2021
SUSTAINABILITY REPORT

Creating shared value
and involving stakeholders: the story
of a company committed to leaving a mark.
But not a footprint

Excerpt related to
“Climate change mitigation”
and “Resilience and adjustment”

GRUPPO HERA | 20 VENTANNI INSIEME

Climate change mitigation

Hera for climate

The challenge of climate change and Hera Group's commitment

Climate change is one of the greatest challenges facing humanity today. Accepting this challenge means initiating an **ecological transformation** of technology, economy and society. Fossil fuels are one of the main causes of climate change and it is therefore essential to reduce their consumption to limit the increase of the main greenhouse gas, carbon dioxide.

The Group's commitment in this area starts with several actions taken in terms of **mitigation and adaptation** as described in this report.

The Group's strategy for climate change mitigation mainly consists of:

- purchasing **renewable energy** to power its business;
- increasing **renewable energy production** (in particular biomethane and geothermal energy);
- initiatives and projects to **reduce its carbon footprint**. For example: energy efficiency plans from Iso 50001 certification and reduced environmental impact of the Hera fleet;
- offering solutions to **reduce the carbon footprint of customers** in all segments (households, condominiums, businesses, and public administration). For example: sale of electricity from renewable sources and natural gas with CO_2 offsetting, additional services to households and businesses for energy efficiency, district heating development, energy efficiency and renewable electricity in public lighting, energy requalification of buildings, support for urban electric mobility;
- promotion and implementation of **circular economy initiatives**, such as separate collection, commitments on plastic recycling, production of biomethane from organic waste;
- implementing **technological innovation projects and plant engineering initiatives** for a more complete environmental sustainability of its business.
- we are studying initiatives, also in partnership with other companies, aimed at **developing hydrogen as an energy vector**.

Since 2006, the Hera Group has been a member of the CDP, an independent not-for-profit organization that provides businesses and countries with a way to measure, track, manage and share information about climate change and on the sustainable use of water resources on a global scale. CDP compliance requires **measuring and reporting** all of an organisation's performance, and the initiatives taken to reduce GHG emissions. In 2021, Hera confirmed the **level A-** (on an A-D scale) of 2020, which is **higher than the average of the "Energy utilities network" sector** (level B), **the European average** (level B) and **the global** average (level B-).

Still in the field of **reporting**, this report contains:

- the results of our process to **align with the Recommendations of the Task Force on Climate-related Financial Disclosure (TCFD)** which started in December 2019 and involved several Departments and all the Group's Business Units;
- the first reporting of GHG emissions validated by the **Science Based Targets initiative** in March 2021.

TCFD recommendations

In 2015, the United Nations member states signed the **Paris Agreement**, committing to work to limit the global average temperature rise to well below 2°C compared to pre-industrial levels and strive to limit the increase to 1.5°C by the end of this century. In the same year, the G20's **Financial Stability Board** (FSB) established the **Task Force on Climate-related Financial Disclosures (TCFD)** to support organisations in becoming more transparent about the financial opportunities and risks linked to climate change. In 2017, the TCFD published recommendations on financial reporting (updated in 2021), which are now an international reference for corporate climate risk management. The **TCFD's recommendations** are applicable to organisations in all sectors and are classified into four areas: governance, strategy, risk management, and metrics & targets.

The Hera Group decided to adopt the approach proposed by the TCFD by launching a process of alignment with the recommendations in December 2019. The results of this have been published in the Sustainability report 2020 and the **"Hera for climate" report**. The working group dedicated to TCFD consists of: Shared Value and Sustainability Department; Enterprise Risk Management; Central Strategy, Regulation and Local Authorities Department; Energy Management. Some steps also involved: Central Innovation Department; Administration, Finance and Control Department; HR and Organisation Central Department; Quality, Safety and Environment Department; the Business Units.

Governance of climate change issues

At the **Board of Directors** level, management of the risks and opportunities linked to climate change is supported by the **Control and Risks Committee**, the **Risk Committee** and, indirectly, the **Ethics and Sustainability Committee**, the tasks of which include monitoring the implementation of sustainability policies and the prior review of sustainability reporting to be submitted to the Board.

The **CEO** is responsible for ensuring the implementation of the sustainability and shared value guidelines through the Shared Value and Sustainability Department, one of whose functions is to coordinate the **balanced scorecard system**. In addition to chairing the **Executive Committee**, the **Chairman of the Board of Directors** is responsible for setting strategic guidelines and for decisions on **capital allocation**. In fact, the Central Department for Strategy, Regulation and Local Authorities reports directly to him.

The **Control and Risks Committee** is the advisory body set under the Corporate Governance Code to support the decisions and assessments of the Board of Directors concerning the internal control and risk management system, including risks related to climate change, with adequate preliminary activities.

At management level, the **Risk Committee** defines risk management policies and develops specific guidelines and objectives for the business units. In 2021, its functions were updated to include climate change in the list of relevant risks to be addressed by the Committee.

The **Shared Value and Sustainability Department** has among its responsibilities some of the key elements to ensure the good management of climate risks and opportunities. It coordinates the process of defining balanced scorecards, prepares corporate guidelines and reporting in the Shared Value and Sustainability area, and develops new sustainability projects. In addition to that, the head of the department is also a member of the Group's **Ethics and Sustainability Committee**.

The **Central Department for Strategy, Regulation and Local Authorities** plays a key role in the resilience of the Group's strategy. The management's forward-looking and future-oriented analysis skills were crucial in carrying out Hera Group's **first climate scenario analysis**. Among the initiatives identified to seize the opportunities defined through the scenario analysis, the most promising have been included in our 2021-2025 business plan.

Within Hera Group's organisational structure, a role in the management of climate opportunities and risks is also played by the **Administration, Finance and Control Department**, in particular for defining the annual budget and raising capital, and by the **Energy Management Department**, which supports the CEO in developing energy-saving initiatives.

With the aim of **strengthening the governance of climate change aspects**, the following internal documents have been updated during 2021: Management system manual, Group risk management policy (guideline), Management control planning (guideline), Management system review (procedure), Investment authorisation process (procedure) and Business impact analysis and risk assessment methodology (procedure). In particular, in the "**Group risk management policy" guideline**, reference to the analysis of medium-long term climate scenarios has been introduced, while the **"Management control planning"** guideline specifies that the strategic planning process must provide for medium-long term industrial development in line with the company's "Scope", i.e. the pursuit of carbon neutrality, one of the three areas of shared value creation.

The management system and Enterprise Risk Management

Our quality, safety, environment and social responsibility **management system** is the set of interrelated or interacting elements that support the implementation of Hera Group's policies and objectives in a large number of areas, including those relating to climate change.

Concerning the **identification**, **assessment** and **management** of **climate risks**, the organisational structure adopted by the Hera Group makes it possible to manage the exposure to risk arising from its businesses and, at the same time, to preserve the effectiveness of management along the entire value chain.

In our corporate governance system, the **Control and Risks Committee**, which is a part of the Board of Directors, is responsible for monitoring the functionality of the internal control system, the efficiency of company operations, as well as compliance with laws and regulations.

The Control and Risks Committee receives regular reports from the **Risk Committee**, which is the main body for steering, monitoring, and reporting on risk management strategies, including climate risks. The Risk Committee is responsible for defining the guidelines for the **Enterprise Risk Management** process, the mapping and monitoring of corporate risks and the definition of **Risk Policies**, to submit to the Board of Directors for approval.

Specific risk analyses are conducted by the **Enterprise Risk Manager** or by the Risk Specialists, who play an essential role in identifying, assessing and controlling how risks are managed. Climate-related risks, both physical and transitional, are included in the risk categories that have been analysed by the Enterprise Risk Manager.

During 2020, the **climate scenario analysis conducted** by the cross-functional working group led the Enterprise Risk Manager to define new quantification methods to assess the potential financial impact of the most relevant climate risks, activities which continued in 2021.

Analysis of climate scenarios

Scenario analysis is a methodology used to test the **resilience of business plans** under different assumptions of future developments. In the context of climate change, analysis of the scenarios helps us understand how physical and transitional **climate opportunities** and **risks** may affect our business over time.

To carry out its analysis, Hera Group selected the **two most relevant scenarios** out of nine taken as a starting point.

We chose the **IEA ETP 2DS transition** scenario, developed by the International Energy Agency, as the "ambitious" climate scenario, that described a future development characterised by strong decarbonisation processes to keep the increase in average temperatures below 2°C.

IEA ETP 2DS TRANSITION SCENARIO: KEY PARAMETERS TO 2050

Energy	▪ Energy intensity (TWh/GDP): -67% vs. 2013 ▪ Production of advanced biofuels: 20-fold increase from 2020 to 2025 ▪ Natural gas import price: 10.2 $/MBTU (2017: 5 $/MBTU)
Electricity	▪ Strong increase in production of electricity from renewable sources ▪ Emission factor: <40 gCO_2/kWh (2017: 484 gCO_2/kWh) ▪ 50% of solar generation from domestic panels (distributed generation) ▪ Demand for electricity: +68% vs. 2017
GHG emissions	▪ CO_2 emissions: -54% vs. 2017 ▪ CO_2 price: up to $210/t$CO_2$ (2017: Euro 5.8/tCO_2) ▪ Carbon capture utilization and storage (Ccus): 3500 MtCO_2 (2017: 2.4 MtCO_2)

We selected the **IPCC RCP 8.5 physical** scenario as a "pessimistic" scenario, in order to study the possible impacts on Hera Group's strategy in case of a "business-as-usual" pathway and a resulting large increase in average temperature (about 4° C). We selected the indicators available in the models simulating the RCP 8.5 scenario from the results of an analysis previously conducted by Enterprise Risk Management, which involved the business units in order to identify the climate events to which they are most exposed.

PHYSICAL SCENARIO RCP 8.5: KEY PARAMETERS

Dimension	Parameter	1980-2005	Trend to 2050
Precipitation	No. of days with heavy rainfall	23 days	↘
	No. of rainy days	90 days	↘
	Consecutive days without rain	25 days	↗
Temperatures	Average maximum temperature	17.5 °C	↗↗
	Average minimum temperature	8.5 °C	↗↗
	Heating degree days	1950 DD	↘↘
Sea	Sea level	+8cm (vs. 1990)	↗↗

At the same time, we defined **timescales** to distinguish and classify risks, opportunities and impacts as short-, medium- and long-term. This strategic approach enables us to go beyond the traditional time frame of the business plan.

Short-term	Medium-term	Long-term
From 0 to 5 years	From 5 to 10 years	From 10 to 30 years
Business plan timescale	Decarbonisation timescale	European Green Deal timescale

Risks and opportunities arising from climate change

The analysis of the ETP 2DS and RCP 8.5 climate scenarios identified **eight physical risks**, **eight transition risks**, and **15 opportunities**. Each risk and each opportunity has been linked to:

- a timescale;
- a priority level (defined as the combination of the level of likelihood that the context in which Hera operates will change as described by the risk/opportunity and the impact of the risk/opportunity on the business);
- one or more management methods (for risks) and one or more business initiatives (for opportunities).

Physical risks

The RCP 8.5 climate scenario analysis conducted by the Hera Group, combined with the investigations already carried out by Enterprise Risk Management together with the business units, identified **eight physical risks**. The physical risks are distributed over the medium- and long-term timescales, with more occurrences in the 2031-2050 horizon consistent with the notion that the impacts of climate change will become increasingly evident in the long term. To mitigate, manage or transfer these risks, we also identified **21 management methods**. Some of the management methods envisaged in the 2021-25 business plan are explained in the following section on Hera's climate strategy.

CPR SCENARIO 8.5: SUMMARY OF PHYSICAL RISKS AND HOW TO MANAGE THEM

8 Physical risks		21 Management methods (no. and category of risk)
Changing weather and climate phenomena	2 average period 2 long period	6 Acute 8 Chronic
Rising temperatures	2 average period 1 long period	2 Acute 3 Chronic
Rising sea levels	1 long period	2 Chronic

Short-term horizon: 2022-2025; Medium-term: 2026-2030; Long-term: 2031-2050

Of the eight physical risks assessed, we subjected those with a higher priority level to an in-depth analysis to quantify their **financial impacts**. In particular, the risk associated with the **decline in gas consumption and district heating** for civil use as a result of the **temperature increase** was assessed as significant in the long term.

Further **assessments are underway** regarding risks related to weather and climate phenomena, with particular reference to flooding and its effect on the group's assets.

Transition risks

We identified transition climate risks mainly by the analysis of the International Energy Agency's ETP 2DS scenario. The analysis led to mapping **eight transition risks**, mainly concentrated in the medium-term time horizon and distributed over two out of three categories of the classification suggested by the TCFD. We also linked each risk to **one or more management methods, for a total of 12** that will allow the Group to be better prepared for possible future changes. Some of the management methods envisaged in the 2021-25 business plan are explained in the following section on Hera's climate strategy.

IEA 2DS SCENARIO: SUMMARY OF TRANSITION RISKS AND HOW TO MANAGE THEM

8 Transition risks		12 Management methods (no. and category of risk)
CO_2: -54% by 2050	4 average period	1 Political-Regulatory/Reputation 2 Political-Regulatory 1 Market 1 Reputation
Electricity: increasing demand and FER share	3 average period 1 long period	2 Technology 3 Market 2 Political-Regulatory

Short-term horizon: 2022-2025; Medium-term: 2026-2030; Long-term: 2031-2050

We further investigated the transition risks considered to be a priority to assess their **financial impacts**. The risks related to trends in **energy efficiency** and **electrification of consumption**, and to the extension of **carbon pricing systems** were found to merit further assessment. We defined management methods and monitoring indicators for each risk class.

Opportunities

The Hera Group identified the opportunities arising from decarbonisation processes on the basis of the International Energy Agency's ETP 2DS scenario. The analysis led to the identification of **15 opportunities**, mainly associated with projected reductions in greenhouse gas emissions, increased demand for electricity and greater use of renewable energy sources and the development of advanced biofuels. Most of the opportunities are expected in the short term and we identified **36 initiatives** to seize them.

We classified ten of the opportunities as **relevant in the short term** (by 2025). We further developed the initiatives designed to capture the most promising opportunities to feed into Hera Group's new **2021-2025 business plan**. The following section describes how the new plan seizes the opportunities to participate in the decarbonisation process and what initiatives will be implemented to achieve the objectives.

IEA 2DS SCENARIO: OVERVIEW OF OPPORTUNITIES AND INITIATIVES

15 Opportunities		36 Initiatives (no. and category of opportunity)
CO_2: -54% by 2050	6 short period 1 long period	5 Efficient use of resources 1 Energy sources 6 Products and services 5 Markets
Electricity: increasing demand and FER share	3 average period 3 long period	8 Products and services 3 Energy sources 1 Efficient use of resources
Energy: increase in advanced biofuels	1 short period 1 average period	6 Energy sources 1 Products and services

Short-term horizon: 2022-2025; Medium-term: 2026-2030; Long-term: 2031-2050

Hera's climate strategy

Hera Group's new 2021-2025 business plan takes the sustainability guidelines of **European policies** as a reference and confirms the **Sustainable Development Goals** as the basis for the creation of shared value.

The framework of the new business plan consists of **three strategic dimensions**: **climate and environment**, **economy and society** and **innovation and skills**, which the Group's projects in all its businesses are built around, to combine the development of the multi-utility with that of the context in which it operates, in a "win-win" perspective to increase the share of EBITDA "with shared value" (EBITDA CSV).

The EBITDA CSV indicator measures the share of the Group's consolidated EBITDA generated by business operations that respond to the drivers of change and related impact areas identified in the shared value creation model that informs Hera's approach to sustainability.

In the new model which was updated last year, one of the three drivers of shared value creation is the **pursuit of carbon neutrality** of the services we provide, both for the benefit of customers and of the

local ecosystem. The actions envisaged to fight climate change therefore play an important role in the environmental dimension and in the shared value creation model.

The strategic framework reaches beyond the Plan's timeframe, to 2030. Particularly noteworthy here are the targets for reducing greenhouse gas emissions in line with the criterion of the Science Based Targets initiative, which are discussed in detail in the following section.

The physical and transitional risk management and business initiatives linked to the opportunities included in our 2021-2025 business plan are outlined below.

Physical risk	Timescale	Priorities	Management method
Floods and flooding with resulting landslides and mudslides	Medium term 2026-2030	Medium-high	▪ Infrastructural upgrading of drainage networks, reservoirs and water treatment plants ▪ Increased alert capacity for extreme events in critical areas
Rising temperatures	Long-term: 2031-2050	Medium-high	▪ Market strategies oriented towards the development of customer-dedicated VAS to complement and enrich the offer portfolio
Extreme weather events	Medium term 2026-2030	Medium-low	▪ Network resilience plan and reinforcement of the electricity distribution network in the face of extreme winter events with interventions on overhead powerlines and substations
Changes in the distribution over time of annual precipitation and average rainfall amounts	Long-term: 2031-2050	Medium-low	▪ Strengthening and expanding water resources to increase the resilience of water networks Construction of interconnections between water networks ▪ Enhancement of the application of advanced leak detection techniques to increase the efficiency of the network

Transition risk	Timescale	Priorities	Management method
Electrification of energy consumption and development of renewable energy sources	Medium term 2026-2030	Medium-high	▪ Commercial proposition aimed at the development and sale of photovoltaic systems, consumer and utility scale, and the development of sustainable mobility ▪ Acquiring increasing shares of electricity customers as a result of energy carrier switching ▪ Increased presence in electricity distribution
Limits on the generation of greenhouse gas emissions	Medium term 2026-2030	Medium-high	▪ Reducing the group's carbon footprint with energy efficiency improvement projects, increasing optimised consumption management and the use of zero-emission energy sources
Introduction of measures requiring structural and non-structural efficiency measures	Medium term 2026-2030	Medium-high	▪ Specific projects in the field of energy efficiency ▪ Enhancement of advanced techniques aimed at limiting the use of primary resources in the field of: ▪ water (reduction of water losses, reuse of water resources) ▪ waste (initiatives to enhance recovery and recycling)

Opportunities	Timescale	Priorities	Initiative
Air quality and urban emissions policies, including incentives for efficient district heating systems	Short-term 2022-2025	Medium-high	▪ Production capacity saturation of existing district heating systems ▪ Conversion of district heating plants to "Efficient district heating systems" ▪ Installation of CO_2 capture, utilisation and storage for waste-to-energy plants ▪ "CLIMA" project to reduce gas network losses
Fiscal bonus for energy efficiency and EU incentives for decarbonisation	Short-term 2022-2025	Medium-high	▪ Services for energy efficiency in buildings
Raising customer awareness and increase of green offers by utilities	Short-term 2022-2025	Medium-high	▪ Green loyalty programmes with value-added services for energy efficiency and carbon neutrality ▪ NexMeter installation
Technological optimisation and plant efficiency improvement	Short-term 2022-2025	Medium-high	▪ Plant optimisation through revamping
Stimulating the circular economy and increasing demand for recycled plastics and/or bioplastics	Short-term 2022-2025	Medium-high	▪ Increase of plastic recycling activities
Dissemination of Renewable Energy Communities and Environmental Communities, and increase of distributed renewable energy demand	Short-term 2022-2025	Medium-high	▪ Promoting the sales of domestic photovoltaic systems ("Energy garden" project)
Development of electric transportation and increased demand for electricity along road infrastructure	Short-term 2022-2025	Medium-high	▪ Converting the fleet to low-carbon vehicles
Production of biomethane through recovery processes (possible eligibility for incentives)	Short-term 2022-2025	Medium-high	▪ Production of biomethane from FORSU ▪ Production of biomethane from pruning material
Production of syngas and/or green gas (hydrogen, biogas) for the decarbonisation of the gas chain and to handle overproduction of renewable energy	Medium term 2026-2030	Medium-high	▪ Construction of Power-to-Methane plants for electrical energy storage ▪ Experimental hydrogen injection into the gas network in Castelfranco Emilia (Mo)
Strengthening Hera's position as a reference point for local and urban sustainability	Short-term 2022-2025	Medium-low	▪ Construction of an Energy Park
Development of photovoltaic fields on land available to Hera and not usable for other purposes	Short-term 2022-2025	Medium-low	▪ Installation of photovoltaic panels on depleted landfills and water service facilities

Climate performance and targets

The Hera Group's strategy to **seize the opportunities** linked to decarbonisation and **mitigate the risks** of climate change is also governed by monitoring specifically defined **KPIs**.

On the one hand, **greenhouse gas emission** indicators and related **intensity indices** measure the company's overall ability to reduce its climate impact and minimise risks. On the other hand, the **metrics that influence emissions**, reclassified in line with the new TCFD guidelines (Guidance on Metrics, Targets, and Transition Plans - 2021). These quantitative measures, which include economic-financial indicators, capture how Hera Group is redesigning its internal processes and, above all, its commercial offering to seize the opportunities offered by regulatory, technological, and market developments related to decarbonisation.

The following table summarises the types and number of indicators that apply to each monitoring area. The indicators are set out in the Annex of this report.

Monitoring scope	Indicators	Of which with target / forecasts
Emissions	12	10
Intensity index of emissions	6	2

Monitoring scope	Indicators	Of which with target / forecasts
Risks and opportunities	4	0
Investments and use of capital	5	0
Remuneration	2	0
Other TCFD metrics - Energy	12	9
Other TCFD metrics - Resources	7	6
Total indicators	**48**	**27**

GHG emissions of Hera Group

The **Group's total emissions** (Scope 1 + Scope 2 + Scope 3) in 2021 were about **12,345 thousand tonnes of $_2$e**.

Specifically, the **emissions directly produced** by the Group (Scope 1) are equal to 982 thousand tonnes of CO_2e and represent 8.0% of the Group's total emissions. The Group's **indirect emissions from consumption of electricity** (Scope 2), using the market-based method, amount to more than 46 thousand tonnes of CO_2e and represent 0.4% of the Group's total emissions.

The **emissions indirectly caused by the Group's activities** (Scope 3) amount to 11,317 thousand tonnes of CO_2e, equal to 91.6% of the Group's total emissions. According to the "Technical Guidance for Calculating Scope 3 Emissions" published by the GHG Protocol, Scope 3 emissions can be divided into two categories: upstream (upstream categories) and downstream (downstream categories). The Hera Group's Scope 3 includes the following emission categories:

- upstream category (4,365 thousand tonnes of CO_2e, 35.3% of the Group's total emissions): production of fuels consumed for the generation of non-renewable electricity sold to customers; production of natural gas sold to customers; production of fuel consumed in industrial cogeneration plants installed at third parties; production of fuels consumed in owned vehicles; production of fuels consumed for the generation of non-renewable electricity consumed internally; network losses of electricity consumed internally; use of suppliers' vehicles for waste collection; use of Herambiente's vehicles for waste transport; production and printing of bills;
- downstream category (6,952 thousand tonnes of CO_2e, 56.3% of the Group's total emissions): consumption by customers of natural gas sold; production of energy by joint venture plants; recycling of waste from separate waste collection.

[305-1]
[305-2]
[305-3]

COMPOSITION OF GREENHOUSE GAS EMISSIONS

thousands of t CO_2e	2019	2020	2021	Delta 2021/2020
Waste treatment (waste-to-energy and landfills for municipal waste)	613.1	580.3	569.7	-1.8%
District heating	201.4	171.7	197.7	+15.1%
ASE and HSE energy services and other fuel consumption (methane, diesel, LPG)	208.9	186.4	170.5	-8.5%
Leaks in the gas network	28.8	18.2	13.7	-24.3%
Company fleets (diesel, petrol, LPG, natural gas)	30.5	29.7	30.2	+1.6%
Total direct emissions (Scope 1)	**1,082.6**	**986.2**	**981.8**	**-0.5%**
Indirect emissions from energy consumption (Scope 2, market-based)	48.4	44.4	46.6	+5.0%
Total emissions Scope 1 + 2 (market-based)*	**1,131.0**	**1,030.6**	**1,028.4**	**-0.2%**
Sale of methane gas - downstream emissions*	6,268.5	5,915.0	6,214.3	+5.1%
Sales of electricity*	4,386.7	4,195.8	3,170.3	-24.4%
Sale of methane gas - upstream emissions	814.7	769.0	1,063.5	+38.3%

thousands of t CO_2e	2019	2020	2021	Delta 2021/2020
Emissions from energy production and consumption (not included in Scope 1 and 2)	418.6	309.3	359.6	+16.3%
Other indirect emissions	612.0	423.9	509.0	+20.1%
Total indirect emissions (Scope 3)	**12,495.4**	**11,613.0**	**11,316.7**	**-2.6%**
Total emissions Scope 1 + 2 (market-based) + Scope 3	**13,626.4**	**12,643.6**	**12,345.1**	**-2.4%**

The calculation criteria are aligned with the methodology of the Science Based Targets Initiative. The 2019 figure includes data on EstEnergy, Amgas Blu, Ascotrade, Ascopiave Energia, Blue Meta, and Etra Energia which merged into Hera as at 31/12/2019.
*Indicators with validated science-based target. For electricity sales, the target is related to carbon intensity (t CO_2e/MWh). See the section on "Greenhouse gas reduction targets" for more details.

In 2021, total GHG emissions (Scopes 1, 2 and 3) **decreased by 2.4%** compared to 2020.

In particular, direct emissions (**Scope 1**) and indirect emissions from electricity consumption (**Scope 2**) remain broadly stable (-0.2%) compared to 2020. This is due to lower emissions from waste treatment plants (-1.8%), fuel consumption (-8.5%) and gas network losses (-24.3%), offset by increased emissions from district heating (+15.1%) and company fleets (+1.6%). Considering the change from base year 2019 for the validated science-based targets, scope 1 and 2 emissions are reduced by 9.1%.

Scope 2 emissions in 2021 are 46.6 thousand tonnes, up 5.0% from 2020 as a result of higher consumption of non-renewable electricity (+6.6%), partially offset by a reduction in the emission factor (-1.6%). The value of Scope 2 emissions shown above was calculated using the market-based method, which makes it possible to attribute value to the organisation's specific energy purchase choices, i.e. the part of renewable energy purchased with Guarantee of Origin certificates and therefore with zero impact; an emission factor relative to the national "residual mix" (for 2021 equal to 412 g CO_2e/kWh) is applied to the residual share of electricity purchased without certificates. On the other hand, Scope 2 emissions calculated with the location-based method amount to approximately 154 thousand tonnes, calculated by applying the Italian average emission factor from electricity production, which does not take into account the company's specific purchasing choices.

Total indirect **Scope 3** emissions in 2021 are around 11.3 million tonnes of CO_2e, **down 2.6%** from the previous year. For an analysis of the trend in indirect Scope 3 emissions, see a later section on greenhouse gas reduction targets.

GHG emissions under the EU-ETS

The **European Union Emissions Trading System (EU ETS)** is a cornerstone of the European policy to fight climate change and a key tool for cost-effective reduction of greenhouse gas emissions in regulated sectors. The system covers about 45% of European emissions and in January 2021 its fourth phase of application began, to end in 2030. By 31 March of each year, installations in the regulated sectors must report the greenhouse gas emissions recorded in the previous calendar year, and by 30 April cancel a number of emission permits ("European union allowances", 1 Eua = 1 t CO2) made available on the market at a calibrated and decreasing rate over time to **encourage a gradual reduction of emissions** in accordance with the medium to long term EU objectives.

In "**Fit for 55"**, the package of legislative proposals presented in July 2021 by the European Commission, the new targets for reducing greenhouse gas emissions are defined: from -40% to -55% by 2030 compared to 1990. The new contribution to be made by the sectors covered by the EU ETS corresponds to an increase in the reduction from -43% to -61% compared to 2005. A forthcoming revision of the ETS Directive will therefore support these new objectives, including by extending the sectors involved.

In the Hera Group there are **eight plants subject to EU ETS regulations** in 2021, **all** of which are related to energy production at the service of **district heating networks**. At the end of 2020, the S. Giacomo thermal power station in Bologna left the EU ETS scope. The emissions recorded in 2021, equal to 150,508 tonnes of CO_2, are higher than those of 2020 (119,728 tonnes of CO_2), mainly due to the effect of a different seasonality and a generalised greater energy production, especially by the largest plant, the Imola cogeneration plant. To take into account the fact that district heating is a public utility service and that it meets environmental sustainability criteria, the charge associated with actual emissions imposed by the ETS system is partly mitigated by **free allocation** of EUA or a maximum allowed amount of emissions within which no charges are made. This amounted to a total of 28,380 t CO_2 in 2021 (up from 23,219 t CO_2 in 2020 due to the change in the regulatory period); in particular, the EUAs allocated for free in 2021 amounted to 7,907 t CO_2 (13,246 t CO_2 in 2020).

In 2021, emissions from plants under EU-ETS accounted for 15.1% of the Group's total direct emissions (in 2020 they were 12.1%).

Carbon intensity indices
[305-4]

The Group's emission results can be represented by a number of indices that indicate their evolution and prospects, giving a picture of the company's performance in reducing impact in terms of greenhouse gases emitted. By relating direct emissions (Scope 1) and indirect emissions from energy consumption (Scope 2) to certain economic and demographic indicators, we can obtain **carbon intensity indices** that reflect the improvements generated.

CARBON INTENSITY INDICES

	2019	2020	2021
Total emissions – Scopes 1 and 2 (t CO_2e)	1,131,035	1,030,620	1,028,381
EBITDA (millions of Euro)	1,085	1,123	1,224
Carbon intensity indices (t CO_2e Scope 1 and 2 / EBITDA millions of Euro)	**1,042**	**918**	**842**
Residents served (thousands)	4,332	4,221	4,224
Carbon intensity indices (t CO_2e Scope 1 and 2 / thousands of residents served)	**261**	**244**	**244**

The calculation criteria are aligned with the methodology of the Science Based Targets Initiative. The 2019 figure includes data on EstEnergy, Amgas Blu, Ascotrade, Ascopiave Energia, Blue Meta, and Etra Energia which merged into Hera as at 31/12/2019.

The emission intensity index calculated as the ratio of Scope 1 and 2 greenhouse gas emissions to **EBITDA** improved compared to the previous year (-8.2%) due to the increase in EBITDA and substantially stable emissions. The same index calculated on **revenues** shows an improvement from 137 tonnes of CO_2e in 2020 to 94 (-31.3%) due to a change in revenue. The ratio on a **public citizen** basis is unchanged (emissions and number of the public served remain stable compared to the previous year). Relating Scope 3 emissions to the number **of customers**, the emission intensity index is about 5 tonnes per customer.

By comparing the emissions generated by power and heat plants with the energy produced by the plants themselves, the carbon intensity **index of power generation** in 2021 is **458 kg CO_2e/MWh**, **down 21%** from the 2013 baseline (580 kg/MWh).

CARBON INTENSITY INDEX OF ELECTRICITY SALES

	2019	2020	2021
Emissions from the sale of electricity (t CO_2e)	4,386,685	4,195,757	3,170,303
Electricity sold (MWh)	12,010,215	12,258,095	11,301,302
Carbon intensity index of electricity sales (t CO_2e / MWh)*	**0.365**	**0.342**	**0.281**

*Indicator with validated science-based target. See the section on "Greenhouse gas reduction targets" for more details. The calculation criteria are aligned with the methodology of the Science Based Targets Initiative. The 2019 figure includes data on EstEnergy, Amgas Blu, Ascotrade, Ascopiave Energia, Blue Meta, and Etra Energia which merged into Hera as at 31/12/2019.

The carbon intensity **index of electricity sales** also improved, amounting to 0.281 t CO_2e/MWh in 2021 (-17.8% compared to 2020). This result was achieved thanks to the higher volumes of renewable electricity sold with Guarantee of Origin on the total compared to the previous year, as reported in the section "Renewable energy for our customers" of our Sustainability report.

Greenhouse gas emissions reduction targets

As part of the process of aligning our reporting with the TCFD recommendations, we explored climate and transition scenarios with a 2050 time horizon. On the basis of these studies, 15 development opportunities were identified for the businesses managed by the Group, which were translated into initiatives during the preparation of the business plan. These initiatives, together with the evolution of the energy and climate scenario, will lead to a reduction in the Group's greenhouse gas emissions, both direct and indirect.

On the basis of the above, we have defined our **emission reduction targets for 2030** compared to 2019 in line with the **Science Based Target Initiative** method (with particular regard to the "Well below 2°C" level) and included **in the 2021-2025 business plan** approved in January 2022. The scope of the targets includes both the Group's emissions (Scope 1 and 2) and those of its customers (Scope 3, for the sales of electricity and the sales of natural gas downstream) and therefore applies to 86.5% of the Group's total 2019 emissions. The targets defined were submitted to the Science Based Targets initiative at the end of January 2021 and subsequently updated in March 2021 in response to the request of the Science Based Targets initiative.

The greenhouse gas emission reduction targets consistent with the 'Well below 2°C' scenario validated by the Science Based Targets initiative are:

- Scope 1+2: **absolute reduction of 28%** by 2030 compared to 2019 (includes biogenic emissions from bioenergy consumption and combustion of the biodegradable fraction of municipal solid waste);
- Scope 2: **increase the share of certified renewable electricity purchased to cover domestic consumption from 83% to 100%** by 2023;
- Scope 3 downstream methane gas sales: **absolute reduction of 30%** by 2030 compared to 2019;
- Scope 3 electricity sales: **reduction of carbon intensity (t CO_2e/MWh) by 50%** by 2030 compared to 2019 in line with the Sectoral decarbonisation approach (Sda).

Based on these targets, the reduction in greenhouse gas emissions for the defined period is expected to be 37% in 2030 compared to 2019.

These objectives will be achieved thanks both to the reduction initiatives described above and to exogenous aspects made explicit in the Cen energy scenario developed by Terna and Snam used as a reference for defining the targets: decarbonisation of electricity production, increase in energy efficiency, and electrification of consumption.

Below is a table showing the development over the last three years of indicators with 2030 targets validated by SBTi. The 2025 forecast as per the 2021-25 Business Plan is also shown.

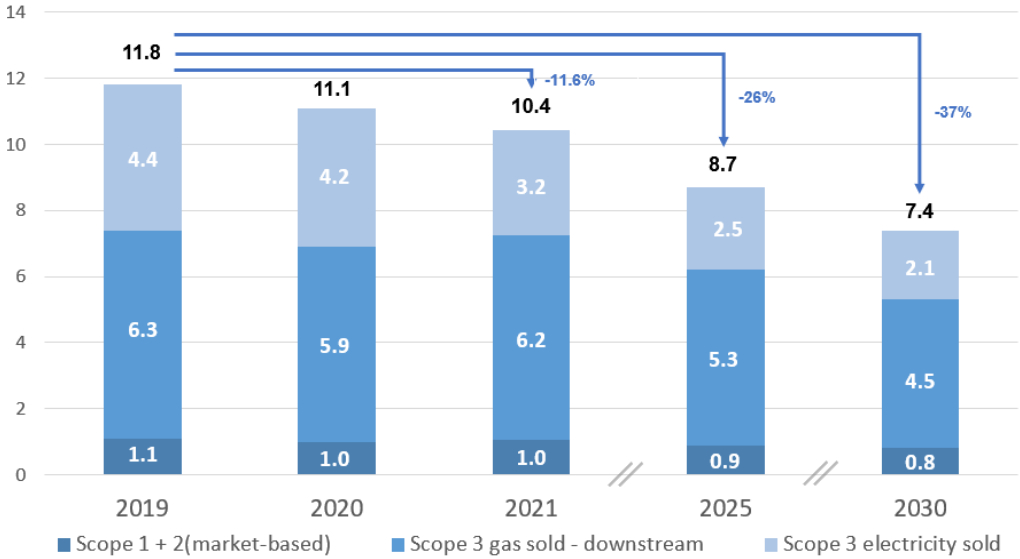
GREENHOUSE GAS EMISSIONS AND SCIENCE-BASED REDUCTION TARGETS

	2019 (base year)	Delta 2020/2019	Delta 2021/2019	2025 (forecasts)	2030 target
Direct and indirect emissions Scope 1+2 (market-based)	1,131.0 kt CO_2e	-8.9%	-9.1%	-20%	-28%
Indirect emissions Scope 2 (market based)*	48.4 kt CO_2e	-8.3%	-3.7%	-100%	-100%
Indirect emissions Scope 3 downstream from sale of natural gas	6,263.5 kt CO_2e	-5.6%	-0.8%	-15%	-30%
Carbon intensity of electricity sales - Scope 3 upstream	0.365 t CO_2e/MWh	-6.3%	-23.2%	-34%	-50%

*corresponding to 100% renewable electricity purchased for internal consumption.
The calculation criteria are aligned with the methodology of the Science Based Targets Initiative. The 2019 figure includes data on EstEnergy, Amgas Blu, Ascotrade, Ascopiave Energia, Blue Meta, and Etra Energia which merged into Hera as at 31/12/2019.

Furthermore, the chart below shows the GHG emissions in the three-year period 2019-2021, those expected in 2025 based on the 2021-25 Business Plan and the 2030 targets validated by SBTi.

HERA GROUP GREENHOUSE GAS EMISSIONS (IN MILLIONS OF T CO_2e)



The calculation criteria are aligned with the methodology of the Science Based Targets Initiative. The 2019 figure includes data on EstEnergy, Amgas Blu, Ascotrade, Ascopiave Energia, Blue Meta, and Etra Energia which merged into Hera as at 31/12/2019.

In 2021, **Scope 1 and 2** emissions **decreased by 9.1%** compared to 2019, mainly due to the reduction of emissions from waste treatment plants (landfills and waste-to-energy plants, also thanks to the closure in 2020 of the Ravenna waste-to-energy plant) and to a lesser extent from district heating, industrial cogeneration, and the gas network in the form of leaks.

With regard to **Scope 3 emissions related to the sale of natural gas (downstream) and the sale of electricity**, the reduction recorded in 2021 compared to 2019 is 11.9%, mainly due to higher volumes of renewable electricity sold and, to a lesser extent, lower quantities of electricity sold. Emissions related to volumes of gas sold in 2021, on the other hand, are almost unchanged compared to 2019 (-0.8%), after the drop recorded in 2020 as a result of milder winter temperatures and lower thermal energy needs associated with the health emergency.

In short, considering the perimeter of GHG emissions for which the 2030 reduction target has been defined compared to 2019, the second annual report following the validation of the science-based targets by SBTi shows a **decrease of 11.6%** as a result of the trends described above.

Emissions avoided or compensated

[305-5]

GHG EMISSIONS AVOIDED OR COMPENSATED

thousands of t CO_2e	2019	2020	2021
Direct emissions avoided (Scope 1)	557.6	506.5	540.1
Indirect emissions from energy consumption avoided (Scope 2)	169.6	156.2	148.4
Other indirect emissions avoided (Scope 3)	1,608.7	1,283.7	1,272.0
Emissions compensated	-	257.6	582.8
Total emissions avoided or compensated	**2,335.9**	**2,204.0**	**2,543.3**

Thanks to the Group's activities in 2021, a total of approximately **2.5 million tonnes** of greenhouse gases were avoided. Comparing this value to the number of inhabitants served by the Group, **602 kg of greenhouse gases per person were avoided**.

Emissions avoided or offset as a result of the following activities are considered in the calculation:

- Scope 1: electricity and heat production from renewable sources compared to the average national production mix; use of district heating compared to traditional heating with methane and diesel boilers; energy saving measures compared to a scenario with unchanged consumption; separate collection compared to a scenario with only undifferentiated collection;
- Scope 2: Energy saving measures compared to a scenario with unchanged consumption; consumption of energy from renewable sources (either through purchase of guarantee of origin certificates or considering the national fuel mix) compared to energy consumption as per the national average mix;
- Scope 3: Energy saving measures in public lighting compared to a scenario with unchanged consumption; white certificates compared to a scenario with unchanged consumption; sale of renewable energy (either through purchase of guarantee of origin certificates or considering the national fuel mix) compared to the sale of energy as per the national average mix; sale of Aliplast's recycled plastic compared to the sale of virgin plastic; to a lesser extent, domestic self-production through the sale of photovoltaic panels and use of recycled paper for printing bills compared to bills printed on non-recycled paper.

Furthermore, **emissions offsets** from the sale of methane gas to customers are also included in the calculation (see the section "Energy transition and renewables" of the Sustainability report for more details) and, to a lesser extent, CO_2 sequestration from trees planted as a result of Group initiatives.

Resilience and adjustment

Resilient aqueduct and water source management

[303-1]

The **use of innovative technologies in leak detection** helps to increase the resilience of the water supply system. **Leakage detection, using acoustic methods**, was developed in 2021, with a focus on the benefits that can be achieved, also in terms of the ability to scale up the project to the whole local territory. The **search by aircraft**, carried out in the Ravenna area, made it possible to find an adequate number of leaks during the leakage localisation phase, but the technology is very costly and the pre-localisation performance was not always satisfactory across the area flown over. The **search using cosmic rays**, on the other hand, confirmed its effectiveness in terms of speed of service: this instrument is capable of detecting the concentration of neutrons and can be installed on vehicles, allowing potential locations with water underground to be detected quickly. Refining the technology with specific calibration algorithms will lead to a further improvement in productivity. Alongside these technologies, **pressure transient monitoring** will also be developed in two critical districts between Bologna and Modena, using **new-generation sensors** capable of detecting sudden pressure variations and investigating their origin. In addition, **smart meters** capable of "listening" to the network and pre-locating any losses will be tested in a district of Conselice.

The use of **predictive algorithms to guide these activities** has also been consolidated in order to **minimise the dispersion of the water network** and to carry out an **active search for leaks and the renewal of the network** with ever greater efficiency, adopting variables which are typical of the reference area, both those specific to the aqueduct infrastructure and those more characteristic of the environment (soil, salinity, ground subsidence, temperature). The project will continue with the development of an internal Hera algorithm, with the support of the University of Bologna and the Group's data intelligence expertise.

In 2021, a number of projects were consolidated to improve understanding of the **drought risk** in the relevant local areas by implementing specific monitoring and analysis actions and strengthening the engagement of different stakeholders who can actively contribute to this end. With particular reference to the **monitoring of underground sources**, carried out to prevent the risk of multi-year low water, a collaboration with the University of Bologna and Arpae has been initiated. This has allowed the creation of a first **dashboard for the continuous integrated monitoring** of significant quantities acquired by field sensors managed by Hera or Arpae (well level probes, rain gauges, hydrometers), with the aim of developing **predictive algorithms on the state of aquifers**. The project will be integrated with other variables, importing the signals and development logic of the forecasting algorithm on Hera systems. In the Bolognese Apennines, the scientific contribution of the University of Bologna is aimed at a better understanding of the state of the springs in order **to identify new scenarios of optimisation and** enhancement of the catchments through in situ investigations, hydro-geological and chemical monitoring and numerical modelling.

In relation to the **integration of supply sources** in the Emilia area, the upgrading of the water supply system of Castel Bolognese (Ra) and other municipalities in the Imola area is in the design phase; it will also interconnect the current aqueduct systems, guaranteeing an important water reserve. In particular, the technical services conference approving the construction of the new 160-litre-per-second water purifier and the optimisation of the water treatment section for industrial use was completed in 2021. As for the adduction and distribution of treated water, the contract for the construction of the first section of the network up to Imola has been awarded and the authorization and expropriation procedure for the second section of the network, from Imola to Castel Bolognese, has substantially progressed. In addition, an analysis of the potential of the aquifers of the systems of the springs in the Bolognese Apennines, and in particular in the municipalities of Gaggio Montano and Vergato, is underway in order to evaluate scenarios for the optimization or enhancement of underground captures.

In addition to the new work described above, we would like to mention what we have done **in recent years**, which has made it possible to cope with a particularly dry summer in 2017, an exceptional condition that could occur again in the future. In the Apennines, the **Modena area** has been equipped over the years with infrastructure designed to manage the water requirements and the original municipal aqueducts have been interconnected so that the physical integration of each of them makes up an infrastructure system capable of mutuality and subsidiarity. In the **Apennines area near Bologna**, on the other hand, the interconnection with the Modena system, the construction of two new storage and pumping plants made it possible to reduce reliance on tanker trucks to supply water tanks in the mountains in situations of particular criticality regarding the sources. In **Romagna**, where Hera operates mainly as a distributor, Romagna Acque Società delle Fonti built the "Standiana" drinking water plant (capable of treating a flow of 1,100 l/sec) in response to the problem of the water reserves in the area of the Adriatic coast, a major tourist destination, supplementing the Ridracoli feeding system.

The construction of the **Reno-Setta feeder channel**, in 2010, was a fundamental measure for the Bologna area, the substantial results of which can now be quantified. As requested by the Regional

Government of Emilia-Romagna among the offsetting measures for the construction of the Variante di Valico, the feeder channel conveys part of the water from the Reno river to the Sasso Marconi drinking water plant, in order to supplement the abduction from the Setta torrent, increasing the volumes of drinking water purified from surface sources and thus reducing groundwater withdrawals from well fields in the plains. The analysis of past data on the water table levels in the Bolognese plain (average static levels of the five stations of Borgo, Tiro, S. Vitale, Mirandola, and Fossolo) and the monthly volumes taken from the water table, from 2002 to 2018, shows an **increase in the water table level** after 2010 and a **substantial decrease in volumes withdrawn.** In particular, it is noted that before 2010 the average static level was about -50 meters from the ground level, while from 2010 to 2018 the average was around -42/-43 meters, with an average level increase of 7/8 meters. With regard to the volumes before and after 2010, the difference corresponds to 531,000 cubic meters/month less withdrawn on average from the aquifers (6,370,000 cubic meters/year). It is therefore possible to estimate that about 50 million m3 less groundwater has been withdrawn in well over eight years, a volume equivalent to about seven months of the total production of the primary system. This is a **decisive contribution** from an **economic point of view of the circular economy of the water resource that benefits both the environment** (reduction of subsidence) **and the service** (increase in groundwater storage).

In the areas managed by **AcegasApsAmga**, the **Padua** and **Trieste** catchment systems both draw from a mix of deep water aquifer, sub-aquifer and surface water, capable of ensuring a diversification of production to guarantee the reliability of the system. In addition, **sensors** have been installed in all the catchment systems in Padua which, connected to the Forlì remote control system, guarantee continuous quantitative monitoring of the resource; a periodic sampling campaign is also carried out to guarantee qualitative control of the resource, as required by the monitoring plans. Since 2003 (the year of the historical minimum aquifer level), the main wells in the **Vicenza** area have been equipped with pumps on the well heads to guarantee collection even in critical aquifer conditions. In addition, in the two-year period of 2019/2020, two interconnections were made in the Piovese network in the towns of Martinelle and Comunanze, with the aqueduct system of the Veneto Region which will guarantee a further supply of up to 100 l/s.

Within **Marche Multiservizi**, an agreement was signed with Marche Polytechnic University for the critical and experimental analysis of ageing and wear phenomena of materials and infrastructures with the ultimate aim of supporting the design, construction and management of new distribution and drinking water systems.

As part of the plan (2022-2025), plant automation and **pressure regulation systems** will be increasingly consolidated and extended to make the Hera Group's water networks even more resilient to environmental stress. Adaptive grid management, regulated on the basis of variable demand profiles, will evolve towards **smart water grids**, making it possible to actively control the grid remotely with the ability to act on pressure. The initiatives that contribute to this development include the **smart meters** that the Group is installing at the most water-demanding users. Monitoring of these consumptions on a daily and hourly basis allows for a dynamic evolution of the network district metering and the calculation of water balances, while at the same time making the end user increasingly aware of their consumption and involved in virtuous water efficiency processes.

Interventions in gas and electricity networks to deal with hydrogeological instability

In the face of the adverse climatic events and **hydrogeological instability** situations encountered in the Emilia-Romagna area, in recent years an intense **collaboration** has been undertaken between the company Inrete Distribuzione Energia, the Region of Emilia-Romagna and the Civil Protection Department with the aim of allocating some funds to restoring emergency situations and increasing synergies between infrastructure managers and public bodies.

In particular, the Civil Protection Department is responsible for carrying out a preliminary reconnaissance phase to intercept any problems on the regional territory. Following the collection of reports, which may come from infrastructure management bodies, municipalities, public authorities and reclamation consortia, the proposed interventions are examined and, if successful, financed. Inrete Distribuzione Energia manages electricity lines and about 2000 km of gas network in the foothill-mountain area, often subject to instability phenomena; this makes it necessary and desirable to collaborate closely with the bodies responsible for **safeguarding the territory**.

Numerous interventions are implemented in this context. In the last three years, a total of **22 interventions** (19 in the gas sector and 3 in the electricity sector) have been submitted to the Emilia-Romagna Region for a possible overall approval of Euro 3.9 million of funding covered by the Region. Of these interventions, **18 have been approved** for regional contribution, for a total amount of 2.7 million. Of these 18 interventions:

- **seven were completed in 2020** and settled with a payment of Euro 1.1 million;
- **three were completed in 2021** and settled with a payment of approximately Euro 460,000;

- Of the remaining eight funded interventions, four have been completed and are the subject of ongoing claims for approximately Euro 420,000, while the remaining four will be completed by 2022.

Of the four interventions not financed by the Region for which a request for a contribution was made with recognition in the years 2020 and 2021, two interventions have been completed and two are in the planning stage.

Resilience of electricity grids

Inrete Distribuzione Energia has developed the work plan to **increase the resilience of the electrical system** in accordance with Arera Guidelines. The plan takes into account the risk factor arising from the **formation of ice and snow sleeves**.

The scope of the plan was defined on the basis of the mechanical stress and the mechanical characteristics of the conductors, the geometric characteristics of the lines and their geographical and altimetric location. It includes the **Modena area municipalities** of Fanano, Fiumalbo, Guiglia, Lama Mocogno, Montecreto, Montese, Pavullo nel Frignano, Pievepelago, Polinago, Riolunato, Sestola and Zocca. We analysed the medium-voltage distribution network, identifying the secondary substations included in the perimeter of the plan that supply the most **critical users** and considering the best power supply route for them, along which all the sections of overhead conductors with an unsuitable section were identified and which must therefore be replaced.

The type of measure planned to address such critical issues consists mainly in **replacing** the sections of bare overhead conductors whose sections are not suitable to withstand the stresses considered, **with overhead cables with spiral reinforcements of an appropriate section**, initially expected to follow the same route of the existing lines. The plan consists of **54 interventions** on 15 medium voltage distribution lines to optimise activities, giving priority to the most critical areas and with a view to minimising the impacts on the distribution service, aimed in any case at reducing the risk of disruption and the strengthening of the electric power lines

To date, the planned preparatory work on the primary and secondary substations has been implemented, increasing the possibility of improving service continuity, and **18.8 km of the network have been renewed**. In 2022, another **9 interventions are envisaged** in addition to the first 21 completed by 2021 (12 over the year)

Furthermore, among the various projects defined over the course of the plan (2022-2025) in favour of the resilience of the electricity grid supply chain, there are also new operational methods of **inspection** and **remote management**. In order to manage the electricity distribution network more effectively, the Group is in fact implementing projects aimed at optimising the inspection and maintenance of assets through the use of technology. Among these, the **use of drones** will make it possible to carry out a significantly higher number of preventive inspections of overhead power lines, more frequently intercepting potential problems on infrastructures. The **robotic** interventions and **remote-control extension** of the secondary substations and their fibre optic connection will allow remote intervention without the activation of the operating teams, reducing costs and intervention times. The project will play an even more decisive role in the Apennine areas, where atmospheric events often cause difficulties for technical operations.

Annex

Greenhouse gases: metrics and targets

EMISSION INDICATORS

Indicator	2019	2020	2021	Target 2025	Target 2030
Scope 1 direct emissions (kt CO_2e)	1,082.6	986.2	981.8	927	814
Scope 1 emissions under Eu-Ets regime (% compared to Scope 1 total)	15.0%	12.1%	15.1%	N/A	N/A
Indirect Scope 2 emissions from consumption of electricity (market-based) (kt CO_2e)	48.4	44.4	46.6	0	0
Scope 1+2 emissions (kt CO_2e)	1,131.0	1,030.6	1,028.4	902	814
Scope 1+2 emissions (% reduction compared to 2019)	-	-8.9%	-9.1%	-20%	-28%
Scope 3 indirect emissions from sale of natural gas (downstream) (kt CO_2e)	6,263.5	5,915.0	6,214.3	5,344	4,384
Scope 3 indirect emissions from sale of natural gas (downstream) (% reduction compared to 2019)	-	-5.6%	-0.8%	-15%	-30%
Scope 3 indirect emissions from the sale of electricity (t CO_2e)	4,386.7	4,195.8	3,170.3	2,526	2,141
Scope 3 indirect emissions from the sale of electricity (% reduction compared to 2019)	-	-4.4%	-27.7%	-42%	-51%
Total emissions – Scopes 1+2+3* (kt CO_2e)	11,781.2	11,141.3	10,413.0	8,772	7,422
Total emissions – Scopes 1+2+3* (% reduction compared to 2019)	-	-5.4%	-11.6%	-26%	-37%
Total avoided or offset emissions (kt CO_2e)	2,335.9	2,204.0	2,543.3	N/A	N/A
of which: avoided emissions	-	*1,946.3*	*1,960.5*	*N/A*	*N/A*
of which: offset emissions	-	*257.6*	*582.8*	*N/A*	*N/A*

*The Scope 3 value reported relates to the sale of natural gas (downstream) and to the sale of electricity.

EMISSION INTENSITY INDICES

Indicator	2019	2020	2021	Target 2025	Target 2030
Carbon intensity index of electricity sales (t CO_2e from electricity sales / MWh electricity sold)	0.365	0.342	0.281	0.241	0.183
Carbon intensity index of electricity sales (t CO_2e from electricity sales / MWh electricity sold) (% reduction compared to 2019)	-	-6.3%	-23.2%	-34%	-50%
Carbon intensity index of revenues (t CO_2e Scope 1+2 / revenues in millions of Euro)	152	137	94	N/A	N/A
EBITDA carbon intensity index (t CO_2e Scope 1 + 2 emissions / EBITDA in millions of Euro)	1,042	918	842	N/A	N/A
Carbon intensity index per resident served (t CO_2e Scope 1+2 / residents)	261	244	244	N/A	N/A
Carbon intensity index per customer (t CO_2e Scopoe 3 / thousands of customers)	N/A	5.2	5.0	N/A	N/A

RISKS AND OPPORTUNITIES

Indicator	2019	2020	2021	Target 2025	Target 2030
Hera EBITDA aligned with EU taxonomy (climate mitigation and adaptation) (% on eligible EBITDA)	-	-	90%	N/A	N/A
Hera revenues aligned with EU taxonomy (climate mitigation and adaptation) (% on eligible revenues)	-	-	93%	N/A	N/A
EBITDA CSV Energy Driver (millions of Euro)	85.5	136.6	225.1	N/A	N/A
EBITDA CSV Environment Driver (millions of Euro)	260.2	240.1	292.0	N/A	N/A

INVESTMENTS AND CAPITAL DEPLOYMENT

Indicator	2019	2020	2021	Target 2025	Target 2030
Hera CAPEX aligned with EU taxonomy (climate mitigation and adaptation) (% on eligible CAPEX)	-	-	89%	N/A	N/A
Hera OPEX aligned with EU taxonomy (climate mitigation and adaptation) (% on eligible OPEX)	-	-	93%	N/A	N/A
Investments CSV Energy Driver (millions of Euro)	30.6	28.2	85.0	N/A	N/A
Investments CSV Environment Driver (millions of Euro)	188.0	110.3	164.3	N/A	N/A
Investments CSV Local area (and Business) Driver - Resilience and adaptation (millions of Euro)	N/A	N/A	105.7	N/A	N/A

REMUNERATION

Indicator	2019	2020	2021	Target 2025	Target 2030
Share of BSC premium linked to CSV Energy Driver (% of total variable remuneration)	-	4%	4%	N/A	N/A
Share of BSC premium linked to CSV Environment Driver (% of total variable remuneration)	-	11%	13%	N/A	N/A

OTHER TCFD METRICS - ENERGY

Indicator	2019	2020	2021	Target 2025	Target 2030
ISO 50001 energy saving measures (% reduction compared to 2013)	-5.1%	-6.2%	-6.8%	-8%	-10%
Internal consumption of electricity from renewable sources (%)	82.8%	83.0%	82.3%	100%	100%
Contracts at year-end with energy efficiency solutions (% of total electricity and gas contracts, excluding safeguard, default and last resort)	20.1%	20.2%	23.0%	28%	>34%
Electricity from renewable sources sold to free market customers (% of volume sold)	30.0%	32.9%	40.1%	41%	>50%

Indicator	2019	2020	2021	Target 2025	Target 2030
Natural gas sold with CO_2 offsetting (% of volumes sold excluding wholesalers, default service and last resort supply)	0.8%	4.4%	9.1%	21%	27%
Photovoltaic power sold (kW)	-	-	850 kW	N/A	N/A
Energy production from renewable sources (GWh)	708.4	710.5	695.5	N/A	N/A
Biomethane generation (Mm^3)	6.5	7.8	8.0	17	>30
District heating energy mix from renewables, cogeneration and turbogas (%)	70%	68%	71%	77%	N/A
of which: from renewable sources (%)	*36%*	*36%*	*36%*	*44%*	*N/A*
of which: from cogeneration and turbogas (%)	*34%*	*32%*	*36%*	*33%*	*N/A*
Housing unit equivalents served by district heating (no.)	88,307	90,415	91,410	N/A	N/A
Nexmeter smart meters installed (no.)	0.0	19,800	80,000	300,000	N/A
Public and private charging stations installed for electric mobility (no.)	170	404	1,058	4,000	N/A

OTHER TCFD METRICS - RESOURCES

Indicator	2019	2020	2021	Target 2025	Target 2030
Waste sent for material and energy recovery (t)	361,577	329,603	344,360	355,882	N/A
Waste sent for material and energy recovery (%)	83.2%	81.4%	80.8%	88.2%	N/A
Plastic recycled by Aliplast (thousands of tonnes)	72.8	68.8	80.9	134	152
Reduction in internal water consumption (%)	-5.5%	-11.9%	-16.6%	-20%	-25%
Water network leakages (m^3/km/day)	10.2	9.8	-	10	9.4
Reusable purified wastewater (%)	3.4%	5.2%	6.0%	8.5%	15%
Water contracts with water consumption diary (% of total residential customers)	-	20%	27%	N/A	N/A