



Sustainable use of water resources

[GRI 2-6, 2-23, 3-3, 303-1, 303-2, 303-3, 303-4, 303-5]

The rational use and protection of water resources are explicit objectives, in line with the Sustainability Policy adopted, in the Group’s Business Plan, which defined targets relating to the withdrawal of water for distribution for drinking purposes and the quality of the waste returned to the environment, which represent fundamental factors for sustainable management.

Sustainable use of water resources



Risks

- Failure to achieve the objectives and targets (economic-financial and ESG) set out in the Business Plan and consequent negative impacts (operating, economic, financial and reputational)
- Failure to achieve the targets set by the regulation
- Negative impacts on environment, health and safety with consequent reputational and economic impacts
- Interruptions to the integrated water service
- Failure to meet regulatory water quality levels for distributed and discharged water
- Accidental spills impacting groundwater and surface water bodies
- Chronic or extreme natural phenomena from climate change that may cause impacts on assets/performance
- Shortage of water resources due to droughts and climate change



Opportunities

- Access to reward systems linked to improved environmental performance
- Reduction of energy consumption related to the reduction of water resource leaks in the network
- Reduction of water withdrawals from the environment for drinking purposes
- Improving the quality of the water resource returned to the environment
- Reuse of water resources with contribution to water stress reduction



Management methods

- Planning and monitoring of business plan objectives and targets (economic/financial and ESG)
- Code of Ethics
- Sustainability Policy
- Organisational Model 231 and information flows to the Supervisory Bodies
- Sustainable Financing Framework
- MbO and LTI system with ESG objectives
- Investment plans for plant and network optimisation
- ERM system (Operational Risk Policy and Climate Change Risk Policy)
- Integrated Certified Management System (risk assessment, containment measures and third-party audits)
- Procedures: Environmental analysis, Management of water resources, Management and control of water withdrawals and discharges, Programmed search for water leaks, Management of accidental spills of hazardous and/or polluting substances
- Water resources monitoring plans with targets on water resource withdrawn
- Strategies for conservation and reuse of water resources
- Temperature monitoring
- Adoption of best available technologies

Use of water in processes

The commitment to reducing environmental impacts is reflected in the conscious and sustainable use of water resources in all the Group's processes and services, in terms of both withdrawals and consumption and releases and discharges.

Most Group companies have implemented a certified environmental management system (ISO 14001) and the main production sites have EMAS registrations; therefore, they have procedures for the management of water resources, which represent an operating tool for the management of withdrawals and discharges. The procedures apply to:

- the various types of production processes and/or supplies of services, which require the use of the "water" resource, even for a secondary purpose;
- water withdrawal of any kind and purpose;
- treatments and qualitative modifications of the resource water made for any reason;
- water discharges of any kind, purpose and origin to soil, subsoil, surface water bodies and sewers.

WATER WITHDRAWALS

The water supply to the Group's sites is made by withdrawing water from surface water bodies (reservoirs, rivers), from the sea and from groundwater pumped from wells and water mains.

Almost all of the Group's water withdrawals are attributable to **electricity and heat generation** activities: in particular, the cogeneration and thermoelectric plants, which use about 98% of the Group's total withdrawals, use water mainly for cooling thermal cycles. In order to contain and mitigate the impact of these plants on water bodies, in addition to the chemical and physical parameters, the temperature difference between withdrawal and discharge is also monitored to ensure that the water is always returned to the environment at the correct temperature. In energy production, each activity regarding the use of water sources is regulated by legal provisions of the law or authorisations with the responsibility laying in the hands of the Legal Representative of the Company or Managers, provided with specific powers of attorney and proxies, who have the task of managing and supervising the correct performance of the activities and the correct application of the procedures. Moreover, the "environmental analysis" document, prepared for each site/plant, allows for the identification of the environmental aspects related to water resources and the obligations foreseen by environmental legislations. The analysis also identifies the applicability of the legislation to the Group's plants as well as the compliance with the regulations in force.

In 2023, the Group's water withdrawals increased by 27% compared to 2022, mainly due to the increased use of surface water for cooling a new combined-cycle plant that came on stream during the year, generating more thermoelectric production overall. The expansion of the company perimeter also influences the trend in withdrawals, albeit to a lesser extent.

WATER WITHDRAWAL BY SOURCE (m³/000) ⁽¹⁾

Sources	2023	2022	2021
Water mains	2,615	2,364	2,787
Surface water	594,144	457,785	493,418
Seawater	5,388	10,859	13,810
Groundwater	6,327	6,497	6,737
TOTAL ⁽¹⁾	608,474	477,506	516,752

⁽¹⁾ All withdrawal sources (except seawater) are composed of freshwater ($\leq 1,000$ mg/L of total dissolved solids). For the integrated water service, withdrawals for industrial use in water treatment and purification activities are considered, while throughputs feeding local community waterworks are excluded. Based on figures updated to 2023 from the World Resources Institute "Aqueduct water risk atlas", water withdrawals are approximately 62% in low water stress areas (<10%) and approximately 38% in contained water stress areas (20-40%)

Water used in hydroelectric power generation is considered as passing through and is therefore not counted in the Group’s total water withdrawals. In fact, in the hydroelectric plants, the water, captured by intake works in surface water bodies and artificial reservoirs, is returned to the environment without changing its chemical and physical characteristics. In all plants, the ‘Minimum Vital Flow’ (DMV) is guaranteed, which is the water supply that can guarantee the natural ecological integrity of the surface water body, with particular reference to the protection of aquatic life. The DMV is defined by the Concession Specifications or by regional regulations in implementation of the approved Water Protection Plans, in accordance with the Ecological Flow Guidelines, and through agreements with the competent authorities.

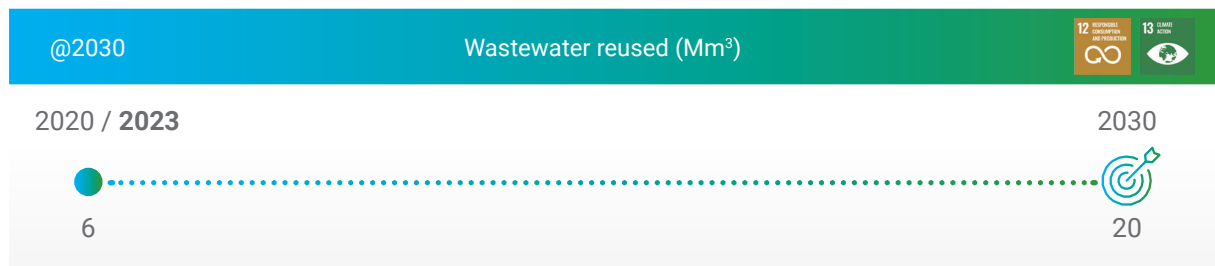
In 2023 - as happened in the previous year as a result of the strong summer drought that hit northern Italy - the Group has adjusted the daily planning of hydroelectric energy production, in particular of the Ceresole Reale reservoir, to allow all consortia agricultural companies in the Canavese area to carry out the irrigation of the crops, thus allowing the crops to be made safe. This initiative was made possible by constant discussion and consultation with the consortia.

RECOVERY AND REUSE OF WATER RESOURCES

With a view to circularity and mitigation of the impact of its activities on water resources, in a context where climate risks such as drought and water stress are continuously increasing, the Group promotes, where possible, water recovery and reuse initiatives.

An example is the Torino Nord **cogeneration** plant, which is equipped with recovery systems for secondary rainfall rainwater and condensate from the air cooling system entering the turbine. The industrial water produced is stored in a tank and used for firefighting purposes, to supply the demineralised water production installation and for plant-related services. Water recovery and recycling systems are also present in **waste treatment plants**: for example, in waste-to-energy plants, water is recovered and recycled, where possible, to extinguish combustion slag and to cool the plant; in other plants, there

are rainwater recovery systems that, after being treated, are used to irrigate green areas or to wash indoor areas. Wastewater treated by **wastewater treatment plants** can be reused for irrigation purposes (agriculture, green spaces and sports facilities) and industrial purposes (plant cooling, street cleaning). Water reuse can reduce pressure on natural water resources and combat water scarcity, promoting the transition to production models centred on the concept of circular economy. The Group, which in 2023, reused around 6 million cubic metres of water thanks to the Mancasale (RE) wastewater treatment plant, has set itself the goal of reaching 20 million cubic metres of recovered resources by 2030. The water reuse figure has dropped compared to last year since the floods that hit the Emilia-Romagna region in May forced a stoppage of the plant in question.



WATER DISCHARGES

The activities carried out by the Group generate water discharges, whose management is regulated by Integrated Environmental Authorisations, Consolidated Environmental Authorisations and existing legislation:

- industrial discharges (including water used for the cooling of plants);
- integrated water service (process water from purification and treatment systems that do not contain particular pollutants);
- waste management and treatment;
- washing vehicles and industrial areas;
- discharge of domestic water at non-industrial sites.

Most water discharges are composed of water used in the cooling process at thermoelectric plants, which is discharged to surface water (rivers).

There is a 28% increase in discharges compared to 2022, driven by the similar increase in withdrawals commented on above.

WATER DISCHARGES (m³/000) ⁽¹⁾

Destinations	2023	2022	2021
Surface water	595,244	458,984	494,744
Groundwater	87	148	102
Seawater	5,408	10,881	13,810
Sewer	6,059	5,864	6,500
TOTAL	606,798	475,877	515,157

⁽¹⁾ All discharges (except seawater) are composed of freshwater ($\leq 1,000$ mg/L of total dissolved solids). For treatment plants, only process water is considered, not treated wastewater serving communities (see page 189). Based on figures updated to 2023 from the World Resources Institute "Aqueduct water risk atlas", water discharges are approximately 62% in low water stress areas (<10%) and approximately 38% in contained water stress areas (20-40%).

The water withdrawn is almost totally returned to the environment: about 0.2% of withdrawals, equal to 1.7 million cubic metres, is consumed in industrial processes. This is mainly water evaporated in production processes (with particular reference to waste-to-energy plants) and used for district heating networks.

Management of the integrated water service

WATER PRODUCTION AND DISTRIBUTION

The supply of water for the distribution of drinking water to the communities is carried out in compliance with regulations and concessions and according to effectiveness and efficiency criteria.

The criteria for using resources consider several factors: authorised quantities, size of reserves in the main reservoirs, the quality of available surface water, the hydrological features of the basins, final data relating to the previous year and the current year. Modern automation and remote control equipment

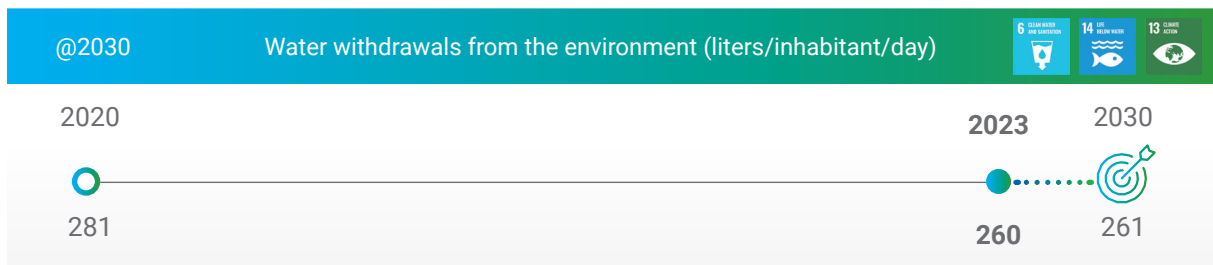
ensure the water catchment, purification, and lifting systems' best operation.

Water withdrawn from the environment and injected into the network shows an increase of 3.7% compared to 2022, caused by the consolidation of AM.TER. and Acquaenna, in the Genoa and Enna areas, respectively. Excluding this change in the scope of consolidation, there was a decrease of 2.4%, due to the improvement achieved in the reduction of water network losses in the historically managed territories.

Water injected into the network (m ³ /000)	2023	2022	2021	2020
Piacenza	30,144	30,913	32,608	31,041
Parma	35,452	35,075	37,645	38,095
Reggio Emilia	43,310	43,990	44,936	45,818
Vercelli	8,426	8,617	8,614	8,916
Genoa ⁽¹⁾	89,279	87,125	87,725	90,605
Savona	16,621	18,574	19,540	19,093
Imperia	2,979	3,198	3,108	3,080
La Spezia	36,167	37,876	39,800	38,002
Enna ⁽²⁾	12,794	n.a.	n.a.	n.a.
Other provinces	1,412	1,425	3,941	4,956
TOTAL	276,585	266,792	277,917	279,606

⁽¹⁾ As of 1/4/2023, the basin served in the Genoa area increases by 7 municipalities, due to the consolidation of AM.TER.

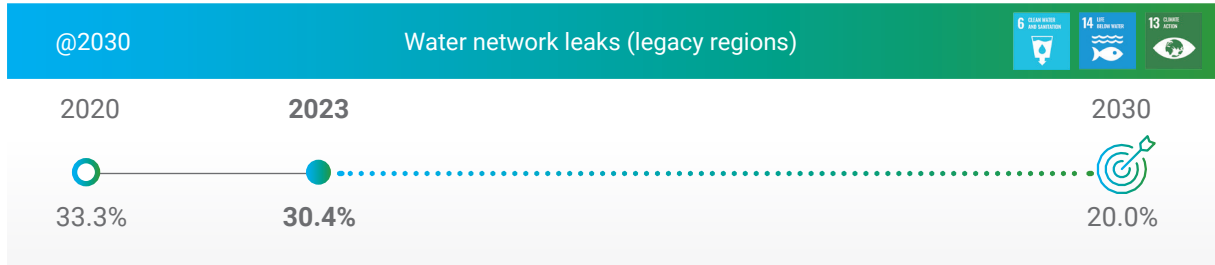
⁽²⁾ As of 1/6/2023, Acquaenna is consolidated by the Group.



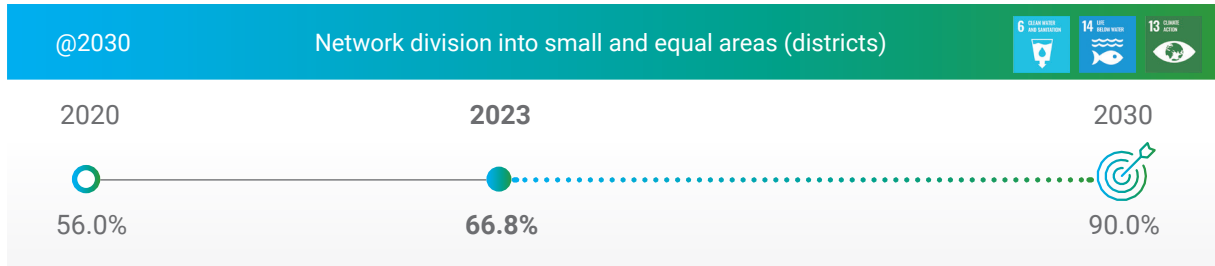
The commitment of Iren Group in the enhancement and protection of the water resource is expressed in the constant activity of research and reduction of network losses and in the sensitisation of customers and citizens to the reduction of waste. In fact, in the 2030 Business Plan, the Group has planned major investments to make the water distribution service increasingly efficient, with the aim of reducing water withdrawals from the environment and significantly reducing network losses. In 2023, the Regulatory Authority for Energy Networks and Environment

(ARERA) confirmed the excellent performance of Iren Group companies involved in the management of the integrated water service, certifying them among the best operators at national level for the technical quality performance achieved in the two-year period 2020-2021.

The percentage of network losses stands at 31.1% (30.4% in the historical territories), registering a reduction compared to 2022 (31.3%), with levels well below the national average of 41.2% (ISTAT figures).



Among the initiatives for the reduction of leaks in the aqueduct networks, we note the district division: a technique that involves dividing the networks into small homogeneous areas, the so-called districts, which allow daily monitoring and constant analysis of hydraulic parameters. In this way, the instrumental leak detection campaigns are punctual and targeted only to the districts on which the monitoring has detected hidden leaks. Currently 66.8% (69.2% in the historical territories) of the managed network is district divided, thanks to 235 new districts implemented by 2023, in line with the 2030 target of reaching 90% of the managed networks.



WATER HOUSES

The network of houses for the free supply to citizens of water (chilled and sparkling), coming from the managed aqueducts, allows to strongly reduce the use of plastic bottles (over 19 million 1.5 litre bottles in 2023) and, consequently, the production of waste (674.5 tonnes of PET avoided), with an estimated saving of 1,756 tonnes of CO₂ thanks to the avoided consumption of 1,281 tonnes of oil equivalent for the production of bottles.



WATER SAFETY PLANS

The Water Safety Plan (WSP) is a model, introduced by the World Health Organisation, that consists of a detailed risk analysis of the entire water-drinking chain, starting from the capture of the water resource up to the point where the water is made available to end users. This approach aims to ensure the protection of water resources and reduce potential health hazards in water for human consumption.

With the implementation of WSP, it is possible to ensure that all phases of water collection, treatment and distribution are subject to continuous and permanent risk assessment and management, through the multidisciplinary nature of the experts involved in the team (AUSL, ARPA, Regions, ATO and municipalities) to achieve a complete knowledge of the system, with the integrated water service manager as the main player and responsible for preparing the WSP.

In the water risk assessment, related to the first WSP launched by the Group, a particular focus is on climate risks intended both as exceptional weather phenomena (floods, severe droughts) and as changes in the quality/quantity of water resources due to climate change. In addition to these assessments, there are site-specific ones peculiar to each drinking water system.

The Group – which, considering all the territories managed, will have to prepare 230 WSP by 2029 – has embarked on the path to adopt and implement the WSP, giving priority to the supply areas with the largest number of inhabitants and sensitive users (hospitals, nursing homes, schools), which will be followed by the launch of the remaining plans according to a defined chronological schedule and final validation by the Ministry of Health and the Istituto Superiore di Sanità.

SEWER AND TREATMENT QUALITY

Urban wastewater from public sewers is treated at 1,380 treatment plants of varying capacity and type. In the central plants, pre-treatments are carried out to remove coarse matter, sand and oils, primary treatments to remove settleable solids and traditional secondary and tertiary treatments for nitrogen removal and with chemical and biological dephosphating systems. The Group also manages several phyto-purification plants that use plants' treatment activity and are used both for the treatment of sewage (sub-surface flow system) and for the refinement of water treated in traditional wastewater treatment plants (surface flow systems).

Overall, the volumes of wastewater treated in 2023 increased compared to the previous year due to both climatic factors, such as different rainfall, and the change in the company's scope.

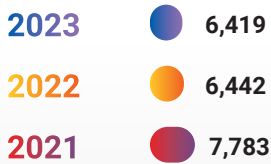
Treated wastewater (m³/000)⁽¹⁾



Emilia-Romagna



Liguria



Piedmont



Sicily

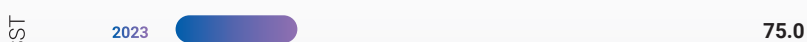
TOTAL



⁽¹⁾ For the volumes of water treated, all the Group's treatment plants with a capacity of more than 2,000 inhabitant equivalent are considered. In Liguria, the Group does not manage the sewerage and treatment service in the Savona and Imperia areas.

Purified water quality is measured by the percentage of reduction of the main pollutants leaving the plants compared to the quantities entering: BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), SST (Total Suspended Solids). The Group's goal is to ensure the following percentages of reduction in the purified water: COD greater than 90%, BOD greater than 94%, and SST greater than 93%. Overall, the following average results were obtained in 2023: 92.1% for COD, 92.3% for BOD, and 91.7% for SST. The chart details the reduction by geographic area.

Pollutant reduction by geographical area (%)⁽¹⁾



⁽¹⁾ For calculation of pollutant reduction, all the Group's treatment plants with a capacity of more than 2,000 residents equivalent are considered. In Liguria, the Group does not manage the sewerage and treatment service in the Savona and Imperia areas.

The Group’s long-term objectives also include increasing the capacity of its wastewater treatment plants in order to provide increasingly extensive and efficient service and to improve the environmental impact of wastewater management.

In 2023, the Group’s treatment capacity exceeded 3,675,000 inhabitant equivalent, an increase compared to 2022 also due to the expansion of the company perimeter in the Genoa metropolitan area and the Enna territory.



Lastly, the Group is committed to the containment and abatement of **odorous emissions** from wastewater treatment plants by confining them to secure rooms during the process in order to allow the air to be aspirated and treated.

DESTINATION OF TREATED WASTEWATER

All the water bodies that receive wastewater treated by the Group in the Emilia-Romagna and Piedmont regions fall within the Po River basin. The land lies within an area declared as sensitive so the plants, depending on their size, are subject to the application of the strictest nitrogen and phosphorus limits.

The wastewater treated by the treatment plants in Liguria’s served areas is discharged into the Ligurian sea (mainly the Gulf of Genoa, the Gulf of Tigullio and the Gulf of La Spezia).

In the areas served in the province of Enna, discharge is into surface water bodies such as streams, valleys and rivers, mainly the Salso (southern Imera), Simeto, Dittaino, Torricoda and Sotto di Troina. There is no direct discharge into the sea.

