overall increase in water intake in 2020 was primarily due to **improved reporting of industrial and civil water consumption, including reuse**, equal to 515,000 m<sup>3</sup> in 2020, for Companies in the water sector and in particular for Acea Ato 5, Gori and Gesesa. In this regard, in 2020 **a project was launched** coordinated by the Sustainability Planning and Reporting Unit of the Parent Company, **aimed at sharing the experiences of the different Companies in the water segment**, in order to define harmonised methodologies for monitoring of water intake, discharge and consumption, also on the basis of developments in the relevant GRI Standards. The project

will continue over the next two years, progressively broadening to also include Operating Companies in other segments.

It should in any case be noted that the greater consumption was recorded during the year at the Monterotondo Marittimo plant, fully operational in 2020.

The **Companies in the Environment segment** limit the consumption of drinking water, **mainly using water from wells**. In addition, **rainwater recovery systems** are active at the **San Vittore del Lazio, Orvieto, Aprilia and Terni** plants, and **since 2019** the latter has **two rainwater collection tanks** equipped with a filtration system and storage tanks. The **Aprilia composting plant** has a **system for the treatment of residual water from waste awaiting processing** for reuse in production processes, and exclusively for industrial uses (e.g. washing vehicles). Water collected from the first 5 mm of water from each rainfall event is also reused following treatment within the two collection tanks, through sedimentation and oil removal. At the **San Vittore del Lazio waste-to-energy plant**, rainwater is used in the production of demineralised water, after treatment in a specific chemical-physical plant, and is completely reused in the process, without discharge.

Finally, the **Orvieto plant hub collects rainwater** through the roofs of some buildings, **keeps it in underground storage tanks** and then **uses it in the compost maturation and storage phases**.

Thanks to the presence of these solutions at the plants, the volume of water recovered from the Environment Operations was around **38,200 m<sup>3</sup>**.

In order to reuse water from treatment processes and minimise consumption of drinking water, in 2020, the Company **Acea Ato 2** completed works for **modernisation of the industrial water network** (non-drinking water) for the treatment plants of Roma Sud, Roma Nord and Cobis, while similar activities are underway for the plants of Roma Est and Ostia. Finally, with the aim of promoting **reuse of purified wastewater** in the Integrated Water Service, at the Cobis treatment plant sections were completed for refinement of treated water, for its reuse for non-drinking-water purposes. The authorisation process is in progress.

**Group water intake** associated with industrial processes and civil uses is presented in table no. 66.

**TABLE NO. 66 – WATER INTAKE OF THE GROUP'S MAIN COMPANIES (2018-2020)**

	2018 (*)	2019 (*)	2020
<b>type of intake</b>	<b>(Mm<sup>3</sup>)</b>		
<b>industrial processes</b> (district heating, thermoelectric generation, Ambiente plants, Water companies)	<b>0.351</b>	<b>0.358</b>	<b>0.828</b>
of which aqueduct (**)	0.243	0.236	0.240
of which well	0.055	0.071	0.070
of which river water (***)	0.003	0.003	0.003
of which recovered water	0.050	0.048	0.515
<b>water consumption for civil use (****)</b>	<b>1.735</b>	<b>2.071</b>	<b>2.633</b>
<b>total water consumption</b>	<b>2.086</b>	<b>2.429</b>	<b>3.460</b>

**NOTE** Intake of freshwater occurs in areas at potential risk of water stress, as defined by the *Aqueduct Water Risk Atlas*, the map drawn up by the World Resources Institute (WRI).

(\*) The volumes for 2018 and 2019 have been restated and include data for AdF and Acque Industriali.

(\*\*) This item includes water transported by tankers to the Aprilia site (approximately 760 m<sup>3</sup> in 2020).

(\*\*\*) Consumption refers exclusively to the withdrawal from the Paglia river near the Orvieto composting plant.

(\*\*\*\*) Civil consumption derives from: aqueduct (99.9%), well and tankers.

## WATER INTAKE OF PANEL OF SUPPLIERS MONITORED

To raise awareness along the supply chain of the importance of safeguarding water resources, the Sustainability Planning & Reporting Unit, with the support of the Procurement and Logistics function, asked a panel of suppliers, for the first time in 2020 and on an experimental basis, to also provide data on water intake, divided by process and civil uses. **33 suppliers** out of 79 suppliers invited to re-

plied to the section on water resources, corresponding 40% of the total expenditure of the Acea Group for procurements of goods, services and labour. Water intake by suppliers in 2020 equalled 14,344 m<sup>3</sup>, divided into 9,543 m<sup>3</sup> for industrial uses and 4,802 m<sup>3</sup> for civil uses. The intention is to proceed with this activity, monitoring data and continuing to raise awareness around the issue.

**Discharges of water intake** occur within **authorised** and **closely controlled processes**. For example, at the **Terni waste-to-energy plant**, residual water from production processes is **first treated by internal treatment plants**, before being discharged into public sewerage. Water used in the waste-to-energy process at the San Vittore del Lazio plant, instead, is collected and stored in special underground tanks and disposed of as waste, as it may contain components that make it unsuitable for normal discharge.

Discharge into surface water bodies occurs only under exceptional circumstances, i.e. in the event of rainwater in excess of the first 5 mm of water from each rainfall event that is greater than the quantities reused internally, and in 2020 there were no such

events. Wastewater from toilet facilities of production lines and offices are collected in septic tanks and subsequently sent for disposal. Sewage from the headquarters is instead collected and transferred in an “Imhoff tank” with a sub-irrigation system for clarified material into the soil, which came into operation in 2020. Water intake for industrial uses in activities connected to the integrated water service, and in particular water treatment, **undergoes the same treatment as waters transported via public sewerage**, i.e. it is retreated at the head of the treatment plant and sent to the locations described in the section *Sewerage service and treatment system*, in the chapter *Water segment*. All civil water intake from the aqueduct ends up directly in the public sewer system.

## EMISSIONS



CONTINUOUS ANALYSIS OF WASTE-TO-ENERGY EMISSIONS: **values of pollutants significantly lower than legal limits**



**improvement in intensity index for emissions (SCOPE 2) FROM NETWORK LOSSES AGAINST TOTAL ELECTRICITY DISTRIBUTED: 0.0093 t/MWh**

## ATMOSPHERIC EMISSIONS

**Atmospheric emissions from Acea plants** are constantly monitored. Plants are managed according to the UNI EN ISO 14001 and UNI EN ISO 45001/OHSAS 18001:2007 standards. Waste-to-energy plants are also **registered under the European EMAS III scheme**, extended until 2021.

With regard to the most significant macro-pollutants connected with the main production processes of Acea Ambiente and Acea Produzione plants, see the summary data in table no. 67. Data, monitored through Continuous Emissions Monitoring Systems (CEMSs), is in line with the values for previous years, with the exception of SO<sub>x</sub> emissions, which increased due to a greater concentration in the pulper waste sent for combustion. The values are nevertheless very low.

**TABLE NO. 67 – ENVIRONMENTAL INDICATORS: CO<sub>2</sub> EMISSIONS, GREENHOUSE GAS INTENSITY INDICES AND VEHICLE EMISSIONS (2018-2020)**

	2018	2019	2020
<b>emissions</b>	<b>(t)</b>		
CO	6.38	7.02	8.34
NO <sub>x</sub>	189.40	188.19	190.67
SO <sub>x</sub>	0.16	0.33	0.90
particles (particulate matter)	0.50	0.60	0.60

**NOTE** The emissions refer to the plants of Acea Ambiente – waste-to-energy and Acea Produzione.

In detail, in the **waste-to-energy plants**, monitoring is carried out by means of fixed and mobile stations that **sample and analyse the fumes coming out of the chimneys, measuring**

**concentrations** for numerous parameters that are periodically checked by internal personnel and certified by qualified external laboratories. Again in 2020, the **values of the main**

**pollutants** were also **significantly below the legal limits** (see table no. 68).

Specifically, at the **San Vittore del Lazio plant**, 2020 saw the performance of surveys of odorous emissions, monitoring of

diffuse and fugitive emissions and a biomonitoring campaign with use of bees as bioindicator insects (see info. box *150,000 bees for biomonitoring of environmental quality*, in the chapter *Environmental sustainability and the primary challenges*).

**TABLE NO. 68 – CONCENTRATIONS OF ATMOSPHERIC EMISSIONS – SAN VITTORE DEL LAZIO AND TERNI WASTE-TO-ENERGY PLANTS (2018-2020)**

pollutant	u. m.	San Vittore del Lazio plant (*)				Terni plant (**)			
		scope of reference (**)	2018	2019	2020	scope of reference (**)	2018	2019	2020
HCl	mg/Nm <sup>3</sup>	8	0.184	0.151	0.145	8	4.499	3.580	3.807
NO <sub>x</sub>	mg/Nm <sup>3</sup>	70	28.273	29.652	29.925	180	140.157	128.650	125.989
SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	0.006	0.003	0.086	25	0.194	0.430	0.969
HF	mg/Nm <sup>3</sup>	1	0.021	0.023	0.020	1	0.084	0.080	0.00
CO	mg/Nm <sup>3</sup>	40	1.320	0.803	0.604	25	1.084	1.140	1.057
total particles (particulate)	mg/Nm <sup>3</sup>	3	0.006	0.007	0.010	25	0.705	0.790	0.763
PAH (polycyclic aromatic hydrocarbons)	mg/Nm <sup>3</sup>	0.01	0.00002	0.00001	0.0000	0.01	0.0001	0.0000	0.0000
dioxins and furans (PCDD + PCDF)	ng/Nm <sup>3</sup>	0.1	0.0065	0.0074	0.0094	0.1	< 0.001	0.0087	0.0000
heavy metals (Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V)	mg/Nm <sup>3</sup>	0.5	0.0253	0.0387	0.0246	0.3	0.204	0.033	0.03

(\*) The analysis of PAH, dioxins and furans and heavy metals and their composites are four-monthly and discontinuous. The “<” symbol identifies the concentration values that are equal to or below the thresholds that the devices used by the laboratory are capable of measuring.

(\*\*) Reference parameters, Legislative Decree no. 46/2014, 2000/76/EC and AIA, are separate for each waste-to-energy plant.

**NOTE** For San Vittore del Lazio, over the years the recorded concentrations of the parameters HCl, SO<sub>2</sub>, dust and HF were close to the instrument’s detection limit. Therefore, in these measurement areas deviations are to be considered insignificant for absolute changes in concentrations and masses.

Monitoring carried out on installations at risk<sup>135</sup> has shown the **absence of emissions** in significant quantities **of substances responsible for reducing the ozone layer** (for consumption see the section *Resources used*, in the chapter *Environmental accounts*).

## GREENHOUSE-GAS EMISSIONS

Acea quantifies its CO<sub>2</sub> emissions by **monitoring and evaluating the carbon footprint of the individual macro production processes** according to the guidelines of the GHG protocol<sup>136</sup> which requires

reporting in the categories of **direct (Scope 1)** and **indirect (Scope 2 and Scope 3)**.

**Direct Scope 1** emissions **mainly come from the Group’s two waste-to-energy plants** and the **thermoelectric power stations**. Of these plants, three are subject to the **Emission Trading Scheme (ETS)** (the waste-to-energy plant in Terni and the thermoelectric plants in Montemartini and Tor di Valle). The allowances assigned under the NAP (National Allocation Plan) framework, compared to the actual emissions registered in the three-year period 2018-2020, are shown in table no. 69.

**TABLE NO. 69 – CO<sub>2</sub> EMISSION ALLOWANCES AS PER THE NATIONAL ALLOCATION PLAN (NAP) AND ACTUAL EMISSIONS BY PLANT (2018-2020)**

plant	2018		2019		2020	
	assigned by NAP	actual	assigned by NAP	actual	assigned by NAP	actual
Tor di Valle (*)	5,805	42,281	4,775	46,993	3,782	46,097 (**)
Montemartini	0	607	0	1,513	0	1,546
Terni waste-to-energy plant	0	114,328	0	99,281	0	116,708 (**)

(\*) As with previous years, in 2020 the applicable legislative framework allowed the Tor di Valle plant to benefit from free of charge emission allowances (3,782 t) as it serves a district-heating network. The 2019 figures for actual emissions have been restated with the certified figures.

(\*\*) Estimated emissions, pending certification by the responsible body.

**Scope 1** emissions also include those deriving from certain processes of plants in the Environment segment (composting, treatment and disposal of liquid waste), from drying at treatment plants, from vehicles of Company fleets (petrol and diesel vehi-

cles), from leaks of sulphur hexafluoride (SF<sub>6</sub>) that may arise at Areti plants, from combustion processes for heating of premises and offices and from leaks of freon gases from air-conditioning units.

<sup>135</sup> This is primarily air conditioning equipment using refrigerant gases subject to the 1987 Montreal protocol, particularly chlorofluorocarbons.

<sup>136</sup> See [www.ghgprotocol.org](http://www.ghgprotocol.org) for more information.

The figure for CO<sub>2</sub> output from the waste-to-energy plants in 2020 **increased** (see table no. 70). This is primarily attributable to the **decrease in the biodegradable fraction of waste** for both the San Vittore del Lazio and Terni plants (from 51% and 47% in 2019 to approximately 42% for both plants).

Scope 2 greenhouse-gas emissions deriving from electricity consumption in 2020 decreased, and this is attributable to a **reduction in network losses** of approximately 9% (see table no. 70). For all the details on energy-efficiency actions and consequent reductions in CO<sub>2</sub> emissions, see the section *Energy saving* in the chapter *The use of materials, energy and water*.

**Scope 3** emissions include those reported deriving from the sale of gas, from the purchase of goods, services and labour, from employee commuting and from work travel (see table no. 70).

In 2020, **emissions for commuting and business travel were greatly reduced due to the restrictions caused by the Covid-19 pandemic**, which **limited movements** and led to **quick switchover to remote working for the majority of employees**.

**Scope 3** emissions for purchase of goods, services and labour are calculated using monitoring data for energy-consumption outside the Group, requested from a **representative panel of suppliers** using a questionnaire (see the section *Energy consumption outside the Group*). This is in addition to energy data (primarily consumption of combustible fuels, electricity and vehicle fuel) emissions for this Scope 3 category also include emissions of refrigerant gases at supplier premises.

## INTENSITY INDICES FOR GREENHOUSE GAS EMISSIONS

**Scope 2 carbon dioxide emissions, deriving from leaks on electricity distribution networks, relative to total electricity distributed**, is one of the intensity indices for greenhouse gas emissions monitored. This index has **improved further**, changing from 0.0112 t/MWh in 2019 to **0.0095 t/MWh** in 2020, in line with the **continuous decrease in relative leaks** on the network (technical leaks/distributed electricity) (see table no. 70).

**TABLE NO. 70 – ENVIRONMENTAL INDICATORS: CO<sub>2</sub> EMISSIONS, GREENHOUSE GAS INTENSITY INDICES AND VEHICLE EMISSIONS (2018-2020)**

### CO<sub>2</sub> EMISSIONS

#### SCOPE 1 EMISSIONS

##### FROM ENERGY PRODUCTION PLANTS

	u. m.	2018	2019	2020
CO <sub>2</sub> emissions from Acea Produzione thermoelectric power stations <sup>(*)</sup>	t	42,888	48,506	47,643
CO <sub>2</sub> emissions from Acea Ambiente waste-to-energy plants <sup>(*)</sup>	t	307,395	280,504	336,133

##### FROM WASTE MANAGEMENT, ENERGY DISTRIBUTION, HEATING PLANTS AND VEHICLE FLEET

CO <sub>2</sub> emissions from waste-management plants <sup>(**)</sup>	t	1,396	1,484	1,567
CO <sub>2</sub> emissions from water plant dryers <sup>(***)</sup>	t	4,300	5,972	6,371
CO <sub>2</sub> emissions from heating <sup>(****)</sup>	t	848	914	850
CO <sub>2</sub> emissions from vehicle fleet	t	10,416	9,309	9,449
CO <sub>2</sub> emissions from Areti plants (from SF <sub>6</sub> ) <sup>(****)</sup>	t	11,233	9,682	8,695
CO <sub>2</sub> emissions from refrigerants (HCFCs) <sup>(****)</sup>	t	46	0	1
<b>TOTAL SCOPE 1 EMISSIONS <sup>(*****)</sup></b>	<b>t</b>	<b>378,522</b>	<b>356,371</b>	<b>410,709</b>

#### SCOPE 2 EMISSIONS

Location-based Scope 2 emissions (market based) <sup>(*****)</sup>	t	359,752 (234,180)	375,494 (257,594)	353,207 (255,066)
of which CO <sub>2</sub> emissions from network leaks	t	120,450	118,824	91,746

#### SCOPE 3 EMISSIONS

CO <sub>2</sub> emissions deriving from the purchase of goods/services and works <sup>(*****)</sup>	t	22,805	22,303	11,642
CO <sub>2</sub> emissions from commuting	t	4,088	7,060	1,937
CO <sub>2</sub> emissions from business travel	t	160	288	46
CO <sub>2</sub> emissions from volumes of gas sold	t	252,987	275,580	326,250

**TABLE NO. 70 – ENVIRONMENTAL INDICATORS: CO<sub>2</sub> EMISSIONS, GREENHOUSE GAS INTENSITY INDICES AND VEHICLE EMISSIONS (2018-2020) (continued)**

**INTENSITY INDICES FOR GREENHOUSE GAS EMISSIONS**

intensity indices of the GHG emissions	u. m.	2018	2019	2020
CO <sub>2</sub> emissions (Scope 1 + Scope 2)/Acea Group added value	(t/k€)	679.1	601.1	564.5
Scope 1 CO <sub>2</sub> emissions/gross production (*****)	(g/kWh)	361.7	357.8	418.9
Scope 2 CO <sub>2</sub> emissions deriving from losses on the electricity distribution network/distributed GWh	(t/MWh)	0.0113	0.0112	0.0095

- (\*) The 2019 figures for the Tor di Valle and Terni Plants have been corrected after the ETS certification, while the 2020 figure is estimated pending certification by a third-party body.
- (\*\*) The figure includes the emissions of the ancillary services of the waste-to-energy plants, not strictly related to the production of electricity, of Acque Industriali, and non-biogenic emissions from the combustion of biogas produced on site.
- (\*\*\*) The figures for 2018 and 2019 have been restated to include AdF and to align the figures with the items in the *Environmental Accounts*.
- (\*\*\*\*) These are the tonnes of equivalent CO<sub>2</sub> corresponding to the emissions of insulating SF<sub>6</sub> present in Areti's HV equipment (1 t of SF<sub>6</sub> equates to 23,500 t of CO<sub>2</sub>, *GHG Protocol-5th Assessment Report – AR5*).
- (\*\*\*\*\*) In 2019 and 2020, the replenishment of HCFC fluids in the Group's plants was so small that it did not lead to significant CO<sub>2</sub> emissions.
- (\*\*\*\*\*) Considering the entire Group, the total Scope 1 emissions for the three-year period are as follows: 379,859 t, 357,710 t and 412,035 t.
- (\*\*\*\*\*) The indirect emissions (Scope 2) include all the Companies within the NFD scope. The figures for 2018 and 2019 have been restated for the inclusion of AdF. As an emission factor per unit of electricity consumed (t CO<sub>2</sub>/MWh), for the location-based calculation the value of 0.336 was used for 2020 (0.36 for the previous two-year period), as per Terna's "International Comparisons" document (2019 data). For the calculation of Scope 2 emissions using the market-based method, the residual mix coefficients are the following for 2018, 2019 and 2020, respectively: 0.476 t/MWh, 0.487 t/MWh and 0.466 (Source: AIB document "European Residual Mixes 2019"). Also including the Companies Umbra Acque, AdF, Publiacqua and Acque (outside the NFD scope), for the sole proprietary share quota of Acea, for the three-year period 2018-2020, location-based CO<sub>2</sub> emissions are equal to 403,772 t, 419,578 t and 392,575 t respectively, whereas for the market-based emissions they are equal to 291,041 t, 316,749 t and 309,117 t.
- (\*\*\*\*\*) This value, estimated, refers to suppliers of goods, services and works. The 2020 figure is broken down as follows: 9,713 tonnes of CO<sub>2</sub> for suppliers of services and works and 1,928.7 tonnes of CO<sub>2</sub> for suppliers of goods. The decrease compared to the previous two-year period is attributable to the different composition of the panel of suppliers included for the calculation, and to restrictions and stoppages due to the pandemic.
- (\*\*\*\*\*) Scope 1 emissions included in this index are those from power generation plants. The increase in 2020 is attributable to waste-to-energy processing, due to a drop in the biodegradable fraction of waste at both the San Vittore del Lazio and Terni plants.
- NOTE** Emission factors for Scope 1 emissions are taken from the standard parameters – ISPRA data 2019, DEFRA 2020 and *GHG Protocol-5th Assessment Report-AR5*.

# WATER COMPANY DATA SHEETS AND OVERSEAS ACTIVITIES

This chapter illustrates activities and provides information and data for the main Companies of the Group outside the scope of the *Consolidated Non-Financial Disclosure* (see *Disclosing Sustainability: Methodological Note*). The first part concerns the Companies operating in the water sector in Umbria and Tuscany, consolidated using the equity method in the statutory financial statements, and the second part refers to Companies that are active abroad.

## WATER ACTIVITIES IN UMBRIA AND TUSCANY

For the preparation of water balances, the Companies followed the criteria specified by ARERA with Resolution 917/17 R/IDR.

### UMBRA ACQUE

Umbra Acque SpA is a Company with predominantly public

capital, 40% owned by Acea SpA, which since 2003 has managed the Integrated Water Service in the area of Optimal Territorial Conference – Umbria 1 consisting of 38 Municipalities, of which 37 in the province of Perugia and 1 in the province of Terni, with a total population of around 492,000 inhabitants served.

### MANAGEMENT SYSTEMS

Umbra Acque has an **Integrated Quality, Environment and Safety Management System** (QAS) in compliance with the **UNI ISO 9001:2015, UNI ISO 14001:2015 and BS OHSAS 18001:2007 standards, SOA certification** for the OG6 (in class II) and OS22 (in class III) categories and **qualification for design and construction** (up to the 8th classification). The analysis laboratory is accredited according to the **UNI ISO/ IEC 17025:2005** standard.

## QUALITY DELIVERED: MAIN INTERVENTIONS ON THE NETWORKS AND CONTROLS ON DRINKING WATER AND WASTEWATER

### SIZE OF NETWORK, MAIN WORKS, METERS AND CHECKS ON DRINKING WATER AND NETWORKS (2020)

<b>size of drinking-water network – data in GIS</b>	<b>6,332 (1,371 km of supply network, 4,961 km of distribution)</b>
<b>type of work</b>	
interventions due to network failure/leak detection	<b>17,080 interventions</b> (12,994 due to faults, 4,086 leak detection)
meter installations (new installation and replacement)	<b>31,279 interventions</b> (5,053 new installation, 26,226 replacements) and 23,691 mass replacements under contract
network extension	<b>5.7 km</b> of expanded network
network reclamation	<b>41.6 km</b> of reclaimed network
drinking water quality control	<b>5,791 samples</b> collected and <b>107,257 tests</b> performed

### SIZE OF NETWORK, WORKS AND CHECKS ON SEWERAGE WATER AND NETWORKS (2020)

<b>size of sewerage network – data in GIS</b>	<b>1,814 km</b>
<b>type of work</b>	
interventions due to network failure	<b>909 interventions</b>
planned interventions	<b>102 interventions</b>
network extension	<b>129 km</b> of expanded network
network reclamation	<b>17.3 km</b> of network reclaimed following video-inspection
quality control on wastewater for sewerage networks	<b>128 samples</b> collected and <b>4,234 tests</b> performed

## HUMAN RESOURCES IN FIGURES

### GENERAL DATA ON PERSONNEL (2019-2020)

(no.)	2019			2020		
	men	women	total	men	women	total
<b>composition of the staff</b>						
executives	4	0	<b>4</b>	4	0	<b>4</b>
managers	6	2	<b>8</b>	9	1	<b>10</b>
clerical workers	70	81	<b>151</b>	72	92	<b>164</b>
workers	211	0	<b>211</b>	211	0	<b>211</b>
<b>total</b>	<b>291</b>	<b>83</b>	<b>374</b>	<b>296</b>	<b>93</b>	<b>389</b>
<b>contract type</b>						
staff with permanent contract	251	63	<b>314</b>	274	77	<b>351</b>
<i>(of which) part-time staff</i>	2	6	<b>8</b>	0	7	<b>7</b>
permanent staff	29	17	<b>46</b>	18	14	<b>32</b>
staff under apprenticeship contracts	11	3	<b>14</b>	4	2	<b>6</b>
<b>total</b>	<b>291</b>	<b>83</b>	<b>374</b>	<b>296</b>	<b>93</b>	<b>389</b>

## GENERAL DATA ON PERSONNEL (2019-2020) (cont.)

changes						
incoming staff	15	6	21	20	14	34
outgoing staff	21	2	23	15	4	19
turnover rate (%)	12.4	9.6	11.8	11.8	19.4	13.6
incoming rate (%)	5.2	7.2	5.6	6.8	15.1	8.7
outgoing rate (%)	7.2	2.4	6.1	5.1	4.3	4.9

## INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2019-2020)<sup>(\*)</sup>

	2019	2020
accidents (no.)	9	5
total days of absence	554	465
hours worked <sup>(*)</sup>	689,112	633,642
frequency index (FI) (number of accidents per 1,000,000/working hours) <sup>(*)</sup>	13.06	7.89
severity index (SI) (days of absence per 1,000/working hours) <sup>(*)</sup>	0.80	0.73

(\*) The 2019 figures, after consolidation, have been confirmed. The 2020 figures are estimated.

## TRAINING 2019-2020

### course type, hours provided and costs

course type	courses (no.)		training (hours)		costs (€)	
	2019	2020	2019	2020	2019	2020
advanced training	2	1	25	8	0	2,340
technical-specialised	72	57	4,011	4,096	46,438	56,779
legal	5	5	71	96	1,396	2,393
managerial	7	20	202	1,922	4,593	32,525
safety	24	17	4,331	3,419	46,600	30,022
<b>total</b>	<b>110</b>	<b>100</b>	<b>8,640</b>	<b>9,541</b>	<b>99,027</b>	<b>124,059</b>

### employees trained

(no.)	2019			2020		
	men	women	total	men	women	total
	282	66	348	296	93	389

### breakdown of training hours by qualification

executives	171	0	171	161	0	161
managers	234	18	252	369	28	397
clerical workers	2,079	2,159	4,238	2,497	2,113	4,610
workers	3,979	0	3,979	4,373	0	4,373

Training provided during the year was held almost entirely via **e-learning** and involved **100% of personnel**. The primary topics covered included the **Organisational Model pursuant to Italian Legislative Decree 231/01**, with a particular focus on topics connected to **health and safety in the workplace, anti-corruption and transparency**.

Employees of the commercial area also received courses on **stress management**, while personnel on the operations side were involved in courses focused on functioning of **new management software**. Finally, like every year, **safety** training continued in compliance with applicable laws.

## ENVIRONMENTAL ACCOUNTS

### PRODUCTS AND ANALYTICAL TESTS

	units	2018	2019	2020	Δ% 2020/2019
WATER BALANCE <sup>(*)</sup>					
<b>drinking water from the environment</b>	<b>Mm<sup>3</sup></b>	<b>60.06</b>	<b>58.13</b>	<b>58.60</b>	<b>0.8</b>
<i>from the surface</i>	<i>Mm<sup>3</sup></i>	0	0	0	-
<i>from wells</i>	<i>Mm<sup>3</sup></i>	46.05	44.30	44.82	1.2
<i>from springs</i>	<i>Mm<sup>3</sup></i>	12.64	11.22	10.61	-5.4
<i>of which water from other aqueduct systems</i>	<i>Mm<sup>3</sup></i>	1.37	2.61	3.17	21.5
<b>total drinking water leaving the aqueduct system (c) = (a+b)</b>	<b>Mm<sup>3</sup></b>	<b>29.71</b>	<b>30.51</b>	<b>31.38</b>	<b>2.9</b>
<b>total drinking water dispensed and billed in the network (a)</b>	<b>Mm<sup>3</sup></b>	<b>28.72</b>	<b>29.50</b>	<b>28.73</b>	<b>-2.6</b>
<i>measured volume of water delivered to users</i>	<i>Mm<sup>3</sup></i>	28.72	29.50	28.73	-2.6

PRODUCTS AND ANALYTICAL TESTS (cont.)	units	2018	2019	2020	Δ% 2020/2019
<i>volume consumed by users and not measured</i>	Mm <sup>3</sup>	0	0	0	-
<b>total drinking water authorised and not billed in the network (b)</b>	<b>Mm<sup>3</sup></b>	<b>0.99</b>	<b>1.01</b>	<b>2.65</b>	<b>162.4</b>
<i>measured unbilled authorised consumption</i>	Mm <sup>3</sup>	0.85	0.85	1.21	42.4
<i>unmeasured unbilled authorised consumption</i>	Mm <sup>3</sup>	0.14	0.16	1.44	800.0
LOSS ASSESSMENT ACCORDING TO ARERA RESOLUTION 917/17 R/IDR					
water leaks	Mm <sup>3</sup>	30.40	28.13	27.22	-3.2
water loss percentages	%	50.6	48.4	46.4	-4.0
TREATED WASTEWATER					
<b>water treated in the main treatment plants</b>	<b>Mm<sup>3</sup></b>	<b>61.3</b>	<b>56.5</b>	<b>56.8</b>	<b>0.5 %</b>
ANALYTICAL TESTS ON DRINKING WATER AND WASTEWATER					
<b>no. analytical tests on drinking water</b>	<b>no.</b>	<b>136,881</b>	<b>135,500</b>	<b>107,257</b>	<b>-20.8</b>
<i>of which no. analytical tests on surface water</i>	no.	7,500	6,500	7,209	10.9
<b>no. analytical tests on wastewater (**)</b>	<b>no.</b>	<b>39,693</b>	<b>38,481</b>	<b>35,610</b>	<b>-7.5</b>

(\*) The 2019 figures, after consolidation, have been confirmed. The 2020 figures are estimated.

(\*\*) The figure includes analyses carried out at treatment plants and industrial waste.

RESOURCES USED	u.m.	2018	2019	2020	Δ% 2020/2019
COLLECTION, SUPPLY AND DISTRIBUTION OF DRINKING AND NON-DRINKING WATER					
<b>materials</b>					
sodium hypochlorite	t	60.0	60.0	91.7	58.2
sodium chloride	t	200.0	200.0	213.6	6.8
hydrochloric acid	t	200.0	200.0	206.5	3.3
aluminium polychloride	t	12.0	12.0	11.5	-4.2
phosphoric acid (10%)	t	9.0	9.0	0	-100
WASTEWATER TREATMENT					
<b>materials</b>					
polyelectrolyte emulsion	t	90.9	90.9	123.4	35.8
ferric chloride (40%)	t	28.0	28.0	61.5	119.6
mineral oil and fats	t	1.40	1.40	0	-100
OTHER CONSUMPTION					
<b>drinking water (*)</b>	<b>m<sup>3</sup></b>	<b>28,889</b>	<b>28,889</b>	<b>20,222</b>	<b>-30.0</b>
<i>drinking water consumed for non-industrial water uses (offices, outside showers, etc.)</i>	m <sup>3</sup>	2,282	2,282	1,597	-30.0
<i>drinking water consumed for process water uses (washing machinery and bays, etc.)</i>	m <sup>3</sup>	26,607	26,607	18,625	-30.0

(\*) The figures are estimated and presented with a 30% reduction compared to previous years, in relation to the closure of offices and changes to the organisation of work following the health emergency.

ENERGY CONSUMPTION	u.m.	2018	2019	2020	Δ% 2020/2019
FUELS					
<b>vehicle fuels</b>					
diesel	l	43,6371	422,430	410,000	-2.9
petrol	l	8,645	7,497	7,000	-6.6
ELECTRICITY					
<b>total electricity for drinking water</b>	<b>GWh</b>	<b>71.46</b>	<b>72.82</b>	<b>69.13</b>	<b>-5.1</b>
<i>electricity for water pumping stations</i>	GWh	71.08	72.45	68.78	-5.1
<i>electricity for offices</i>	GWh	0.38	0.37	0.35	-5.4
<b>total electricity for wastewater</b>	<b>GWh</b>	<b>21.02</b>	<b>22.56</b>	<b>22.78</b>	<b>1.0</b>
<i>electricity for treatment</i>	GWh	16.29	17.70	17.86	0.9
<i>electricity for pumping stations</i>	GWh	4.62	4.74	4.81	1.5
<i>electricity for offices</i>	GWh	0.11	0.11	0.12	9.1

In 2020, extraordinary maintenance work was completed on three plants of the IWS, with adoption of **more efficient**

**technology** that enabled an estimated energy saving of approximately 75 MWh.

### ENERGY EFFICIENCY (2018-2020)

action	energy savings achieved (kWh)		
	2018	2019	2020
extraordinary maintenance on plants	-	-	75,000

WASTE	u.m.	2018	2019	2020	Δ% 2020/2019
SPECIFIC WASTE FROM TREATMENT OF WASTEWATER					
treatment sludge (*)	t	13,185	16,436	14,941	-9.1
sand and sediment from treatment	t	841	1,332	1,057	-20.6
WASTE PURSUANT TO ITALIAN LEGISLATIVE DECREE NO. 152/06 EXCLUDING SLUDGE AND SAND					
hazardous waste (**)	t	6.0	7.2	20.18	180.3
non-hazardous waste (**)	t	6,693	5,931	4,940	16.7

(\*) The figure includes liquid sludge transported to other plants for the dewatering process, for a value of 4,913 t in 2018, 5,269 t in 2019 and 4,940 t in 2020.

(\*\*) The increase in 2020 is due to the exceptional disposal of vehicles and Company cars.

### TOTAL COD IN INPUT AND OUTPUT (2018-2020)

(t/year)	2018	2019	2020
COD <sub>in</sub>	33,394.8	18,481.6	17,135.4
COD <sub>out</sub>	2,777.0	2,365.5	2,288.4

### OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS (2018-2020)

parameter	average values (mg/l) 2018	average values (mg/l) 2019	average values (mg/l) 2020
BOD <sub>5</sub>	21.6	20.1	18.6
COD	45.3	41.9	40.3
SST	24.6	25.5	30.8
NH <sub>4</sub> <sup>+</sup>	8.0	6.5	5.0
phosphorus	2.0	2.0	2.0

### PURIFICATION EFFICIENCY OF THE MAIN TREATMENT PLANTS (2018-2020)

parameter	average values (%) 2018	average values (%) 2019	average values (%) 2020
$100 \times (\text{COD}_{in} - \text{COD}_{out}) / \text{COD}_{in}$	91.7	87.2	87.0
$100 \times (\text{SST}_{in} - \text{SST}_{out}) / \text{SST}_{in}$	90.3	89.1	89.4
$100 \times (\text{NH}_{4\text{ in}}^{+} - \text{NH}_{4\text{ out}}^{+}) / \text{NH}_{4\text{ in}}^{+}$	80.7	83.5	86.4
$100 \times (\text{PO}_{4\text{ in}}^{-3} - \text{PO}_{4\text{ out}}^{-3}) / \text{PO}_{4\text{ in}}^{-3}$	31.4	n/a	n/a

## PUBLIACQUA

Publiacqua SpA is a mixed ownership Company with a majority public interest, owned by Acea through Acque Blu Fiorentina SpA, which since 2002 has managed the Integrated Water Service in the area of Optimal Territorial Conference no. 3 – Medio Valdarno, which includes cities with high environmental and artistic value such as Florence, Prato and Pistoia, with over 1.2 million citizens served.

## MANAGEMENT SYSTEMS

Publiacqua has an **Integrated Quality, Environment and Safety Management System (QAS)** in compliance with the **UNI ISO 9001:2015, UNI ISO 14001:2015 and BS OHSAS 18001:2007** standards for its main operations. In 2020, the Company successfully underwent verification for renewal of ISO 14000 and BS OHSAS 18001 certification, preparing to pass over to ISO 45001. The analysis laboratory is accredited according to the **UNI ISO/IEC 17025:2005** standard.

## QUALITY DELIVERED: MAIN INTERVENTIONS ON THE NETWORKS AND CONTROLS ON DRINKING WATER AND WASTEWATER

### SIZE OF NETWORK, MAIN WORKS, METERS AND CHECKS ON DRINKING WATER AND NETWORKS (2020)

<b>size of drinking-water network – data in GIS</b>	<b>6,812</b> (1,391 km of supply network, 5,421 km of distribution)
<b>TYPE OF WORK</b>	
interventions due to network failure/leak detection	<b>4,307 interventions</b> (3,493 due to faults, 868 leak detection)
meter installations (new installation and replacement)	<b>8,842 interventions</b> (2,597 new installations and 4,307 replacements) and 73,883 mass replacements under contract
network extension	<b>6.9 km</b> of expanded network
network reclamation	<b>51.1 km</b> of reclaimed network
drinking water quality control	<b>10,817 samples</b> collected and <b>288,298 tests</b> performed

### SIZE OF NETWORK, WORKS AND CHECKS ON SEWERAGE WATER AND NETWORKS (2020)

<b>size of sewerage network – data in GIS</b>	<b>3,711 km</b>
<b>type of work</b>	
interventions due to network failure	<b>4,876 interventions</b>
planned interventions	<b>2,040 interventions</b>
network extension	<b>18.3 km</b> of expanded network
network reclamation	<b>8.5 km</b> of reclaimed network
quality control on wastewater for sewerage networks	<b>2,816 samples</b> collected and <b>38,293 tests</b> performed

## HUMAN RESOURCES IN FIGURES

### GENERAL DATA ON PERSONNEL (2019-2020)

(no.)	2019			2020		
	men	women	total	men	women	total
<b>COMPOSITION OF THE STAFF</b>						
executives	3	1	<b>4</b>	3	1	<b>4</b>
managers	11	8	<b>19</b>	14	8	<b>22</b>
clerical workers	176	133	<b>309</b>	187	143	<b>330</b>
workers	254	6	<b>260</b>	256	6	<b>262</b>
<b>total</b>	<b>444</b>	<b>148</b>	<b>592</b>	<b>460</b>	<b>158</b>	<b>618</b>
<b>CONTRACT TYPE</b>						
staff with permanent contract	425	148	<b>573</b>	425	153	<b>578</b>
<i>(of which) part-time staff</i>	3	11	<b>14</b>	3	9	<b>12</b>
permanent staff	7	0	<b>7</b>	11	5	<b>16</b>
staff under apprenticeship contracts	12	0	<b>12</b>	24	0	<b>24</b>
<b>total</b>	<b>444</b>	<b>148</b>	<b>592</b>	<b>460</b>	<b>158</b>	<b>618</b>
<b>CHANGES</b>						
<b>incoming staff</b>	<b>37</b>	<b>9</b>	<b>46</b>	<b>37</b>	<b>14</b>	<b>51</b>
<b>outgoing staff</b>	<b>22</b>	<b>3</b>	<b>25</b>	<b>21</b>	<b>4</b>	<b>25</b>
<b>turnover rate (%)</b>	<b>13.3</b>	<b>8.1</b>	<b>12.0</b>	<b>12.6</b>	<b>11.4</b>	<b>12.3</b>
incoming rate (%)	8.3	6.1	<b>7.8</b>	8.0	8.9	<b>8.3</b>
outgoing rate (%)	5.0	2.0	<b>4.2</b>	4.6	2.5	<b>4.0</b>

### INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2019-2020)<sup>(\*)</sup>

	2019	2020
accidents (no.) <sup>(**)</sup>	25	16
total days of absence <sup>(***)</sup>	593	238
hours worked <sup>(****)</sup>	957,478	1,015,197
<b>frequency index (FI) (number of accidents per 1,000,000/working hours)</b>	<b>26.11</b>	<b>15.76</b>
<b>severity index (SI) (days of absence per 1,000/working hours)</b>	<b>0.62</b>	<b>0.23</b>

(\*) The 2019 figures have been restated after final calculations. The 2020 figures are estimated.

(\*\*) Accidents with effects lasting for more than one day are considered.

(\*\*\*) The value also excludes days of absence related to persistent or reopened injuries from previous years.

(\*\*\*\*) This is the sum of ordinary and overtime hours.

## TRAINING (2019-2020) <sup>(\*)</sup>

course type, hours provided and costs

course type	courses (no.)		training (hours)		costs (€)	
	2019	2020	2019	2020	2019	2020
advanced training <sup>(**)</sup>	4	5	372	78	5,428	5,782
IT	1	3	26	37	1,357	3,469
technical-specialised	46	43	8,244	3,061	64,243	49,726
managerial	17	8	1,431	1,281	23,069	9,251
administrative-managerial	36	41	1,203	1,198	48,853	47,413
safety	53	43	5,177	2,679	71,922	49,726
<b>total</b>	<b>157</b>	<b>143</b>	<b>16,453</b>	<b>8,334</b>	<b>213,053</b>	<b>165,368</b>

employees trained						
(no.)	2019			2020		
	men	women	total	men	women	total
	436	152	588	362	137	499

breakdown of training hours by qualification						
executives	131	5	136	67	36	103
managers	504	187	691	248	158	406
clerical workers	3,914	1,742	5,656	1,734	1,610	3,343
workers	9,938	32	9,970	4,460	21	4,481

(\*) The figures for 2019 have been restated after the final calculations.

(\*\*) The advanced training courses provided to employees are managed by Acea SpA, which bears the costs.

## ENVIRONMENTAL ACCOUNTS

PRODUCTS AND ANALYTICAL TESTS	units	2018	2019 <sup>(*)</sup>	2020	Δ% 2020/2019
WATER BALANCE					
<b>drinking water from the environment</b>	<b>Mm<sup>3</sup></b>	<b>163.6</b>	<b>157.7</b>	<b>148.7</b>	<b>-5.7</b>
<i>from the surface</i>	<i>Mm<sup>3</sup></i>	<i>105.2</i>	<i>101.2</i>	<i>95.4</i>	<i>-5.7</i>
<i>from wells</i>	<i>Mm<sup>3</sup></i>	<i>46.5</i>	<i>44.4</i>	<i>41.9</i>	<i>-5.6</i>
<i>from springs</i>	<i>Mm<sup>3</sup></i>	<i>11.4</i>	<i>11.4</i>	<i>10.7</i>	<i>-6.1</i>
<i>of which water from other aqueduct systems</i>	<i>Mm<sup>3</sup></i>	<i>0.5</i>	<i>0.7</i>	<i>0.7</i>	<i>-</i>
<b>total drinking water leaving the aqueduct system (e) = (a+b+c+d)</b>	<b>Mm<sup>3</sup></b>	<b>87.6</b>	<b>88.2</b>	<b>84.5</b>	<b>-4.2</b>
<b>total drinking water dispensed and billed in the network (a)</b>	<b>Mm<sup>3</sup></b>	<b>79.3</b>	<b>79.6</b>	<b>76.6</b>	<b>-3.8</b>
<i>measured volume of water delivered to users</i>	<i>Mm<sup>3</sup></i>	<i>79.3</i>	<i>79.6</i>	<i>76.6</i>	<i>-3.8</i>
<i>volume consumed by users and not measured</i>	<i>Mm<sup>3</sup></i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>
<b>total drinking water authorised and not billed in the network (b)</b>	<b>Mm<sup>3</sup></b>	<b>0.4</b>	<b>0.4</b>	<b>0.4</b>	<b>-</b>
<i>measured unbilled authorised consumption</i>	<i>Mm<sup>3</sup></i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>
<i>unmeasured unbilled authorised consumption</i>	<i>Mm<sup>3</sup></i>	<i>0.4</i>	<i>0.4</i>	<i>0.4</i>	<i>-</i>
<b>drinking water exported (sub-distributors) (c)</b>	<b>Mm<sup>3</sup></b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>	<b>16.7</b>
<b>measured process losses (d)</b>	<b>Mm<sup>3</sup></b>	<b>7.3</b>	<b>7.6</b>	<b>6.8</b>	<b>-10.5</b>
LOSS ASSESSMENT ACCORDING TO ARERA RESOLUTION 917/17 R/IDR					
water leaks <sup>(**)</sup>	Mm <sup>3</sup>	75.9	69.5	64.2	-7.6
water loss percentages	%	46.4	44.1	43.2	-2.0
TREATED WASTEWATER					
<b>water treated in the main treatment plants</b>	<b>Mm<sup>3</sup></b>	<b>112.9</b>	<b>105.1</b>	<b>97.4</b>	<b>-7.3</b>
ANALYTICAL TESTS ON DRINKING WATER AND WASTEWATER					
<b>no. analytical tests on drinking water</b>	<b>no.</b>	<b>249,948</b>	<b>261,251</b>	<b>288,298</b>	<b>10.4</b>
<i>of which no. analytical tests on surface water <sup>(***)</sup></i>	<i>no.</i>	<i>23,309</i>	<i>24,497</i>	<i>26,665</i>	<i>8.9</i>
<b>no. analytical tests on wastewater</b>	<b>no.</b>	<b>35,668</b>	<b>40,127</b>	<b>38,293</b>	<b>-4.6</b>

(\*) The figures for 2019 have been restated after the final calculations.

(\*\*) The value of the water losses coincides with the "total lost volume (WLtot)" and includes the unmeasured treatment losses, the supply losses and the total distribution water losses.

(\*\*\*) Analysis of crude surface water (untreated).

RESOURCES USED	units	2018	2019	2020	Δ% 2020/2019
COLLECTION, SUPPLY AND DISTRIBUTION OF DRINKING AND NON-DRINKING WATER					
<b>materials</b>					
sodium hypochlorite	t	1,354	1,384	1,117	-19.3
sodium chloride	t	276	351	347	-1.1
hydrochloric acid	t	312	378	403	6.6
flocculant	t	4,611	5,818	5,055	-13.1
purate	t	407	353	349	-1.1
sulphuric acid	t	682	565	523	-7.4
oxygen	t	70	37	90	143.2
acetic acid	t	104	126	113	-10.3
carbon dioxide excluding drinking fountains	t	682	804	634	-21.1
ferrous chloride	t	37	30	45	50.0
phosphoric acid	t	18	16	13	-18.8
WASTEWATER TREATMENT					
<b>materials</b>					
polyelectrolyte emulsion	t	288	378	289	-23.5
sodium hypochlorite	t	30	70	61	-12.9
peracetic acid, caustic soda, polyamine/anti-foaming agent	t	11	15	13	-13.3
polyaluminium chloride (PAC)	t	4,080	4,354	4,382	0.6
lime	t	387	530	527	-0.6
acetic acid 80%	t	214	524	712	35.9
OTHER CONSUMPTION					
drinking water (*)	m <sup>3</sup>	n/a	n/a	182775	-

(\*) The 2020 figure has been estimated.

ENERGY CONSUMPTION	u.m.	2018	2019	2020	Δ% 2020/2019
FUELS					
<b>process fuels – wastewater</b>					
methane	Sm <sup>3</sup>	60,307	64,541 (*)	84,214	30.5
biogas produced	m <sup>3</sup>	661663	668,720	609,120	-8.9
<b>heating fuels</b>					
methane	Sm <sup>3</sup>	30,710	51,059	60,429	18.4
gas oil	l	4,000	4,600	4,500	-2.2
lpg	l	2,800	1,960	0	-100
<b>vehicle fuels</b>					
diesel	l	36,5047	353,462	349,724	-1.1
petrol	l	23,817	16,404	26,913	64.1
ELECTRICITY					
<b>total electricity for drinking water</b>	<b>GWh</b>	<b>78.2</b>	<b>76.9</b>	<b>72.6</b>	-5.6
<i>electricity for water pumping stations</i>	GWh	76.8	75.4	71.1	-5.7
<i>electricity for offices</i>	GWh	1.4	1.5	1.5	-
<b>total electricity for wastewater</b>	<b>GWh</b>	<b>37.4</b>	<b>36.4</b>	<b>34.6</b>	-4.7
<i>electricity for treatment</i>	GWh	32.7	32.5	30.5	-6.2
<i>electricity for pumping stations</i>	GWh	4.6	3.8	4.0	5.3
<i>electricity for offices</i>	GWh	0.1	0.1	0.1	-

(\*) The figure has been restated after final calculations, and varies from the figure published last year.

In 2020, the main reductions in energy are connected to works on the water networks aimed at reducing water leaks.

#### ENERGY EFFICIENCY (2018-2020)

action	energy savings achieved (kWh)		
	2018	2019	2020
Anconella drinking water conversion plant – check valve	130,000	-	-
San Giovanni V water treatment system – revamping of pump delivery pipes	30,000	-	-
network efficiency improvement	300,000	1,350,000	3,170,000
Osmannoro plant – new process blower	-	60,000	-
Villamagna 90 office – LED relamping		6,100	10,700

WASTE	u.m.	2018	2019	2020	Δ% 2020/2019
SPECIFIC WASTE FROM TREATMENT OF WASTEWATER					
treatment sludge	t	29,340	30,145	28,760	-4.6
sand and sediment from treatment	t	793	1,274 (*)	1,328	4.2
WASTE PURSUANT TO ITALIAN LEGISLATIVE DECREE NO. 152/06 EXCLUDING SLUDGE AND SAND					
hazardous waste	t	42	54.4 (*)	32.6	-40.1
non-hazardous waste	t	11,136	8,356	12,054	44.3

(\*) The figure has been restated after final calculations, and varies from the figure published last year.

#### TOTAL COD IN INPUT AND OUTPUT – SAN COLOMBANO TREATMENT PLANT (2018-2020)

(t/year)	2018	2019	2020
COD <sub>in</sub>	17,031	17,463	14,536
COD <sub>out</sub>	2,011	1,403	1,321

#### OUTPUT PARAMETERS – SAN COLOMBANO TREATMENT PLANT (2018-2020) (\*)

parameter	average values (mg/l) 2018	average values (mg/l) 2019	average values (mg/l) 2020
BOD <sub>5</sub>	2.4	1.5	2.2
COD	16.8	12.8	13.8
SST	8.4	4.1	4.8
NH <sub>4</sub> <sup>+</sup>	0.8	0.6	0.5
phosphorus	0.8	0.8	0.8

(\*) It should be noted that the San Colombano wastewater treatment plant (with a capacity of 600,000 population equivalent) treats about half of Publiacqua's global wastewater.

#### OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS (2018-2020) (\*)

parameter	average values (mg/l) 2018	average values (mg/l) 2019	average values (mg/l) 2020
BOD <sub>5</sub>	3.0	2.6	2.2
COD	21.0	18.2	14.3
SST	11.0	6.3	4.9
NH <sub>4</sub> <sup>+</sup>	2.5	2.9	0.7
phosphorus	1.6	1.6	0.9

(\*) The figures include 38 treatment plants, including San Colombano, which treat a total of 98% of wastewater and 96% of the organic load (COD) of Publiacqua.

#### PURIFICATION EFFICIENCY OF THE MAIN TREATMENT PLANTS (2018-2020)

parameter	average values (%) 2018	average values (%) 2019	average values (%) 2020
$100 \times (\text{COD}_{in} - \text{COD}_{out}) / \text{COD}_{in}$	86.1	91.2	89.4
$100 \times (\text{SST}_{in} - \text{SST}_{out}) / \text{SST}_{in}$	88.4	94.8	95.1
$100 \times (\text{NH}_4^+_{in} - \text{NH}_4^+_{out}) / \text{NH}_4^+_{in}$	96.1	98.0	97.9
$100 \times (\text{PO}_4^{3-}_{in} - \text{PO}_4^{3-}_{out}) / \text{PO}_4^{3-}_{in}$	68.3	74.8	74.0

## PURIFICATION EFFICIENCY OF THE 38 MAIN TREATMENT PLANTS (2018-2020)<sup>(\*)</sup>

parameter	average values (%) 2018	average values (%) 2019	average values (%) 2020
$100 \times (\text{COD}_{in} - \text{COD}_{out}) / \text{COD}_{in}$	93.3	92.0	90.9
$100 \times (\text{SST}_{in} - \text{SST}_{out}) / \text{SST}_{in}$	91.8	95.6	96.1
$100 \times (\text{NH}_4^+_{in} - \text{NH}_4^+_{out}) / \text{NH}_4^+_{in}$	91.9	96.7	97.4
$100 \times (\text{PO}_4^{3-}_{in} - \text{PO}_4^{3-}_{out}) / \text{PO}_4^{3-}_{in}$	60.6	72.0	73.3

(\*) The figures include 38 treatment plants, including San Colombano, which treat a total of 98% of wastewater and 96% of the organic load (COD) of Publiacqua.

## ACQUE

Acque SpA manages the Integrated Water Service in the area of Optimal Territorial Conference 2 Lower Valdarno on the basis of the concession agreement issued by the Autorità Idrica Toscana (AIT), consisting of 53 Municipalities in the provinces of Pisa, Lucca, Florence, Pistoia and Siena, with a total population of approximately 739,000 user accounts served.

## MANAGEMENT SYSTEMS

Acque has implemented an **Integrated Management System** certified according to a scheme based on **quality, environment, safety, energy and social responsibility, road safety and the prevention of corruption**. In addition to this is the certification of testing laboratories, pursuant to standard **UNI CEI EN ISO/IEC 17025:2005**, and **EMAS IV registration** of the Pagnana treatment plant in Empoli (Florence).

## QUALITY DELIVERED: MAIN INTERVENTIONS ON THE NETWORKS AND CONTROLS ON DRINKING WATER AND WASTEWATER

### SIZE OF NETWORK, MAIN WORKS, METERS AND CHECKS ON DRINKING WATER AND NETWORKS (2020)

size of drinking-water network – data in GIS	6,004 (815 km of supply network, 5,186 km of distribution)
<b>type of work</b>	
interventions due to network failure/leak detection	21,617 interventions (20,892 due to faults, 725 leak detection)
meter installations (new installation and replacement)	69,715 interventions (5,503 new installations and 64,212 replacements) and 61,620 mass replacements under contract
network extension	0.5 km of expanded network
network reclamation	63 km of reclaimed network
drinking water quality control	11,721 samples collected and 357,585 tests performed

### SIZE OF NETWORK, WORKS AND CHECKS ON SEWERAGE WATER AND NETWORKS (2020)

size of sewerage network – data in GIS	3,083 km
<b>type of work</b>	
interventions due to network failure	4,729 interventions
planned interventions	2,367 interventions
network extension	0.8 km of expanded network
network reclamation	4.8 km of reclaimed network
quality control on wastewater for sewerage networks	8,132 samples collected and 122,766 tests performed

## HUMAN RESOURCES IN FIGURES

### GENERAL DATA ON PERSONNEL (2019-2020)

(no.)	2019			2020		
	men	women	total	men	women	total
<b>composition of the staff</b>						
executives	3	2	5	2	2	4
managers	6	4	10	6	4	10
clerical workers	93	153	246	96	158	254
workers	150	0	150	149	0	149
<b>total</b>	<b>252</b>	<b>159</b>	<b>411</b>	<b>253</b>	<b>164</b>	<b>417</b>
<b>contract type</b>						
staff with permanent contract	240	157	397	247	161	408
(of which) part-time staff	3	30	33	2	29	31
permanent staff	12	2	14	6	3	9
<b>total</b>	<b>252</b>	<b>159</b>	<b>411</b>	<b>253</b>	<b>164</b>	<b>417</b>

## GENERAL DATA ON PERSONNEL (2019-2020) (cont.)

changes						
incoming staff	20	10	30	10	5	15
outgoing staff	14	8	22	9	0	9
turnover rate (%)	13.5	11.3	12.7	7.5	3.0	5.8
incoming rate (%)	7.9	6.3	7.3	4.0	3.0	3.6
outgoing rate (%)	5.6	5.0	5.4	3.6	-	2.2

## INDUSTRIAL ACCIDENTS AND FREQUENCY AND SEVERITY INDICES (2019-2020)

	2019	2020
accidents (no.)	5	3
total days of absence	108	62
hours worked (*)	670,717	667,740
frequency index (FI) (number of accidents per 1,000,000/working hours)**	7.45	4.49
severity index (SI) (days of absence per 1,000/working hours)**	0.16	0.09

(\*) The value also excludes days of absence related to persistent or reopened injuries from previous years.

(\*\*) The 2019 figure has been restated after final calculations, and varies from the figure published last year.

## TRAINING (2019-2020)\*\*

### course type, hours provided and costs

course type	courses (no.)		training (hours)		costs (€)	
	2019	2020	2019	2020	2019**	2020
IT	7	4	265	282	n/a	4,302
new hires	1	0	88	0	n/a	0
technical-specialised	43	29	1,855	674	n/a	11,115
managerial	1	2	180	80	n/a	2,020
safety	32	26	2,477	1,610	n/a	17,670
environment	3	1	351	48	n/a	0
cross-cutting	12	9	1,086	851	n/a	12,661
training pursuant to Legislative Decree 231/01	2	2	298	228	n/a	3,488
e-learning training	1	1	100	27	n/a	404
<b>total</b>	<b>102</b>	<b>74</b>	<b>6,700</b>	<b>3,800</b>	<b>42,085</b>	<b>51,660</b>

### employees trained (\*\*\*)

(no.)	2019			2020		
	men	women	total	men	women	total
	259	170	429	227	135	362

### breakdown of training hours by qualification

executives	75	23	98	18	10	28
managers	288	61	349	105	81	186
clerical workers	1,786	2,649	4,435	879	1,540	2,419
workers	1,818	0	1,818	1,167	0	1,167

(\*) The 2019 figures have been revised to include courses and hours issued by the Parent Company.

(\*\*) In 2019 there was no cost data available broken down by type of training.

(\*\*\*) The figures are higher than the number of employees as they include employees of other companies, posted workers and workers who provided services only for a few months of the year.

The **training**, performed primarily remotely due to the continuing epidemic, involved all Company personnel, with issue of a total of **3,832 hours** of training. **Occupational safety** training remains at the top for hours of training.

## ENVIRONMENTAL ACCOUNTS

### PRODUCTS AND ANALYTICAL TESTS (\*)

	units	2018	2019	2020	Δ% 2020/2019
WATER BALANCE					
<b>drinking water from the environment</b>	<b>Mm<sup>3</sup></b>	<b>78.44</b>	<b>76.93</b>	<b>74.64</b>	<b>-3.0</b>
from the surface	Mm <sup>3</sup>	2.99	3.24	3.49	7.7
from wells	Mm <sup>3</sup>	60.03	59.84	56.84	-5.0
from springs	Mm <sup>3</sup>	7.21	5.86	6.52	11.3
of which water from other aqueduct systems	Mm <sup>3</sup>	8.21	7.99	7.79	-2.5
<b>total drinking water leaving the aqueduct system (e) = (a+b+c+d)</b>	<b>Mm<sup>3</sup></b>	<b>45.85</b>	<b>46.45</b>	<b>45.68</b>	<b>-1.7</b>

<b>total drinking water dispensed and billed in the network (a)</b>	<b>Mm<sup>3</sup></b>	<b>43.97</b>	<b>43.97</b>	<b>43.15</b>	<b>-1.9</b>
<i>measured volume of water delivered to users</i>	<i>Mm<sup>3</sup></i>	<i>43.97</i>	<i>43.97</i>	<i>43.15</i>	<i>-1.9</i>
<i>volume consumed by users and not measured</i>	<i>Mm<sup>3</sup></i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-</i>
<b>total drinking water authorised and not billed in the network (b)</b>	<b>Mm<sup>3</sup></b>	<b>0.22</b>	<b>0.22</b>	<b>0.30</b>	<b>31.8</b>
<i>measured unbilled authorised consumption</i>	<i>Mm<sup>3</sup></i>	<i>0.07</i>	<i>0.07</i>	<i>0.08</i>	<i>14.3</i>
<i>unmeasured unbilled authorised consumption</i>	<i>Mm<sup>3</sup></i>	<i>0.15</i>	<i>0.15</i>	<i>0.22</i>	<i>45.3</i>
<b>drinking water exported to other systems (c)</b>	<b>Mm<sup>3</sup></b>	<b>0.86</b>	<b>1.04</b>	<b>1.01</b>	<b>-2.9</b>
<b>measured process losses (d)</b>	<b>Mm<sup>3</sup></b>	<b>0.80</b>	<b>1.22</b>	<b>1.22</b>	<b>-</b>

#### LOSS ASSESSMENT ACCORDING TO ARERA RESOLUTION 917/17 R/IDR

water leaks	Mm <sup>3</sup>	32.59	30.48	28.96	-5.0
water loss percentages	%	41.5	39.6	38.8	-2.1

#### TREATED WASTEWATER

<b>water treated in the main treatment plants</b>	<b>Mm<sup>3</sup></b>	<b>47.3</b>	<b>46.7</b>	<b>46.42</b>	<b>-0.7</b>
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#### ANALYTICAL TESTS ON DRINKING WATER AND WASTEWATER

<b>no. analytical tests on drinking water (including analytical tests on surface water)</b>	<b>no.</b>	<b>285,174</b>	<b>329,752</b>	<b>357,585</b>	<b>8.4</b>
<b>no. analytical tests on wastewater</b>	<b>no.</b>	<b>116,636</b>	<b>128,459</b>	<b>122,766</b>	<b>-4.4</b>

(\*) The figures for 2019 have been restated following consolidation and differ from those previously published. The 2020 figures are estimated.

#### RESOURCES USED

##### COLLECTION, SUPPLY AND DISTRIBUTION OF DRINKING AND NON-DRINKING WATER

	units	2018	2019	2020	Δ% 2020/2019
<b>materials</b>					
laboratory reagents (chemical section and microbiological section)	t	2.51	2.03	2.31	13.8
sodium hypochlorite	t	187.92	208.82	180.13	-13.7
hydrochloric acid	t	383.53	351.09	477.99	36.1
potassium permanganate	t	2.12	2.75	4.17	51.8
aluminium polychloride	t	30.60	181.73	208.59	14.8
DREWO 8155 PG powder	t	1.20	5.00	0	-
DREFLO 908 PG powder	t	0.12	3.98	0	-
salt in bags	t	0	7.20	1.00	-86.1
sodium chloride	t	384.68	354.34	366.69	3.5
caustic soda	t	0	0.55	2.37	331.8
citric acid	t	0.45	1.23	2.55	107.3
alifons L	t	0.10	0	0.13	-
aluminium polychlorosulphate	t	154.83	11.55	0	-

##### WASTEWATER TREATMENT

	units	2018	2019	2020	Δ% 2020/2019
<b>materials</b>					
polyelectrolyte emulsion	t	137.93	169.08	233.87	38.3
aluminium polychloride	t	15.70	12.00	19.50	62.5
ferric chloride for sludge dehydration	t	471.76	496.03	527.69	6.4
sodium hypochlorite for final disinfection	t	64.90	11.55	29.20	152.8
peracetic acid for disinfection	t	4.00	0	0	-
acetic acid	t	0	0.10	0	-100
sulphuric acid	t	0	1.25	0.99	-20.8
ferrous chloride	t	5.37	0	0	-
caustic soda (sodium hydroxide) – Solvay	t	0.38	1.15	2.02	75.7
biotek base L – biological reactivator	t	0	0.04	0.04	-
biotek clar – biological reactivator	t	0.25	0.25	0.25	-
desmell Bio L – odorogenic emissions treatment	t	0.10	0.08	0	-100
nutrients	t	514.85	545.50	1,122.15	105.7
other	t	0.01	0	0	-

OTHER CONSUMPTION					
<b>drinking water <sup>(*)</sup></b>	<b>m<sup>3</sup></b>	<b>225,342</b>	<b>257,132</b>	<b>237,751</b>	<b>-7.5</b>
<i>drinking water consumed for non-industrial water uses (offices, outside showers, etc.)</i>	m <sup>3</sup>	72,423	79,018	59,637	-24.5
<i>drinking water consumed for process water uses (washing machinery and bays, etc.)</i>	m <sup>3</sup>	152,919	178,114	178,114	-

(\*) The figures for 2018 and 2019 have been restated following consolidation and differ from those previously published. The 2020 figures are estimated.

In 2020, the Company reused approximately **430,000 m<sup>3</sup> of recovered water** for washing the sheets of sludge dehydration equipment (belt presses) and for the backwashing of the Pollino water plant filters in Porcari (Lucca).

ENERGY CONSUMPTION	u.m.	2018	2019	2020	Δ% 2020/2019
<b>FUELS</b>					
<b>process fuels – drinking water/non-drinking water</b>					
gas oil	l	1,200	1,300	1,500	15.4
<b>process fuels – wastewater</b>					
gas oil	l	0	1,100	0	-100
<b>heating fuels</b>					
methane	Sm <sup>3</sup>	56,357	56,244	50,743	-9.8
lpg	l	16,803	17,781	15,419	-13.3
<b>vehicle fuels</b>					
diesel	l	176,154	202,128	228,802	13.2
petrol	l	17,730	33,962	15,373	-54.7
methane	kg	81,450	52,084	23,884	-54.1
<b>ELECTRICITY</b>					
<b>total electricity for drinking water</b>	<b>GWh</b>	<b>53.36</b>	<b>53.80</b>	<b>51.09</b>	<b>-5.0</b>
<i>electricity for water pumping stations</i>	GWh	52.81	53.34	50.72	-4.9
<i>electricity for offices</i>	GWh	0.55	0.46	0.37	-19.6
<b>total electricity for wastewater</b>	<b>GWh</b>	<b>33.41</b>	<b>32.83</b>	<b>32.29</b>	<b>-1.7</b>
<i>electricity for treatment</i>	GWh	26.00	25.70	24.66	-4.0
<i>electricity for pumping stations</i>	GWh	7.07	6.85	7.40	8.0
<i>electricity for offices</i>	GWh	0.34	0.28	0.23	-21.4

Acque has completed energy efficiency projects that have led to the energy savings shown in the table below.

#### ENERGY EFFICIENCY OF ACQUE (2018-2020)

action	energy savings achieved (kWh)		
	2018	2019	2020
changes to operating logic – Le Lame and Poggibonsi treatment plants	97,585	85,429	-
implementation and changes to operating logic of aeration system – S. Jacopo treatment plant	328,184	257,383	355,039

WASTE	u.m.	2018	2019	2020	Δ% 2020/2019
<b>SPECIFIC WASTE FROM TREATMENT OF WASTEWATER</b>					
treatment sludge	t	17,634.77	21,953.18	19,879.80	-9.4
sand and sediment from treatment	t	3,500.43	1,279.04	1,981.55	54.9
<b>WASTE PURSUANT TO ITALIAN LEGISLATIVE DECREE NO. 152/06 EXCLUDING SLUDGE AND SAND</b>					
hazardous waste	t	31.82	42.93	24.96	-41.9
non-hazardous waste	t	63,179.64	61,408.12	72,919.75	18.7

#### TOTAL COD IN INPUT AND OUTPUT (2018-2020)

(t/year)	2018	2019	2020
COD <sub>in</sub>	21,708	22,017	22,808
COD <sub>out</sub>	1,521	1,382	1,268

## OUTPUT PARAMETERS FOR THE MAIN TREATMENT PLANTS MANAGED BY ACQUE (2018-2020)<sup>(\*)</sup>

parameter	average values (mg/l) 2018	average values (mg/l) 2019	average values (mg/l) 2020
BOD <sub>5</sub>	6.2	6.3	5.5
COD	30.6	27.9	25.5
SST	7.4	7.0	5.0
NH <sub>4</sub> <sup>+</sup>	5.0	3.5	3.0
phosphorus	2.1	2.3	2.0

(\*) Installations with a treatment capacity greater than or equal to 10,000 population equivalent are considered.

## TREATMENT EFFICIENCY OF THE MAIN TREATMENT PLANTS MANAGED BY ACQUE (2018-2020)<sup>(\*)</sup>

parameter	average values (%) 2018	average values (%) 2019	average values (%) 2020
$100 \times (\text{COD}_{\text{in}} - \text{COD}_{\text{out}}) / \text{COD}_{\text{in}}$	93.5	93.7	95.0
$100 \times (\text{SST}_{\text{in}} - \text{SST}_{\text{out}}) / \text{SST}_{\text{in}}$	97.5	95.7	97.8
$100 \times (\text{NH}_{4\text{ in}}^{+} - \text{NH}_{4\text{ out}}^{+}) / \text{NH}_{4\text{ in}}^{+}$	87.2	90.6	92.7
$100 \times (\text{PO}_{4\text{ in}}^{-3} - \text{PO}_{4\text{ out}}^{-3}) / \text{PO}_{4\text{ in}}^{-3}$	73.0	68.8	73.0

(\*) Installations with a treatment capacity greater than or equal to 10,000 population equivalent are considered.

## OVERSEAS ACTIVITIES

Acea works abroad in the water sector<sup>137</sup> to improve the service, especially as regards **technical and management aspects**, including through **staff training** and the **transfer of know-how** to local businesses. In particular, it is present in Peru, Honduras and the Dominican Republic through Companies created in **partnership with local and international** stakeholders, and serves a total of about 4.2 million people.

## AGUAS DE SAN PEDRO SA

Agua de San Pedro (ASP) is the holder of a 30-year contract for the management of the integrated water service in the city of San Pedro Sula in Honduras, and during the year it continued with the projects for the **expansion, treatment and improvement of the water service and sewerage network** in the city.

The Company has a **Quality Management System** certified according to the **UNI ISO 9001:2015** standard and the laboratories are accredited according to the **UNI ISO/IEC 17025:2005** standard.

## AGUAS DE SAN PEDRO (ASP) – MAIN COMPANY AND OPERATING DATA

country (area)	Honduras (San Pedro Sula)
inhabitants served	728,000
customer	municipal administration
sources of financing	equity capital and loans from commercial banks
duration of the contract	01.02.2001 – 01.02.2031
purpose of the project	concession of the integrated water service for the town of San Pedro de Sula
shareholders	Acea SpA 60.65%, Ireti SpA 39.35%
no. of employees	386
turnover (in € thousand)	33,276

In line with previous years, despite the difficulties deriving from the Covid-19 pandemic and passage of 2 destructive hurricanes in November, the Company continued activity to offer **technical assistance to rural communities** and implemented **initiatives for the protection of the environment**, in the context of the **programme for the conservation** of the El Merendón **natural reserve**, declared a protected area for the production of water in San Pedro Sula.

The initiatives include:

- the “Un millón de Árboles para el Merendón” **reforestation** project, planting approximately 82 thousand fruit and wood trees (about 910 thousand plants from the start of the project);
- fire prevention**. In this regard, in previous years, the Company has contributed with construction of **surveillance towers** and is active with campaigns for protection of the territory and involvement of the fire-prevention team. In 2020, the

team intervened to **put out 13 fires** in Merendón, which involved 18 hectares of forests and, thanks to the surveillance towers, they managed to prevent 227 fires from starting in the Rio Manchagua basin;

- training** on the management of **water systems and basic hydraulic principles** for members of the “Juntas de Agua” of 49 Merendón communities and the distribution of kits with tools;
- social and technical assistance** for the rural communities of Merendón, with organisation of workshops with 14 communities (for a total of 233 residents involved), in order to raise awareness of the importance of maintaining the quality of water resources from a hygiene and sanitation perspective.

Finally, 6 meetings were organised with local communities to raise awareness around smart water usage.

<sup>137</sup> Overseas activities have a limited incidence from an economic and financial viewpoint, in terms of consolidation percentage, but a brief description of them is given here because of their social importance.

The **emergency situation** slowed certain activities, such as establishment of new connections and other maintenance works, but operating teams are still in the field guaranteeing service continuity. The Company **suspended service disconnection** for customers with unpaid bills, and payment periods were extended without interest expense and for customers without meters invoicing continued only of the administrative component for a value of just a few Lempiras (corresponding to a few Euro cents). From the start of the emergency, **biosecurity and personnel-protection measures** have been established by the Company, updated on the basis of the guidelines issued by the government and WHO protocols, including: preparation of the **biosecurity Protocol** that reviewed working methods and the use of Company tools to ensure social distancing and avoid contact, **provision of PPE** to limit the spread of the virus and specific **training** of personnel with

clear and simple messages on how to take care, in order to protect each other, in the workplace and in the family, and the role of water during the pandemic to guarantee hygiene procedures. Furthermore, a programme was implemented for performance of **rapid tests**, with a frequency of 14 days, for the detection and prompt handling of Covid-19 cases.

## CONSORCIO AGUA AZUL SA

The Agua Azul Consortium manages the processing and supply of drinking water to the local publicly owned water Company SEDAPAL (Lima Drinking Water and Sewerage Service - Peru). To this end, using the surface and underground waters of the Chillón river it built a water treatment plant capable of satisfying the drinking water needs of the **northern areas of Lima**, which it will manage until 2027, when it will be transferred to the State.

### CONSORCIO AGUA AZUL SA – MAIN CORPORATE AND OPERATIONAL DATA

country (area)	Peru (north Lima – Cono Norte)
inhabitants served	815,000
customer	Sedapal (Drinking water and sewerage service in Lima, state owned)
sources of financing	equity capital and bonds issued on the Peruvian market
duration of the contract	07.04.2000 – 18.06.2027
purpose of the project	BOT (Build-Operate-Transfer) project for the construction and management of a drinking water supply system that draws on the water of the Chillón river and the underlying aquifer
shareholders	Acea SpA (44%), Marubeni Co. (29%), Inversiones Liquidas S.A.C (27%)
no. of employees	32
turnover (in € thousand)	12,974

The Consorcio has adopted an **Integrated Quality and Environment System** according to **UNI ISO 9001:2015** and **UNI ISO 14001:2015** aimed at optimising production processes and reducing the environmental impact through energy efficiency and the limited use of materials.

During the year, the **programme of health and safety in the workplace and first-aid training** continued, which for reasons connected to Covid-19 was not performed externally. Continuous training on the issue enabled **maintenance of the result of zero accidents at work** in 2020.

To contain the spread of coronavirus, the Company established biosecurity and personal-protection measures, limiting the number of personnel in the office and altering the shift patterns of operational teams, in addition to issuing **rapid antigen tests** and **molecular tests** for personnel. Unfortunately, also due to the pandemic that heavily affected the whole country, the Company had to interrupt consolidated activities with a **positive impact on the territory**, including courses organised with the Asociación de Pro-

ductores Ecológicos organisation of the Chillón valley, **on the use of fertilisers, crop treatment and maintenance of organic certification for farmed crops**, and the training courses at the Faculty of Engineering of the National University of Peru and curricular internships for students.

For the Christmas holidays, the **children of local schools and children of employees were delivered toys and Christmas packages**.

## CONSORCIO SERVICIO SUR

Consortio Servicio Sur is a special purpose vehicle led by Acea International in partnership with Peruvian partners, which manages the corrective maintenance contract for the water and sewerage system in the **area south of Lima** (Peru), for the publicly owned Peruvian water Company SEDAPAL. The contract, which began in August 2018, was implemented in the service area of Surquillo and involved all extraordinary maintenance works required for the maintenance of full functionality of the water and sewerage service, and of hygiene, sanitary and environmental conditions.

### CONSORCIO SERVICIO SUR – MAIN CORPORATE AND OPERATING DATA

country (area)	Peru (south Lima)
inhabitants served	1,121,886
customer	Sedapal (drinking water and sewerage service in Lima, state owned)
sources of financing	equity
duration of the contract	24.08.2018 – 24.08.2021
purpose of the project	preventive and corrective maintenance of the water and sewerage system in the area south of Lima
shareholders	Acea International (50%), Acea Ato 2 (1%), Conhydra (29%), Valjo (14%), India (6%)
no. of employees	166
turnover (in € thousand)	5,942

From the standpoint of the **sharing economy**, the Company allows employees to use **Company cars** for **commuting** and to share them with other employees.

Regarding **health and safety**, in order to contain the spread of coronavirus, the Company launched a **“Covid Plan”**, which included measures to limit infections amongst employees, including working from home and performance of **regular testing**.

## CONSORCIO ACEA

Consortio Acea, a special-purpose vehicle led by Acea Perù, at the end of 2020 won a contract put to tender by the public operator of the drinking water and sewerage service of Lima (Peru) SEDAPAL, for the management and control of 253 pumping stations for drinking water serving the areas of Ate, Breña and San Juan de Lurigancho, for a total of 3 million citizens served.

### CONSORCIO ACEA – MAIN CORPORATE AND OPERATING DATA

country (area)	Peru (Lima, central zone)
inhabitants served	3,000,000
customer	Sedapal (drinking water and sewerage service in Lima, state owned)
sources of financing	equity
duration of the contract	5.12.2020 – 5.12.2023
purpose of the project	management and control of pumping stations for drinking water in the central zone of Lima
shareholders	Acea Perù S.A.C (99%), Acea Ato 2 (1%)
no. of employees	920
turnover (in € thousand)	566

## 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 in-

stallation of new meters (17,000 installed in 2020), maintenance of existing meters and directing the works for new connections.

The Company implemented a **Quality Management System** certified according to the **UNI ISO 9001:2015** standard, which covers all activities performed.

### ACEA DOMINICANA SA – MAIN CORPORATE AND OPERATING DATA

country (area)	Dominican Republic (north and east Santo Domingo)
inhabitants served	1,500,000
customers	Corporación del Acueducto y Alcantarillado de Santo Domingo (CAASD) and Corporación de Acueducto y Alcantarillado de Boca Chica (CORAABO)
duration of the contract	01.10.2003 – 30.09.2023
purpose of the project	commercial management of the water service
shareholders	Acea SpA (100%)
no. of employees	147
turnover (in € thousand)	3,468

Due to the Covid-19 pandemic, educational campaigns were suspended aimed at students of schools in the capital, issued in previous years to raise awareness on the correct use of water, along with campaigns on reforestation. The Company supported the **campaign for the clean-up and removal of waste in the**

**municipality of Boca Chica**, providing protective clothing and tools to the volunteers.

Regarding **health and safety**, in order to contain the spread of coronavirus, the Company adhered to regulations issued and implemented measures to protect its employees from infection.



# GRI CONTENT INDEX: REPORTING PRINCIPLES, UNIVERSAL STANDARDS AND MATERIAL TOPIC-SPECIFIC STANDARDS

The Sustainability Report has been prepared in accordance with the **2019 GRI standards: Comprehensive option**. The GRI Content Index includes the Universal Standards (series 100) and the Material Topic-Specific Standards (series 200, 300 and 400).

Specifically, the index contains:

- reference to the **reporting principles** (GRI 101: Foundation 2016 (Reporting Principles));
- definition of the **56 standards of the general disclosure** (GRI 102: General Disclosures 2016) and of the **26 material topics** amongst the **Specific Standards** (Series GRI 200: Economic, GRI 300: Environmental, and GRI 400: Social) and **relative indicators**, with indication of the sections and pages of the document, where it is possible to consult them, or responses to indicators, and reporting of any omissions or inapplicability of certain

indicators included in material topics. It is noted that, with reference to 2020, the 2018 edition of the material topic-specific standards “Water and Effluents” (GRI 303) and “Occupational Health and Safety” (GRI 403) were adopted, and consequently certain specific indicators regarding the standard GRI 306 “Effluents and Waste” (ed. 2016) have been superseded, updated and included in the new version of the standard GRI 303;

- the scope of each topic (amongst the Material Topic-Specific Standards), i.e. its significance within the organisation (Group or Company associated with specific businesses) or outside of it (e.g. supply chain, collective significance).

Finally, the right column of the Content Index indicates the main correspondences with topics covered by Italian Legislative Decree no. 254/2016.

## GRI CONTENT INDEX

GRI Standards	definition of GRI Standards, notes (responses or reports of omissions or inapplicability), sections and reference pages	Alignment with Italian Legislative Decree no. 254/2016
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### UNIVERSAL STANDARDS

#### GRI 101: FOUNDATION 2016 (REPORTING PRINCIPLES)

#### GRI 102: GENERAL DISCLOSURES 2016

##### ORGANIZATIONAL PROFILE

GRI 102: General Disclosures 2016	<b>102-1 Name of the organization.</b> Acea SpA <i>Corporate Identity</i> page 22.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model
	<b>102-2 Activities, brands, products, and services.</b> <i>Corporate identity</i> pages 22, 23, chart no. 2.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model
	<b>102-3 Location of headquarters.</b> Piazzale Ostiense 2, 00154 Rome, Italy	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model
	<b>102-4 Location of operations (number of countries where the organization operates and the names of countries where it has significant operations and/or that are relevant to the topics covered in the report).</b> <i>Corporate Identity</i> page 22.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model
	<b>102-5 Ownership and legal form.</b> <i>Corporate Identity</i> page 30.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model
	<b>102-6 Markets served (including: geographic locations, sectors served, types of customers and beneficiaries).</b> <i>Corporate Identity</i> pages 22, 30; <i>Relations with stakeholders</i> pages 78, 81 table no. 15, 98.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model
	<b>102-7 Scale of the organization (including: number of employees; net sales – for private sector organizations – or net revenues – for public sector organizations; total capitalization broken down in terms of debt and equity; quantity of products or services provided).</b> <i>Corporate Identity</i> pages 22 table no. 6, 30 table no. 7; <i>Relations with stakeholders</i> pages 142 table no. 38, 163.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model
	<b>102-8 Information on employees and other workers (total number of employees by employment type and gender, employment contract by region etc.; whether a significant portion of the organization’s activities are performed by workers who are not employees. If applicable, a description of the nature and scale of work performed).</b> <i>Relations with stakeholders</i> pages 139, 141, 142, 145 table no. 39.	<b>Art. 3 paragraph 2, letter d):</b> social aspects and aspects relating to staff management
	<b>102-9 Description of the organization’s supply chain.</b> <i>Corporate Identity</i> pages 24-27; <i>Relations with stakeholders</i> pages 133, 134.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model

<p><b>102-10 Significant changes to the organization's size, structure, ownership, or supply chain (including: changes in the location of, or changes in operations, including facility openings, closings, and expansions; changes in the share capital structure and other capital formation, maintenance, and alteration operations; changes in the location of suppliers, the structure of the supply chain, or relationships with suppliers etc.).</b></p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model</p>
<p><i>Corporate Identity page 30; Relations with stakeholders page 134.</i></p>	
<p><b>102-11 Precautionary Principle or approach (whether and how the organization applies the Precautionary Principle or approach).</b></p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model</p>
<p><i>Corporate Identity pages 61, 69, 70 table no. 12; Relations with stakeholders pages 152, 154, 171; Relations with the environment pages 191, 194, 206.</i></p>	
<p><b>102-12 External initiatives (a list of externally-developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes, or which it endorses).</b></p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model</p>
<p><i>Joining the United Nations Global Compact pages 18-19; Corporate Identity pages 31, 33, 35, 60, 70 table no. 12; Relations with stakeholders pages 133, 151, 168, 169, 170, 171; Relations with the environment pages 178 f., 183, 192, 194.</i></p>	
<p><b>102-13 Membership of associations (the reporting should include memberships maintained at the organizational level in associations or organizations in which it holds a position on the governance body, participates in projects or committees, provides substantive funding beyond routine membership dues, or views its membership as strategic).</b></p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model</p>
<p><i>Relations with stakeholders pages 125 f., 169; Relations with the environment pages 178 f.</i></p>	
<p><b>STRATEGY</b></p>	
<p><b>102-14 Statement from senior decision-maker (such as CEO, Chair, or equivalent senior position) about the relevance of sustainability to the organization and its strategy for addressing sustainability.</b></p>	<p><b>Art. 3 paragraph 7:</b> The responsibility to guarantee that the report is (...) compliant rests with the directors</p>
<p><i>Letter to the stakeholders pages 4-5; Corporate Identity pages 22-27, 31-35, 60; Relations with stakeholders pages 125, 127, 128, 170, 172; Relations with the environment page 178, 180.</i></p>	
<p><b>102-15 Description of key impacts, risks, and opportunities.</b></p>	<p><b>Art. 3 paragraph 1, letter c):</b> the main risks generated or suffered; <b>paragraph 2, letter c):</b> the impact (...) on the environment as well as on health and safety</p>
<p><i>Corporate Identity pages 22-27, 30, 31-35, 60 f., 63-64, 65, 66 table no. 10, 68 f.; Relations with stakeholders page 166, 167; Relations with the environment pages 179 f., 196.</i></p>	
<p><b>ETHICS AND INTEGRITY</b></p>	
<p><b>102-16 Description of the organization's values, principles, standards, and norms of behavior.</b></p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model</p>
<p><i>Corporate Identity pages 33, 35, 58, 64, 75; Relations with stakeholders page 131.</i></p>	
<p><b>102-17 Mechanisms for advice and concerns about ethics (description of internal and external mechanisms for seeking advice about ethical and lawful behavior, and organizational integrity; reporting concerns about unethical or unlawful behavior, and organizational integrity etc.).</b></p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model; <b>paragraph 2, letter e):</b> regarding human rights, the measures adopted to prevent breaches thereof and measures to avoid conduct and actions that are in any case discriminatory</p>
<p><i>Corporate Identity pages 58 chart no. 11, 64 f.</i></p>	
<p><b>GOVERNANCE</b></p>	
<p><b>102-18 Governance structure of the organization, including committees of the highest governance body. Committees responsible for decision-making on economic, environmental, and social topics.</b></p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model</p>
<p><i>Corporate Identity pages 58 and chart no. 11, 59 and table no. 8.</i></p>	
<p><b>102-19 Process for delegating authority for economic, environmental, and social topics from the highest governance body to senior executives and other employees.</b></p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model</p>
<p>The Board of Directors confers management powers to the Chief Executive Officer, who, in the context of the corporate macrostructure established by the same Board, confers powers and proxies to management, in accordance with the missions and responsibilities of the different structures. The standard practice for any type of assignment of powers (and therefore for economic, environmental and social areas) is based on analysis of the requirement/need for such assignment.</p>	

**102-20 Executive-level responsibility for economic, environmental, and social topics (whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental, and social topics; whether post holders report directly to the highest governance body).**

Within Acea, there are different operational structures managing the individual topics, including the Administration, Finance and Control department, for economic data, numerous environmental safeguards for the Operating Companies, and structures appointed to manage the main social topics, such as Human Resources, Procurement and Logistics, Customer Care, etc. Regarding ESG areas as a whole, from the perspective of sustainability, within the Parent Company there are two structures: the Investor Relations & Sustainability Department and the Stakeholder Engagement and Sustainability Unit, the latter within the Legal, Corporate Affairs and Corporate Services Department, both reporting to the Chief Executive Officer, which promote, coordinate and develop sustainability topics both at the level of the holding Company and subsidiaries, supporting an integrated Group perspective.

**Art. 3 paragraph 1 letter a):** the corporate management and organisation model

**102-21 Processes for consultation between stakeholders and the highest governance body on economic, environmental, and social topics. If consultation is delegated, describe to whom it is delegated and how the resulting feedback is provided to the highest governance body.**

During the year, management has been sent to participate in meetings of the governance bodies, contributing its specific information and knowledge during the meetings.

*Corporate Identity* pages 33, 58, 60; *Relations with stakeholders* page 163.

**Art. 3 paragraph 1 letter a):** the corporate management and organisation model

**102-22 Composition of the highest governance body and its committees (executive or non-executive, independence, gender, competencies relating to economic, environmental, and social topics etc.).**

*Corporate Identity* pages 58 and chart no. 11, 59 table no. 8.

**Art. 3 paragraph 1 letter a):** the corporate management and organisation model

**102-23 Chair of the highest governance body (the organization shall report whether the Chair is also an executive officer in the organization, his or her function within the organization's management and the reasons for this arrangement).**

*Corporate Identity* page 58, 59 table no. 8.

**Art. 3 paragraph 1 letter a):** the corporate management and organisation model

**102-24 Nomination and selection processes for the highest governance body and its committees (criteria used for nominating and selecting highest governance body members, including whether and how diversity, independence, expertise and experience relating to economic, environmental, and social topics are considered, stakeholders, including shareholders, are involved).**

In the composition of corporate bodies, Acea ensures balanced representation of genders, as set out in Law no. 120/2011, adopted in its own By-laws, as well as guaranteeing the presence of Independent Directors, governed by the same By-laws and current regulations. Gender diversity of the Governance Body and the Committees is an important element, in tempering "single-mindedness" as well as for the different ways in which men and women exercise their leadership.

Selection processes involve shareholders who, in accordance with the recommendations of the Governance Code, are guided in the choice of candidates to propose in the lists by the guidelines provided by the Board of Directors of Acea, having received the opinion of the Appointments Committee and taking into account the results of self-assessment, on the size and composition of the administrative body.

*Corporate Identity* page 58.

**Art. 3 paragraph 1 letter a):** the corporate management and organisation model

**102-25 Processes for the highest governance body to ensure conflicts of interest are avoided and managed.**

The risk of conflicts of interest in Acea is monitored employing corporate governance systems and procedures (Management, Organisation and Control Model, *Code of Ethics*, Procedure for Related-Party Transactions, and Independent Directors). These tools act in different contexts where conflicts of interest could arise: in relations between controlling shareholders and minority shareholders, between Acea and Related Parties, and between Acea and the Public Administration.

*Corporate Identity* pages 58 f.

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

**102-26 Highest governance body's and senior executives' roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental, and social topics.**

*Disclosing sustainability: Methodological Note* page 11; *Corporate Identity* pages 33, 35, 58 f., 69.

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

**102-27 Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental, and social topics.**

*Disclosing sustainability: Methodological Note* page 11; *Corporate Identity* pages 33, 58 and chart no. 11, 59.

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

<p><b>102-28 Processes for evaluating the highest governance body’s performance with respect to governance of economic, environmental, and social topics.</b>                  Non-executive Directors receive a fixed fee, set by the Shareholders’ Meeting on the basis of the commitment requested of them.  <i>Corporate Identity</i> pages 58 and chart no. 11, 59, 70; <i>Relations with stakeholders</i> page 160.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>
<p><b>102-29 Highest governance body’s role in identifying and managing economic, environmental, and social topics and their impacts, risks, and opportunities – including its role in the implementation of due diligence processes.</b>  <i>Disclosing sustainability: Methodological Note</i> page 11; <i>Corporate Identity</i> pages 35, 36-57, 58 ff., 61, 69.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>
<p><b>102-30 Highest governance body’s role in reviewing the effectiveness of the organization’s risk management processes for economic, environmental, and social topics.</b>  <i>Disclosing sustainability: Methodological Note</i> page 11; <i>Corporate Identity</i> pages 36-57, 58 and chart no. 11, 59 f., 61.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>
<p><b>102-31 Frequency of the highest governance body’s review of economic, environmental, and social topics and their impacts, risks, and opportunities.</b>  <i>Disclosing sustainability: Methodological Note</i> page 11; <i>Corporate Identity</i> pages 35, 36-57, 58 and chart no. 11.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>
<p><b>102-32 The highest committee or position that formally reviews and approves the organization’s sustainability report and ensures that all material topics are covered.</b>  <i>Disclosing sustainability: Methodological Note</i> page 11; <i>Corporate Identity</i> page 59.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>
<p><b>102-33 Process for communicating critical concerns to the highest governance body.</b>                  The Board of Directors (BoD) receives constant information on potentially critical situations, primarily through the work performed by the Control and Risks Committee, to which the Internal Audit Function manager periodically reports, which interacts with the Board of Directors. The activities performed and results of activity of the Supervisory Body (pursuant to Italian Legislative Decree no. 231/01), which may identify the risk of liability for the Company, are subject to information flows to the BoD. The Chief Executive Officer, also in his role as Director in Charge of the Internal Control and Risk Management System, provides constant updates to the Board on developments in management and the existence of any potentially critical situations.  <i>Corporate Identity</i> pages 59 f., 64 f., 66 table no. 10, 70.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>
<p><b>102-34 Nature and total number of critical concerns that were communicated to the highest governance body; mechanism(s) used to address and resolve critical concerns.</b>  <i>Corporate Identity</i> pages 64 f., 66 and table no. 10, 70.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>
<p><b>102-35 Remuneration policies for the highest governance body and senior executives (fixed pay and variable pay, sign-on bonuses or recruitment incentive payments, termination payments, etc.). How performance criteria in the remuneration policies relate to the highest governance body’s and senior executives’ objectives for economic, environmental, and social topics.</b>                  It is noted that within Acea, for the Top Management, Executives Holding Key Positions and for managerial roles with greater impact on Group business, the clawback clause applies, establishing the right to request return of the variable components of remuneration, both short-term and medium/long-term, in the event that these components have been paid on the basis of conduct of a malicious nature and/or due to serious misconduct. There are no agreements that set out fixed indemnities or clauses aimed at safeguarding the management of the Group in the event of termination of their employment, and reference should be made to the provisions established by the Collective Labour Agreement (CCNL) for Executives of Public Utility Service Companies in this regard. The LTIP – Long Term Incentive Plan currently in force, is linked solely to targets of an economic/financial nature. The parameters of the new plan have already been evaluated, which will begin in 2021, with inclusion of a composite sustainability goal. The short-term annual (MBO) incentive system is linked, as well as to targets of an economic/financial nature, also to environmental targets and those with an impact on sustainability, also through a composite sustainability indicator.  <i>Corporate Identity</i> pages 58 and chart no. 11, 60; <i>Relations with stakeholders</i> page 160.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>
<p><b>102-36 Process for determining remuneration; whether remuneration consultants are involved in determining remuneration and whether they are independent of management.</b>                  In 2020, no external consulting Companies were involved in processes for the determination of remuneration.  <i>Corporate Identity</i> pages 58, 60.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model</p>

**102-37 Stakeholders' involvement in remuneration.**  
*Corporate Identity* page 60.

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

**102-38 Ratio of the annual total compensation for the organization's highest-paid individual in each country of significant operations to the median annual total compensation for all employees (excluding the highest-paid individual) in the same country.**

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

The relationship between the highest role and the median employee for 2020 is given by the remuneration multiple of 15.65, compared with a median value of 19.78 for peer companies. See also the *2020 Remuneration Report*, available on the Acea Group website ([www.gruppo.acea.it](http://www.gruppo.acea.it)).  
*Corporate identity* page 60.

**102-39 Ratio of the percentage increase in annual total compensation for the organization's highest-paid individual in each country of significant operations to the median percentage increase in annual total compensation for all employees (excluding the highest-paid individual) in the same country.**

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

Average gross annual remuneration of the highest role, calculated on the basis of full-time employees, unlike other top roles, saw a stable trend, with a slight increase of approximately 1% between 2019 and 2020.

**STAKEHOLDER ENGAGEMENT**

**102-40 List of stakeholder groups engaged by the organization.**

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

*Disclosing sustainability: Methodological Note* pages 11-12; *Corporate Identity* page 71; *Relations with stakeholders* pages 82-89, 91, 93, 99, 102, 104, 105, 112, 116 f., 119, 123, 124, 125, 126 f., 132, 137 ff., 141, 149, 151, 152, 154, 159, 164, 165, 168, 170, 171; *Relations with the environment* page 179.

**102-41 Percentage of total employees covered by collective bargaining agreements.**

**Art. 3 paragraph 2, letter d):** social aspects and aspects relating to staff management

*Relations with stakeholders* page 149.

**102-42 Basis for identifying and selecting stakeholders with whom to engage.**

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

*Disclosing sustainability: Methodological Note* pages 11-12; *Corporate Identity* pages 31, 71; *Relations with stakeholders* pages 82-89, 93, 105, 112, 116 f., 119, 123, 124, 125, 126 f., 132, 137 ff., 141, 149, 151, 152, 154, 157, 159, 164, 165, 168, 170, 171.

**102-43 Approach to stakeholder engagement (including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process).**

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

*Disclosing sustainability: Methodological Note* pages 11-12; *Corporate Identity* pages 31-32, 35, 60, 71; *Relations with stakeholders* pages 82-89, 91, 93, 99, 104, 105, 112, 116 f., 119, 123, 124, 125, 126 f., 132, 137 ff., 141, 149, 151, 152, 154, 155, 157, 159, 160, 161 f., 164, 165, 168, 170, 171 f.; *Relations with the environment* pages 178 f., 192, 194, 203.

**102-44 Key topics and concerns that have been raised through stakeholder engagement (including how the organization has responded to those key topics and concerns, including through its reporting, and the stakeholder groups, etc.).**

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

*Disclosing sustainability: Methodological Note* pages 11-12; *Corporate Identity* pages 24-27, 31-32, 35, 63-64, 71; *Relations with stakeholders* pages 82-89 and tables 16 and 17, 93, 105, 112, 113, 116 f., 119, 125, 127, 132, 137 ff., 141, 149, 150, 151, 152, 154, 159, 166, 168, 170, 171 f.; *Relations with the environment* pages 178, 183, 192, 194.

**REPORTING PRACTICE**

**102-45 List of all entities included in the organization's Consolidated Financial Statements. Specify whether any entity included in the organization's Consolidated Financial Statements is not covered by the report.**

**Art. 4 paragraph 1:** the consolidated statement includes all data of the parent Company and its fully consolidated subsidiaries

The indicator is provided in the report each time the scope of reference of the reporting varies. This change is primarily correlated to the different business sectors (and Companies that belong to them) reported, while in other cases a relationship should be drawn with the centralised management of certain data, which, on the basis of the activities managed under service, does not cover the entire scope of reporting.

*Disclosing sustainability: Methodological Note* page 15 and table no. 2, and note 12; *Relations with stakeholders* pages 78, 133; *Relations with the environment* pages 187, 191, 194.

**102-46 Process for defining the report content and the topic Boundaries (including an explanation of how the organization has implemented the Reporting Principles for defining report content).**

**Art. 3 paragraph 1, letter a):** the corporate management and organisation model

*Disclosing sustainability: Methodological Note* pages 11-12, 14, 15, 17; *Corporate Identity* pages 24-27, 31-35; *GRI Content Index* pages 226 ff.

**Art. 4 paragraph 1:** to the degree necessary to ensure the understanding of the group's business, its performance, its results, and the impact it generated

**102-47 List of the material topics identified in the process for defining report content.**

**Art. 4 paragraph 1:** to the degree necessary to ensure the understanding of the group's business, its performance, its results, and the impact it generated

*Disclosing sustainability: Methodological Note* pages 11-12, 14 and table no. 1; *GRI Content Index* pages 226 ff.

**GRI 102: General Disclosures 2016**

<p><b>102-48 Effect of any restatements of information given in previous reports, and the reasons for such restatements (mergers or acquisitions, change of base years or periods, nature of business, measurement methods).</b>          Any recalculation or groupings that require changes to the data published in 2019 are appropriately flagged and justified in the report.  <i>Disclosing sustainability: Methodological Note page 15; Relations with stakeholders page 142; Relations with the environment pages 208 and table no. 70, 209; Environmental Accounts page 249.</i></p>	<p><b>Art. 3 paragraph 3:</b> the information (...) is provided with a comparison with the information provided in previous years</p>
<p><b>102-49 Significant changes from previous reporting periods in the list of material topics and topic Boundaries.</b>  <i>Disclosing sustainability: Methodological Note pages 14, table no. 1, 15, 16 table no. 3; Relations with stakeholders pages 98, 117, 118 chart no. 28; Environmental Accounts page 253.</i></p>	<p><b>Art. 3 paragraph 3:</b> the information (...) is provided with a comparison with the information provided in previous years</p>
<p><b>102-50 Reporting period for the information provided (for example, the fiscal or calendar year).</b>  <i>Disclosing sustainability: Methodological Note page 10.</i></p>	<p><b>Art. 2 paragraph 1:</b> public interest bodies prepare a disclosure for each financial year  <b>Art. 3 paragraph 3:</b> the information (...) is provided with a comparison with the information provided in previous years          n.a.</p>
<p><b>102-51 Date of the most recent previous report.</b>  <i>Disclosing sustainability: Methodological Note page 10.</i></p>	<p>n.a.</p>
<p><b>102-52 Reporting cycle (for example, annual or biennial).</b>  <i>Disclosing sustainability: Methodological Note page 10.</i></p>	<p><b>Art. 2 paragraph 1:</b> public interest bodies prepare a disclosure for each financial year</p>
<p><b>102-53 Contact point for questions regarding the report or its contents.</b>  <i>Disclosing sustainability: Methodological Note page 17.</i></p>	<p>n.a.</p>
<p><b>102-54 Claims of reporting in accordance with the GRI Standards (either: i. “This report has been prepared in accordance with the GRI Standards: Core option”, ii. “This report has been prepared in accordance with the GRI Standards: Comprehensive option”).</b>  <i>Disclosing sustainability: Methodological Note page 10; GRI Content Index pages 226 ff.</i></p>	<p><b>Art. 3 paragraph 3:</b> reporting standards used</p>
<p><b>102-55 GRI content index, which specifies each of the GRI Standards used and lists all disclosures included in the report (for each disclosure, the content index shall include: the number of the disclosure, the page number(s) or URL(s) where the information can be found, if applicable, and where permitted, the reason(s) for omission when a required disclosure cannot be made, etc).</b>  <i>GRI Content Index pages 226 ff.</i></p>	<p><b>Art. 3 paragraph 3:</b> reporting standards used</p>
<p><b>102-56 External assurance (the reporting organization shall report a description of the organization’s policy and current practice with regard to seeking external assurance for the report; a reference to the external assurance report; the relationship between the organization and the assurance provider; whether and how the highest governance body or senior executives are involved in seeking external assurance for the organization’s sustainability report).</b>  <i>Disclosing sustainability: Methodological Note page 11; Opinion Letter pages 280 ff.</i></p>	<p><b>Art. 3 paragraph 10:</b> (...) verification of the non-financial disclosure</p>

**MATERIAL TOPIC-SPECIFIC STANDARDS**

**GRI 200: ECONOMIC**

**TOPIC ECONOMIC PERFORMANCE**

<p><b>GRI 103: Management approach 2016</b></p>	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity pages 24-27, 30, 31-35, 64 f., 66 table no. 10.</i>  <b>Topic Boundary: Acea Group.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group’s business, its performance, results, and the impact it generated</p>
<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity pages 24-27, 30, 31-35, 36-57, 62 table no. 9, 64 f., 66 table no. 10.</i></p>	<p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity pages 30, 31-35, 62 table no. 9, 64 f., 66 table no. 10.</i></p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>

GRI 201: Economic Performance 2016	<p><b>201-1 Direct economic value generated and distributed (including revenues, operating costs, employee wages and benefits, payments to providers of capital, payments to government and community investments, economic value retained).</b>  <i>Corporate Identity</i> pages 30 table no. 7, 71, 75; <i>Relations with stakeholders</i> pages 147, 163, 165.</p> <p><b>201-2 Financial implications and other risks and opportunities due to climate change.</b>  <i>Corporate Identity</i> pages 30, 35, 67; <i>Relations with the environment</i> pages 178 f., 202, 203.</p> <p><b>201-3 Defined benefit plan obligations and other retirement plans.</b>  <i>Relations with stakeholders</i> page 148.</p> <p><b>201-4 Financial assistance received from government.</b>  <i>Corporate identity</i> page 75 note 20.</p>	<p><b>Art. 3 paragraph 1, letter d):</b> social aspects and aspects relating to staff management</p> <p><b>Art. 3 paragraph 1, letter c):</b> the impact (...) on the environment</p> <p><b>Art. 3 paragraph 1, letter d):</b> social aspects and aspects relating to staff management n.a.</p>
<b>TOPIC</b>	<b>INDIRECT ECONOMIC IMPACTS</b>	
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 32-35, 65, 66 table no. 10, 71; <i>Relations with stakeholders</i> pages 89 ff., 132, 133.  <b>Topic Boundary: main Group companies, local community, suppliers.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 32-35, 36-57, 65, 66 table no. 10, 71; <i>Relations with stakeholders</i> pages 89 ff., 127, 132, 133.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 32-35, 65, 66 table no. 10, 71; <i>Relations with stakeholders</i> pages 89 ff., 127, 132, 133.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 203: Indirect Economic Impacts 2016	<p><b>203-1 Infrastructure investments and services supported (the organization shall report: the extent of development of significant infrastructure investments; current or expected impacts on communities, including positive and negative impacts where relevant; whether these investments and services are commercial, in-kind, or pro bono engagements, etc.).</b>  <i>Corporate Identity</i> page 71; <i>Relations with stakeholders</i> page 89, 90 table no. 18, 91, 92, 94, 99 and table no. 25, 102, 104, 105, 127, 170 and chart no. 45; <i>Relations with the environment</i> page 185.</p> <p><b>203-2 Significant indirect economic impacts (examples of significant identified indirect economic impacts of the organization, including positive and negative impacts, etc.).</b>  <i>Corporate Identity</i> page 71; <i>Relations with stakeholders</i> pages 79 f., 89, 90 table no. 18, 91, 92, 94, 99, 102, 104, 105, 124, 125, 127, 131, 132, 133, 134, 135-136 table nos. 36-37; <i>Relations with the environment</i> page 189.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment as well as on health and safety</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment as well as on health and safety</p>
<b>TOPIC</b>	<b>PROCUREMENT PRACTICES</b>	
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131 s, 133.  <b>Topic Boundary: main Group companies, suppliers.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131 f., 133,</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131 f., 133.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 204: Procurement Practices 2016	<p><b>204-1 Proportion of spending on local suppliers.</b>  There is no specific preferential strategy for local suppliers, although, particularly for sourcing of works, the prevalence of local suppliers arises naturally.  <i>Relations with stakeholders</i> pages 134, 136 table no. 36.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> fundamental indicators of non-financial performance</p>

TOPIC		ANTI-CORRUPTION
	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 33-35, 64, 65, 66 table no. 10.  <b>Topic Boundary: Acea Group.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
GRI 103: Management approach 2016	<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 33-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10; <i>Relations with stakeholders</i> page 157.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 62 table no. 9, 64, 65, 66 table no. 10; <i>Relations with stakeholders</i> page 157.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 205: Anti-corruption 2016	<p><b>205-1 Total number and percentage of operations assessed for risks related to corruption. Significant risks related to corruption identified through the risk assessment.</b>  <i>Corporate identity</i> page 64.</p> <p><b>205-2 Communication and training about anti-corruption policies and procedures (total number and percentage of employees that the organization's anti-corruption policies and procedures have been communicated to, etc.).</b>  <i>Relations with stakeholders</i> page 157.</p> <p><b>205-3 Confirmed incidents of corruption and actions taken (total number and nature of confirmed incidents of corruption, etc.).</b>  No instances of corruption were recorded.</p>	<p><b>Art. 3 paragraph 1, letter c):</b> the main risks generated or suffered  <b>Art. 3 paragraph 2, letter f):</b> anti-corruption and bribery measures</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>paragraph 2, letter f):</b> anti-corruption and bribery activity</p> <p><b>Art. 3 paragraph 2, letter f):</b> anti-corruption and bribery measures</p>
TOPIC		ANTI-COMPETITIVE BEHAVIOR
	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 33-35, 61, 63, 64, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 132, 165.  <b>Topic Boundary: Acea Group.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
GRI 103: Management approach 2016	<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 33-35, 36-57, 61, 62 table no. 9, 63, 64, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 132, 157, 165.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 61, 62 table no. 9, 63, 64, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 132, 157, 165.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 206: Anti-competitive Behavior 2016	<p><b>206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices (number of legal actions pending or completed including any decisions or judgments).</b>  <i>Relations with stakeholders</i> page 166.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> fundamental indicators of non-financial performance</p>
GRI 300: ENVIRONMENTAL		
TOPIC		MATERIALS
	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10, 68; <i>Relations with the environment</i> pages 180, 192, 202; <i>Environmental Accounts</i> page 249.  <b>Topic Boundary: main Group companies.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
GRI 103: Management approach 2016	<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with the environment</i> pages 180, 192, 202; <i>Environmental Accounts</i> page 249.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p>

GRI 103: Management approach 2016	<p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with the environment</i> pages 180, 192, 202; <i>Environmental Accounts</i> page 249.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 301: Materials 2016	<p><b>301-1 Materials used by weight or volume (materials that are used to produce and package the organization's primary products and services, by non-renewable and renewable materials used).</b>  <i>Relations with the environment</i> pages 202 and table no. 61, 205 and table no. 66; <i>Environmental Accounts</i> pages 249, 257, 258, 259.</p> <p><b>301-2 Percentage of recycled input materials used to manufacture the organization's primary products and services.</b>  <i>Relations with the environment</i> pages 202 and table no. 61.</p> <p><b>301-3 Percentage of reclaimed products and their packaging materials for each product category.</b>  Not applicable.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p>
<b>TOPIC ENERGY</b>		
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 32-35, 65, 66 table no. 10, 68; <i>Relations with the environment</i> pages 178 f., 180, 187, 192 f., 202.  <b>Topic Boundary: main Group companies, suppliers.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 32-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> page 157; <i>Relations with the environment</i> pages 178 f., 180, 187, 192 f., 201 f.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 32-35, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> page 157; <i>Relations with the environment</i> pages 178 f., 180, 187, 192 f., 201 f.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 302: Energy 2016	<p><b>302-1 Energy consumption within the organization.</b>  <i>Relations with the environment</i> pages 192 f., 202 and table no. 62, 203 table no. 63.</p> <p><b>302-2 Energy consumption outside of the organization.</b>  <i>Relations with the environment</i> page 203.</p> <p><b>302-3 Energy intensity.</b>  <i>Relations with the environment</i> pages 202, 203.</p> <p><b>302-4 Reduction of energy consumption.</b>  <i>Relations with the environment</i> pages 191 ff., 203, 204 and table no. 65.</p> <p><b>302-5 Reductions in energy requirements of products and services.</b>  Not applicable: the Group does not sell products or services for which the indicator can be considered applicable.</p>	<p><b>Art. 3 paragraph 2, letter a):</b> use of energy resources</p> <p><b>Art. 3 paragraph 2, letter a):</b> use of energy resources</p> <p><b>Art. 3 paragraph 2, letter a):</b> use of energy resources</p> <p><b>Art. 3 paragraph 2, letter a):</b> use of energy resources</p> <p><b>Art. 3 paragraph 2, letter a):</b> use of energy resources</p>
<b>TOPIC WATER</b>		
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 32-35, 65, 66 table no. 10, 68; <i>Relations with stakeholders</i> pages 99, 102, 103 f., 105; <i>Relations with the environment</i> pages 178, 180, 184 ff., 194, 196 ff., 205.  <b>Topic Boundary: main Group Companies suppliers, customers.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 32-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> pages 99, 102, 103 f., 105, 123, 125, 166; <i>Relations with the environment</i> pages 178, 180, 184 ff., 194, 196 ff., 205.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 32-35, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> pages 99, 102, 103 f., 105; <i>Relations with the environment</i> pages 178, 180, 184 ff., 194, 196 ff., 205.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 303: Water 2018	<p><b>303-1 Interactions with water as a shared resource.</b>  <i>Relations with stakeholders</i> pages 99, 102, 103 f., 105, 124, 125; <i>Relations with the environment</i> pages 178, 184 f., 185 table no. 49, 186, 194, 197, 199 table no. 59, 205 and table no. 66, 206; <i>Environmental Accounts</i> page 253.</p> <p><b>303-2 Management of water discharge-related impacts.</b>  <i>Relations with stakeholders</i> pages 103, 104; <i>Relations with the environment</i> pages 195 ff., 198, 205; <i>Environmental Accounts</i> page 253.</p>	<p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p>

GRI 303: Water 2018	<b>303-3 Water withdrawal.</b> <i>Relations with the environment</i> pages 184, 185 table no. 49, 194, 205 and table no. 66, 206; <i>Environmental Accounts</i> pages 253, 254, 257.	<b>Art. 3 paragraph 2, letter a):</b> use of water resources
	<b>303-4 Water discharge.</b> <i>Relations with stakeholders</i> pages 104, 196, 198, 199 and tables nos 57 and 59, 200, 205 f.; <i>Environmental Accounts</i> page 255.	<b>Art. 3 paragraph 2, letter a):</b> use of water resources; <b>letter c):</b> impact (...) on the environment
	<b>303-5 Water consumption.</b> <i>Relations with the environment</i> pages 197, 205 f.; <i>Environmental Accounts</i> pages 253, 254.	<b>Art. 3 paragraph 2, letter a):</b> use of water resources
<b>TOPIC</b>	<b>BIODIVERSITY</b>	
GRI 103: Management approach 2016	<b>103-1 Explanation of the material topic and its Boundary.</b> <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10, 68; <i>Relations with the environment</i> pages 180 ff. <b>Topic Boundary: main Group companies.</b>	<b>Art. 4 paragraph 1):</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated
	<b>103-2 The management approach and its components.</b> <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with the environment</i> pages 180 ff., 183, 198.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company
	<b>103-3 Evaluation of the management approach.</b> <i>Corporate Identity</i> pages 33-35, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with the environment</i> pages 180 ff., 183.	<b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them
GRI 304: Biodiversity 2016	<b>304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas..</b> <i>Relations with the environment</i> pages 180 ff., 182 table no. 47, 184.	<b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment
	<b>304-2 Significant impacts of activities, products, and services on biodiversity.</b> <i>Relations with stakeholders</i> page 103; <i>Relations with the environment</i> pages 180 ff., 184, 190.	<b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment
	<b>304-3 Habitats protected or restored.</b> During the reporting period, there were no cases of restoration (offsetting) of natural habitats. <i>Relations with the environment</i> pages 183 f.	<b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment
	<b>304-4 IUCN "Red List" species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.</b> <i>Relations with the environment</i> pages 180 ff., 182 table no. 48.	<b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment
<b>TOPIC</b>	<b>EMISSIONS</b>	
GRI 103: Management approach 2016	<b>103-1 Explanation of the material topic and its Boundary.</b> <i>Corporate Identity</i> pages 24-27, 32-35, 65, 66 table no. 10, 67, 68; <i>Relations with the environment</i> pages 178 f., 180, 192 f., 202, 206. <b>Topic Boundary: main Group companies, suppliers, customers.</b>	<b>Art. 4 paragraph 1):</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated
	<b>103-2 The management approach and its components.</b> <i>Corporate Identity</i> pages 24-27, 32-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10, 67, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> page 126; <i>Relations with the environment</i> pages 178 f., 180, 183, 192 f., 202, 206.	<b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company
	<b>103-3 Evaluation of the management approach.</b> <i>Corporate Identity</i> pages 32-35, 62 table no. 9, 64, 65, 66 table no. 10, 67, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> page 126; <i>Relations with the environment</i> pages 178 f., 180, 183, 192 f., 202, 206.	<b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them
GRI 305: Emissions 2016	<b>305-1 Direct (Scope 1) GHG emissions.</b> Biogenic CO <sub>2</sub> was calculated for Environment Operations and Water Operations and in 2020 equalled 312,760 t. <i>Relations with the environment</i> pages 207, 208 table no. 70; <i>Environmental Accounts</i> pages 259 f., 262.	<b>Art. 3 paragraph 2, letter b):</b> greenhouse gas emissions
	<b>305-2 Energy indirect (Scope 2) GHG emissions.</b> <i>Relations with the environment</i> page 208 and table no. 70; <i>Environmental Accounts</i> pages 259 f.	<b>Art. 3 paragraph 2, letter b):</b> greenhouse gas emissions
	<b>305-3 Other indirect (Scope 3) GHG emissions.</b> <i>Relations with the environment</i> page 208 and table no. 70.	<b>Art. 3 paragraph 2, letter b):</b> greenhouse gas emissions
	<b>305-4 GHG emissions intensity.</b> <i>Relations with the environment</i> page 208 and table no. 70.	<b>Art. 3 paragraph 2, letter b):</b> greenhouse gas emissions

GRI 305: Emissions 2016	<p><b>305-5 Reduction of GHG emissions as a direct result of reduction initiatives.</b> <i>Relations with the environment</i> pages 191, 204 and table no. 65, 208 table no. 70.</p> <p><b>305-6 Emissions of ozone-depleting substances (ODS).</b> <i>Relations with the environment</i> page 207; <i>Environmental Accounts</i> pages 257, 258.</p> <p><b>305-7 Nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), and other significant air emissions.</b> <i>Relations with the environment</i> page 206 table no. 67; <i>Environmental Accounts</i> pages 259 f.</p>	<p><b>Art. 3 paragraph 2, letter b):</b> greenhouse gas emissions</p> <p><b>Art. 3 paragraph 2, letter b):</b> greenhouse gas emissions</p> <p><b>Art. 3 paragraph 2, letter b):</b> polluting atmospheric emissions</p>
<b>TOPIC EFFLUENTS AND WASTE</b>		
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b> <i>Corporate Identity</i> pages 24-27, 32-35, 65, 66 table no. 10, 68; <i>Relations with the environment</i> pages 178, 180, 191 ff., 194; <i>Environmental Accounts</i> page 249. <b>Topic Boundary: main Group companies.</b></p> <p><b>103-2 The management approach and its components.</b> <i>Corporate Identity</i> pages 24-27, 32-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> page 125; <i>Relations with the environment</i> pages 178, 180, 191 ff., 194, 201; <i>Environmental Accounts</i> page 249.</p> <p><b>103-3 Evaluation of the management approach.</b> <i>Corporate Identity</i> pages 32-35, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with the environment</i> pages 178, 180, 191 ff., 194, 201; <i>Environmental Accounts</i> page 249.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 306: Effluents and Waste 2016	<p><b>306-1 Water discharge by quality and destination.</b> Content regarding effluents for this Standard have been updated. Please see GRI 303: Water and effluents 2018.</p> <p><b>306-2 Waste by type and disposal method.</b> Total hazardous waste products is equal to 68,860 t; total non-hazardous waste products is equal to 223,745 t (of which 137,164 is sludge, sand and gratings). The percentage of hazardous waste and non-hazardous waste sent for recovery is 32%. Separated waste collection in 2020 achieved recovery of approximately 302 tonnes of paper (-67% compared to 2019) and 206 tonnes of plastic (-67% compared to 2019). The figure was affected by the absence in 2020 of the majority of employees at the main sites due to the Covid-19 pandemic. There is no detailed information available on the type of disposal as the code R13 of applicable regulations on waste (the most widely used by disposal enterprises) does not enable identification. <i>Environmental Accounts</i> pages 259 f., 261 f.</p> <p><b>306-3 Total number and total volume of recorded significant spills.</b> In 2020, there were no significant releases of pollutants into the environment, such as mineral oils, fuels or chemical products.</p> <p><b>306-4 Transport of hazardous waste.</b> <i>Relations with the environment</i> page 193.</p> <p><b>306-5 Water bodies affected by water discharges and/or runoff, including information on the size of the water body and related habitat; whether the water body and related habitat is designated as a nationally or internationally protected area; the biodiversity value, etc.</b> Content regarding effluents for this Standard have been updated. Please see GRI 303: Water and effluents 2018.</p>	<p><b>Art. 3 paragraph 2, letter a):</b> use of water resources</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment</p>
<b>TOPIC ENVIRONMENTAL COMPLIANCE</b>		
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b> <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10, 68; <i>Relations with the environment</i> page 180 <b>Topic Boundary: main Group companies.</b></p> <p><b>103-2 The management approach and its components.</b> <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> page 157; <i>Relations with the environment</i> page 180.</p> <p><b>103-3 Evaluation of the management approach.</b> <i>Corporate Identity</i> pages 33-35, 62 table no. 9, 64, 65, 66 table no. 10, 68-69, 70 table no. 12; <i>Relations with stakeholders</i> page 157; <i>Relations with the environment</i> page 180.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>

GRI 307: Environmental Compliance 2016	<p><b>307-1 Non-compliance with environmental laws and regulations. Total monetary value of significant fines; total number of non-monetary sanctions, etc.</b>  <i>Corporate Identity</i> pages 64, 65; <i>Relations with stakeholders</i> page 166; <i>Relations with the environment</i> page 180.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
<b>TOPIC SUPPLIER ENVIRONMENTAL ASSESSMENT</b>		
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131, 133, 138, 139; <i>Relations with the environment</i> pages 203, 208.  <b>Topic Boundary: main Group companies, suppliers.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 65, 66 table no. 10, 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 131 f., 133, 137, 138, 139; <i>Relations with the environment</i> pages 203, 208.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10, 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 131, 133, 138, 139; <i>Relations with the environment</i> pages 203, 208.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 308: Supplier Environmental Assessment 2016	<p><b>308-1 Percentage of new suppliers that were screened using environmental criteria.</b>  <i>Relations with stakeholders</i> pages 133, 137; <i>Relations with the environment</i> page 203.</p> <p><b>308-2 Actual and potential negative environmental impacts in the supply chain and actions taken.</b>  <i>Relations with stakeholders</i> pages 137, 138, 139; <i>Relations with the environment</i> pages 203, 208.</p>	<p><b>Art. 3 paragraph 1, letter c):</b> the main risks generated or suffered (...) deriving from the business, its products, services or commercial relations, including, where relevant, supply and subcontracting chains</p> <p><b>Art. 3 paragraph 1, letter c):</b> the main risks generated or suffered (...) deriving from the business, its products, services or commercial relations, including, where relevant, supply and subcontracting chains; <b>paragraph 2, letter c):</b> the impact (...) on the environment</p>
<b>GRI 400: SOCIAL</b>		
<b>TOPIC Employment</b>		
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131, 142, 154, 156, 160, 162.  <b>Topic Boundary: main Group companies.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131, 137, 142, 147, 154, 156, 160, 162.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131, 142, 147, 154, 160, 162.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1, letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 401: Employment 2016	<p><b>401-1 New employee hires and employee turnover. Total number and rate, by age group, gender and region.</b>  <i>Relations with stakeholders</i> pages 142 f., 146 table no. 40.</p> <p><b>401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees.</b>  <i>Relations with stakeholders</i> page 160.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> aspects relating to staff management</p> <p><b>Art. 3 paragraph 2, letter d):</b> aspects relating to staff management</p>

GRI 401: Employment 2016	<p><b>401-3 Parental leave. Total number of employees that were entitled to parental leave, that took parental leave, that returned to work after parental leave ended, by gender, etc.</b></p> <p>Acea operates in accordance with the Consolidated Law on supporting maternity and paternity (Italian Legislative Decree 151/2001 as amended), which governs leave, rest days, days off for specific reasons and economic support for female and male workers connected with maternity, paternity of children, adopted children and fostered children. The law prohibits any discrimination for reasons connected to gender, with particular reference to any less favourable treatment on the basis of being pregnant, maternity and paternity. It establishes mandatory maternity leave for a period of five months and guarantees the work post during this period, imposing a prohibition on dismissal. It also establishes the reintegration of the employee into the activities performed prior to the leave period or equivalent activities, with fines applicable for employers contravening these rules. Therefore, 100% of employees making use of this type of leave maintain their post and return to work.</p> <p>The employees who took leave for parenthood in 2020 numbered 606, of which 329 were men and 277 women. All of these, after the leave period, returned to work and are still employed.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> aspects relating to staff management;  <b>letter e):</b> actions taken to prevent attitudes and conduct that are in any case discriminatory</p>
<b>TOPIC LABOR/MANAGEMENT RELATIONS</b>		
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 149 f.  <b>Topic Boundary: main Group companies.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 33-35, 36-57, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 149 f.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 149 f.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 402: Labor/Management Relations 2016	<p><b>402-1 Minimum notice periods regarding operational changes (report whether the notice period and provisions for consultation and negotiation are specified in collective agreements).</b>  <i>Relations with stakeholders</i> page 150.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> methods of dialogue with trade unions</p>
<b>TOPIC OCCUPATIONAL HEALTH AND SAFETY</b>		
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131, 139, 141, 151, 154.  <b>Topic Boundary: main Group companies, suppliers.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 62 table no. 9, 64, 65, 66 table no. 10, 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 131, 132, 137, 139, 141, 151, 154, 157.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35; 62 table no. 9, 64, 65, 66 table no. 10, 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 131, 139, 141, 151, 154, 157.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 403: Occupational Health and Safety 2018	<p><b>403-1 Occupational health and safety management system.</b>  <i>Corporate Identity</i> page 70; <i>Relations with stakeholders</i> pages 139, 141, 149, 151, 153, 155.</p> <p><b>403-2 Hazard identification, risk assessment, and incident investigation.</b>  <i>Relations with stakeholders</i> pages 140, 141, 151, 153.</p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company; <b>letter c):</b> the main risks generated or suffered (...) deriving from the business, its products, services or commercial relations, including, where relevant, supply and subcontracting chains; <b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety; <b>letter d):</b> aspects relating to staff management</p>

GRI 403: Occupational Health and Safety 2018	<p><b>403-3 Occupational health services.</b> <i>Relations with stakeholders</i> pages 151, 154.</p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company; <b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety; <b>letter d):</b> aspects relating to staff management</p>	
	<p><b>403-4 Worker participation, consultation, and communication on Occupational health and safety.</b> Acea observes the indications of Italian Legislative Decree no. 81/2008 on health and safety in the workplace. 100% of workers are represented in formal health and safety commissions (composed of representatives from management and workers), through appointed figures. <i>Relations with stakeholders</i> pages 132, 140, 141, 149, 151.</p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company; <b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety; <b>letter d):</b> aspects relating to staff management (...) and the methods of dialogue with trade unions</p>	
	<p><b>403-5 Worker training on occupational health and safety.</b> <i>Relations with stakeholders</i> pages 140, 141, 152.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety; <b>letter d):</b> aspects relating to staff management</p>	
	<p><b>403-6 Promotion of worker health.</b> <i>Relations with stakeholders</i> pages 149, 150.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety; <b>letter d):</b> aspects relating to staff management</p>	
	<p><b>403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships.</b> Not applicable</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety;</p>	
	<p><b>403-8 Workers covered by an occupational health and safety management system.</b> <i>Relations with stakeholders</i> page 151.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety; <b>letter d):</b> aspects relating to staff management</p>	
	<p><b>403-9 Work-related injuries.</b> <i>Relations with stakeholders</i> pages 141, 151, 152 and chart no. 43, 153 table no. 43.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety; <b>letter d):</b> aspects relating to staff management</p>	
	<p><b>403-10 Work-related ill health.</b> <i>Relations with stakeholders</i> pages 141, 154.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety; <b>letter d):</b> aspects relating to staff management</p>	
	<b>TOPIC</b>	<b>TRAINING AND EDUCATION</b>	
	GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b> <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 154, 156, 160. <b>Topic Boundary: main Group companies.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
<p><b>103-2 The management approach and its components.</b> <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 154, 156, 160.</p>		<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p>	
<p><b>103-3 Evaluation of the management approach.</b> <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 154, 160.</p>		<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>	
GRI 404: Training and Education 2016	<p><b>404-1 Average hours of training per year per employee; by gender and employee category.</b> <i>Relations with stakeholders</i> pages 158 and table no. 44.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> aspects relating to staff management</p>	
	<p><b>404-2 Programs for upgrading employee skills and transition assistance programs.</b> <i>Relations with stakeholders</i> pages 153, 154, 156, 157, 159.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> aspects relating to staff management</p>	
	<p><b>404-3 Percentage of employees receiving regular performance and career development reviews.</b> In 2020, in the context of the Human Resources Management System in force, all personnel of Group Companies within the scope of reporting (100%) were subject to evaluation. <i>Relations with stakeholders</i> page 160.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> aspects relating to staff management</p>	

TOPIC	DIVERSITY AND EQUAL OPPORTUNITY	
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27; 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 147, 161, 162.  <b>Topic Boundary: main Group companies.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
	<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 33-34, 36-57, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 147, 161, 162.</p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p>
	<p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 147, 161, 162.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 405: Diversity and Equal Opportunity 2016	<p><b>405-1 Diversity of governance bodies and employees. Percentage of individuals within the organization's governance bodies, by gender, age group and other indicators of diversity. Percentage of employees per employee category, by gender, age group and other indicators of diversity.</b>  Regarding representation of the different age brackets for members of the governance bodies, considering these to include the BoD, Board of Statutory Auditors and SB, it is noted that 44% of members are in the 30-50 years bracket, and the remaining 56% are in the over-50 bracket.  <i>Corporate Identity</i> page 58; <i>Relations with stakeholders</i> pages 144, 145-146 table nos. 39 and 41, 161 f.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> social aspects and aspects relating to staff management</p>
	<p><b>405-2 Ratio of basic salary and remuneration of women to men for each employee category, by significant locations of operation.</b>  The Collective Labour Agreement (CCNL) implemented within Acea, considering the equivalent level of role, is equal for men and women.  <i>Relations with stakeholders</i> page 147.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> social aspects and aspects relating to staff management</p>
TOPIC	NON DISCRIMINATION	
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 33-35, 64 f., 65, 66 table no. 10; <i>Relations with stakeholders</i> page 161.  <b>Topic Boundary: main Group companies.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
	<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 33-35, 36-57, 62 table no. 9, 64 f., 65, 66 table no. 10; <i>Relations with stakeholders</i> page 161.</p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p>
	<p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 62 table no. 9, 64 f., 65, 66 table no. 10; <i>Relations with stakeholders</i> page 161.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 406: Non discrimination 2016	<p><b>406-1 Incidents of discrimination and corrective actions taken.</b>  <i>Corporate Identity</i> page 64; <i>Relations with stakeholders</i> page 162.</p>	<p><b>Art. 3 paragraph 2, letter d):</b> social aspects and aspects relating to staff management; <b>letter e):</b> actions taken to prevent attitudes and conduct that are in any case discriminatory</p>
TOPIC	LOCAL COMMUNITIES	
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10, 71; <i>Relations with stakeholders</i> pages 82-89, 89 ff., 104, 105, 123, 165, 166, 167 f.  <b>Topic Boundary: main Group Companies and various stakeholders.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
	<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 33-35, 36-57, 65, 66 table no. 10, 69, 70 table no. 12, 71; <i>Relations with stakeholders</i> pages 82-89, 89 ff., 99, 104, 105, 123, 165, 166, 167 f.</p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p>
	<p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10, 69, 70 table no. 12, 71; <i>Relations with stakeholders</i> pages 82-89, 89 ff., 99, 123, 165, 166, 167 f.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>

<p><b>GRI 413: Local Communities 2016</b></p>	<p><b>413-1 Operations with local community engagement, impact assessments, and development programs.</b> 100% of the main Group Companies have initiatives in place for stakeholder engagement. <i>Disclosing sustainability: Methodological Note</i> page 11; <i>Corporate Identity</i> pages 69, 70 table no. 12, 71; <i>Relations with stakeholders</i> pages 82-89, 91, 99, 102, 104, 105, 119, 123, 124, 127, 131 f., 137, 139; <i>Relations with the environment</i> page 179.</p> <p><b>413-2 Operations with significant actual and potential negative impacts on local communities.</b> <i>Corporate Identity</i> page 71; <i>Relations with stakeholders</i> pages 166, 167; <i>Relations with the environment</i> pages 180 ff.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment as well as on health and safety</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on the environment as well as on health and safety</p>
<b>TOPIC SUPPLIER SOCIAL ASSESSMENT</b>		
<p><b>GRI 103: Management approach 2016</b></p>	<p><b>103-1 Explanation of the material topic and its Boundary.</b> <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131, 132, 138, 141. <b>Topic Boundary: main Group companies, suppliers.</b></p> <p><b>103-2 The management approach and its components.</b> <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131, 132, 137, 138, 139, 141.</p> <p><b>103-3 Evaluation of the management approach.</b> <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 131, 132, 133, 138, 139, 141.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
<p><b>GRI 414: Supplier Social Assessment 2016</b></p>	<p><b>414-1 Percentage of new suppliers that were screened using social criteria.</b> <i>Relations with stakeholders</i> pages 133, 137.</p> <p><b>414-2 Negative social impacts in the supply chain and actions taken.</b> <i>Relations with stakeholders</i> pages 132, 137, 138, 139.</p>	<p><b>Art. 3 paragraph 1, letter c):</b> the main risks generated or suffered (...) deriving from the business, its products, services or commercial relations, including, where relevant, supply and subcontracting chains; <b>paragraph 2, letter c):</b> the impact (...) on health and safety</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety</p>
<b>TOPIC PUBLIC POLICY</b>		
<p><b>GRI 103: Management approach 2016</b></p>	<p><b>103-1 Explanation of the material topic and its Boundary.</b> <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> page 165. <b>Topic Boundary: Acea Group.</b></p> <p><b>103-2 The management approach and its components.</b> <i>Corporate Identity</i> pages 33-35, 36-57, 65, 66 table no. 10; <i>Relations with stakeholders</i> page 165.</p> <p><b>103-3 Evaluation of the management approach.</b> <i>Corporate Identity</i> pages 33-35, 36-57, 65, 66 table no. 10; <i>Relations with stakeholders</i> page 165.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model; <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
<p><b>GRI 415: Public Policy 2016</b></p>	<p><b>415-1 Political contributions. Total monetary value of financial and in-kind political contributions made directly and indirectly by the organization by country and recipient/beneficiary.</b> <i>Relations with stakeholders</i> page 165.</p>	<p><b>Art. 3 paragraph 2, letter f):</b> anti-corruption and bribery measures</p>

TOPIC	CUSTOMER HEALTH AND SAFETY	
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10, 71; <i>Relations with stakeholders</i> pages 105, 166 f.; <i>Relations with the environment</i> page 195.  <b>Topic Boundary: main Group companies, customers, community.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 33-35, 36-57, 65, 66 table no. 10, 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 103, 105, 166 f.; <i>Relations with the environment</i> page 195.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10, 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 105, 166 f.; <i>Relations with the environment</i> page 195.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 416: Customer Health and Safety 2016	<p><b>416-1 Assessment of the health and safety impacts of product and service categories.</b>  <i>Corporate Identity</i> pages 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 100 table no. 26, 103 f., 105, 124; <i>Relations with the environment</i> pages 195 ff.</p> <p><b>416-2 Incidents of non-compliance concerning the health and safety impacts of products and services.</b>  <i>Relations with the environment</i> page 180.</p>	<p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety</p> <p><b>Art. 3 paragraph 2, letter c):</b> the impact (...) on health and safety</p>
TOPIC	MARKETING AND LABELING	
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 82-89, 89 ff., 93, 95, 99, 112, 117 ff., 141, 165.  <b>Topic Boundary: main Group companies, customers.</b></p> <p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 24-27, 33-35, 36-57, 65, 66 table no. 10, 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 82-89, 89 ff., 93, 95, 96-98 table nos. 22-24, 99, 105, 112, 117 ff., 126, 141, 165.</p> <p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 65, 66 table no. 10, 69, 70 table no. 12; <i>Relations with stakeholders</i> pages 82-89, 89 ff., 93, 95, 99, 112, 116, 117 ff., 141, 165.</p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p> <p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p> <p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 417: Marketing and Labeling 2016	<p><b>417-1 Requirements for product and service information and labeling.</b>  The GRI international indicator, on the basis of the reference to "services" in addition to products, is indicated, adapting it to the national situation and operations of a multiutility Company, both in terms of the main parameters of quality of water distributed and in relation to performance of a commercial, contractual and technical nature for the services managed in the water and energy sector, which are subject to regulation by the national industry authority (ARERA).  <i>Relations with stakeholders</i> pages 89 ff., 93 and table no. 21, 95, 96-98 table nos. 22-24, 102 table no. 27, 103, 105, 106-111 tables nos 28-32, 111 f., 116, 117, 118 f.; <i>Relations with the environment</i> pages 195 ff.</p> <p><b>417-2 Total number of incidents of non-compliance with regulations and/or voluntary codes concerning product and service information and labeling.</b>  <i>Relations with stakeholders</i> pages 89 ff., 93 and table no. 21, 95, 96-98 tables nos 22-24, 105, 106-111 table nos. 28-32, 113, 114, 118 f., 166.</p> <p><b>417-3 Total number of incidents of non-compliance with regulations and/or voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship.</b>  <i>Relations with stakeholders</i> pages 141, 166.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> fundamental indicators of non-financial performance</p> <p><b>Art. 3 paragraph 1, letter b):</b> fundamental indicators of non-financial performance</p> <p><b>Art. 3 paragraph 1, letter b):</b> fundamental indicators of non-financial performance</p>

TOPIC		CUSTOMER PRIVACY
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 33-35, 61 f., 65, 66 table no. 10; <i>Relations with stakeholders</i> page 116.</p> <p><b>Topic Boundary: main Group companies, customers.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
	<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 33-35, 36-57, 61 f., 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 116, 157.</p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p>
	<p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 61 f., 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 116, 157.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 418: Customer Privacy 2016	<p><b>418-1 Substantiated complaints (received from outside parties and/or received from regulatory bodies) concerning breaches of customer privacy and losses of customer.</b></p> <p>During the year, there were 170 requests regarding utilisation of rights pursuant to Arts 15-22 of Regulation (EU) 679/2016 – GDPR (requests for updating, erasure, modification, and refusal of consent, etc.). For all of these a dedicated procedure was launched and no proceedings were initiated by the Data Protection Authority in relation to these matters.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> fundamental indicators of non-financial performance</p>
TOPIC		SOCIO ECONOMIC COMPLIANCE
GRI 103: Management approach 2016	<p><b>103-1 Explanation of the material topic and its Boundary.</b>  <i>Corporate Identity</i> pages 33-35, 61, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 93, 95, 105, 132.</p> <p><b>Topic Boundary: main Group companies.</b></p>	<p><b>Art. 4 paragraph 1:</b> the consolidated statements include the data of the parent Company and its fully consolidated subsidiaries. (...) to the degree necessary to ensure the understanding of the group's business, its performance, results, and the impact it generated</p>
	<p><b>103-2 The management approach and its components.</b>  <i>Corporate Identity</i> pages 33-35, 36-57, 61, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 93, 95, 105, 112, 113, 114, 119, 127, 132.</p>	<p><b>Art. 3 paragraph 1 letter a):</b> the corporate management and organisation model;  <b>letter b):</b> policies implemented by the Company</p>
	<p><b>103-3 Evaluation of the management approach.</b>  <i>Corporate Identity</i> pages 33-35, 61, 65, 66 table no. 10; <i>Relations with stakeholders</i> pages 93, 95, 105, 119, 132.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>
GRI 419: Socio Economic Compliance 2016	<p><b>419-1 Non-compliance with laws and regulations in the social and economic area (total monetary value of significant fines; total number of non-monetary sanctions, etc.).</b></p> <p><i>Relations with stakeholders</i> pages 93 note 35, 113, 132, 166; <i>Relations with the environment</i> page 180.</p>	<p><b>Art. 3 paragraph 1, letter b):</b> the policies implemented by the Company (...) and the results achieved through them</p>

# INDEX OF CHARTS AND TABLES

## CHARTS

no. 1 - Relevant topics for the Company and its stakeholders: Acea materiality matrix – 2020	p. 13
no. 2 - The businesses of the main Acea Companies in the territory	p. 23
no. 3 - Acea's business model	p. 27
no. 4 - Acea SpA organisation chart as at 31/12/2020	p. 28
no. 5 - Ownership structure as at 31/12/2020	p. 30
no. 6 - Geographical representation of Acea institutional investors	p. 30
no. 7 - Contribution of the industrial segments to overall EBITDA (2019-2020)	p. 31
no. 8 - The 5 mega trends for utilities	p. 32
no. 9 - The 2020-2024 Sustainability Plan in numbers	p. 34
no. 10 - The Sustainability Plan guidelines	p. 35
no. 11 - Activities of the Corporate Governance Committees	p. 58
no. 12 - The architecture of the SCIGR	p. 61
no. 13 - The key players of the SCIGR	p. 61
no. 14 - The ERM Unit and the corporate focal points	p. 65
no. 15 - The certified integrated management system	p. 69
no. 16 - Stakeholders and their involvement	p. 71
no. 17 - Stakeholder map	p. 72
no. 18 - Sustainability tools	p. 75
no. 19 - Overall CSI and on electricity service aspects – sale and distribution of energy (2020)	p. 83
no. 20 - Overall CSI and on aspects of the public lighting service in Rome and Formello (2020)	p. 84
no. 21 - Overall CSI and on aspects of the water service – sale and distribution of water in Rome and Fiumicino (2020)	p. 84
no. 22 - Overall CSI and on aspects of the water service – sale and distribution of water in Frosinone and its province (2020)	p. 85
no. 23 - Overall CSI and on aspects of the water service – sale and distribution of water in Sarnese Vesuviano (2020)	p. 85
no. 24 - Overall CSI and on aspects of the water service – sale and distribution of water in Territorial Conference no. 6 “Ombrone” (2020)	p. 86
no. 25 - Overall assessment and on aspects of the water service – sale and distribution of water in Benevento and its province (II half 2020)	p. 86
no. 26 - Types of public lighting faults out of total reports received (2020)	p. 93
no. 27 - Electricity price trend for a standard domestic customer (2019-2020)	p. 112
no. 28 - Total telephone calls to Acea toll-free numbers (2019-2020)	p. 118
no. 29 - Percentage breakdown of inbound calls to Acea toll-free numbers (2020)	p. 118
no. 30 - Acea corporate website 2020: access methods and age groups	p. 126
no. 31 - Value of procurement of goods, services and works and percentage on total (2020)	p. 134
no. 32 - Orders (goods, services, works) by business area (2019-2020)	p. 134
no. 33 - Geographical distribution of the amounts used for the purchase of goods and services in Italy and abroad (2020)	p. 135
no. 34 - Geographical distribution of the amounts of works awarded in Italy and abroad (2020)	p. 135
no. 35 - Composition of the staff: gender, age and category (2020)	p. 143
no. 36 - Contract types and length of the employment relationship (2020)	p. 143
no. 37 - Types of entries and age of the staff (2020)	p. 143
no. 38 - Types of exits and age of the staff (2020)	p. 144
no. 39 - The distribution of the staff from a gender perspective (2020)	p. 144
no. 40 - Presence of women in the corporate governance bodies (2018-2020)	p. 144
no. 41 - Hours worked by the staff and absences (2020)	p. 147
no. 42 - Average salaries and ratio between base salary and remuneration (2020)	p. 147
no. 43 - Accidents and indices (2020)	p. 152
no. 44 - Members that have used CRC services (2020)	p. 162
no. 45 - Investment breakdown by macroarea (2019-2020)	p. 170
no. 46 - Acea sites/plants and km of network analysed and with potential impacts on biodiversity	p. 181
no. 47 - Natural areas intersected by Acea plants/networks and protected species in IUCN Red List present	p. 181
no. 48 - Installed electrical power of the Group broken down by energy source (2020)	p. 188
no. 49 - Electricity produced subdivided by primary energy source (2020)	p. 188
no. 50 - The water distribution network of the Group in Italy (2020)	p. 195
no. 51 - Tests of drinking water, total and by Company (2020)	p. 195
no. 52 - Water leaks	p. 198
no. 53 - Sewer networks of the group in Italy (2020)	p. 199
no. 54 - Analytical checks on wastewater, total and by Company (2020)	p. 200
no. 55 - Car-sharing data (2020)	p. 204

## TABLES

no. 1 - Consistency with GRI Material Topic-Specific Standards and Acea material topics of high significance	p. 14
no. 2 - Companies included in the Parent Company's full consolidation area (2020)	p. 15
no. 3 - Scope of the Acea group Consolidated Non-Financial Disclosure for 2020 (pursuant to Italian Legislative Decree no. 254/2016 and the GRI Standards)	p. 16
no. 4 - The Ten Principles of the United Nations Global Compact	p. 18
no. 5 - The elements of advanced CoP and GRI Standards	p. 19
no. 6 - Acea Group in numbers, 2020	p. 22
no. 7 - The main economic and equity data of the Acea Group (2019-2020)	p. 30
no. 8 - Structure of the Board of Directors and Committees of Acea SpA (as at 31/12/2020)	p. 59
no. 9 - Models and controls	p. 62
no. 10 - Acea material topics, risks and management methods	p. 66
no. 11 - Risks and opportunities related to climate change: CDP evidence	p. 67
no. 12 - Certified management systems in the Acea Group (as at 31/12/2020)	p. 70
no. 13 - Economic value directly generated and distributed (2019-2020)	p. 75
no. 14 - Breakdown of value generated by stakeholder (2019-2020)	p. 75
no. 15 - Customers of the Acea Group (2018-2020)	p. 81
no. 16 - Results of customer satisfactions surveys: sales and distribution of energy, public lighting service (2019-2020)	p. 87
no. 17 - Results of customer satisfactions surveys: water service (2019-2020)	p. 88
no. 18 - Main interventions for the management and development of electricity grids and substations (2020)	p. 90
no. 19 - Public lighting in Rome in figures (2020)	p. 91
no. 20 - Main interventions for improved efficiency, safety, repairs and maintenance (2020)	p. 93
no. 21 - Public lighting fault recovery: fines, standards and Acea performance (2019-2020)	p. 93
no. 22 - The main specific and general levels of commercial quality – energy-distribution (2019-2020)	p. 96
no. 23 - The main specific and general levels of commercial quality – energy sales (2019-2020)	p. 97
no. 24 - Service continuity data – energy distribution (2018-2020)	p. 98
no. 25 - Water mains areas 2020 (georeferenced data)	p. 99
no. 26 - Main interventions on the drinking water and sewerage networks and controls on drinking water and wastewater (2020)	p. 100
no. 27 - Number, type and duration of disruptions in the supply of water (2018-2020)	p. 102
no. 28 - The main specific and general levels of contractual quality in the water segment (2019-2020) – Acea Ato 2	p. 106
no. 29 - The main specific and general levels of contractual quality in the water segment (2019-2020) – Acea Ato 5	p. 107
no. 30 - The main specific and general levels of contractual quality in the water segment (2019-2020) – Gori	p. 108
no. 31 - The main specific and general levels of contractual quality in the water segment (2019-2020) – Gesesa	p. 109
no. 32 - The main specific and general levels of contractual quality in the water segment (2019-2020) – AdF	p. 110
no. 33 - Average water prices applied (2020)	p. 112
no. 34 - Energy: toll-free number and branch performance (2019-2020)	p. 120
no. 35 - Water: toll-free number and branch performance (2019-2020)	p. 121
no. 36 - Procurement data (2019-2020)	p. 135
no. 37 - Procurement nationwide (2019-2020)	p. 136
no. 38 - Change in employees by macro area (2018-2020)	p. 142
no. 39 - General data on personnel (2018-2020)	p. 145
no. 40 - Movements of personnel (2018-2020)	p. 146
no. 41 - Age groups, employment contract length (2018-2020)	p. 146
no. 42 - Hours worked, absences, remuneration and members of the supplemental pension fund (2018-2020)	p. 148
no. 43 - Health and safety (2018-2020)	p. 153
no. 44 - Training (2019-2020)	p. 158
no. 45 - Performance of stock exchange indexes and Acea shares (2020)	p. 163
no. 46 - 2020 Rating	p. 163
no. 47 - Operational sites in protected areas	p. 182
no. 48 - Species listed in the IUCN Red List with habitat in the protected areas intersected	p. 182
no. 49 - The principal sources under protection	p. 185
no. 50 - Installed power of the electric power stations of Acea Produzione	p. 187
no. 51 - Electricity produced (by primary energy source) (2018-2020)	p. 189
no. 52 - The production of energy by Ecogena plants and energy efficiency certificates (2018-2020)	p. 189
no. 53 - Number of overhead and underground distribution lines and plants (2018-2020)	p. 190
no. 54 - The San Vittore del Lazio waste-to-energy plant: operating data (2018-2020)	p. 193
no. 55 - Terni waste-to-energy plant: operating data (2018-2020)	p. 193
no. 56 - Analyses in Rome (2018-2020) and main quality parameters of the drinking water distributed in Lazio, in Campania and in Tuscany (2020)	p. 196
no. 57 - Volumes of wastewater treated by Water Companies operating in Lazio, in Campania and in Tuscany (2018-2020)	p. 199
no. 58 - Percentage coverage of the sewer and purification services over the total user accounts of the Water Companies in NFD (2018-2020)	p. 199
no. 59 - Hydrographic basins affected by discharges of Companies managing the IWS	p. 199
no. 60 - Output parameters of the main treatment plants managed by Acea Ato 2, Acea Ato 5, Gori, AdF And Gesesa (2020)	p. 200
no. 61 - Type and consumption of materials by the main Companies in the Group (2018-2020)	p. 202
no. 62 - Direct energy consumption of the main Companies in the Group (2018-2020)	p. 202
no. 63 - Indirect energy consumption of the main Companies in the Group (2018-2020)	p. 203
no. 64 - Energy intensity indices (2018-2020)	p. 203
no. 65 - Energy efficiency in Areti (2018-2020)	p. 204
no. 66 - Water intake of the Group's main Companies (2018-2020)	p. 205
no. 67 - Environmental indicators: CO <sub>2</sub> emissions, greenhouse gas intensity indices and vehicle emissions (2018-2020)	p. 206
no. 68 - Concentrations of atmospheric emissions generated by waste-to-energy plants (2018-2020)	p. 207
no. 69 - CO <sub>2</sub> emission allowances as per the National Allocation Plan (NAP) and actual emissions by plant (2018-2020)	p. 207
no. 70 - Environmental indicators: CO <sub>2</sub> emissions, greenhouse gas intensity indices and vehicle emissions (2018-2020)	p. 208