



Sustainability Report

2022

2020-2022 Financial Year

OBJECTIVES FOR
SUSTAINABLE
DEVELOPMENT



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Sustainability Strategy



Sustainability Strategy

Mission and Values

Operating in the international energy market, the **Sofinter Group** supplies steam production plants and components for industrial use and for power generation, waste treatment and incineration, as well as water treatment.

Approximately 700 people work in and collaborate with the Group, committed to representing and promoting our values:



Innovation and Technological Development

Steam generators are indispensable in supporting the current period of energy transition. This is why we are constantly seeking out new ideas and technologies to be developed, so that we may experience and avail of energy resources in an increasingly sustainable way



Environmental Responsibility

In our work, we pay the utmost attention to the protection and enhancement of the environment, reducing the footprint and impacts of our products and organisation to the full extent possible



Product Excellence

Our systems are the result of experience gained over at least 150 years of studying, designing and constructing energy systems to represent the integration and evolution of technical and specialised knowledge of the sector



Enhancing Resources

Essential for long-term development is reducing the social impact during the Group's progress phase, in conjunction with increasing the skills and enhancing the professionalism of our employees and partners

Sustainability Strategy

Message to Stakeholders

Our values are at the heart of the Sustainability Model for the Sofinter Group's business. With this Report, covering the 2020–22 three-year financial period for the Italian locations, we intend to share our commitment and results with the entire community and all stakeholders.

Waste to Energy system
Massafra - AC Boilers



“The Sofinter Group represents a historical Italian industrial reality that has evolved into a grouping of companies with the shared objectives of producing energy and steam, availing of increasingly-clean sources, optimising efficiency and developing technologies within the sector.

With its three production sites in Italy and one in Romania, as well as its Research and Development plant centre, head office and numerous branches, the assembly, service, management, maintenance and new installation sites around the world, the Sofinter Group aims to generate value at every stage of the lifecycle of its products and services, with an eye to the future of global energy.

To do so, the commitment and active involvement of all stakeholders – customers, suppliers, partners, the credit system but also authorities and institutions, associations and industrial groups, employees and the local population – I am addressing with this message is fundamental, so that all points of view and all expectations may be grasped, in order not to miss important contributions and to strategically define together a sustainable and lasting evolutionary and a competitive path for our Group.

Over the years, we have made numerous and substantial investments in Research and Development, in tandem with what used to be referred to as the “Green Concept” and which is now merely the basis for charting the path to Sustainable Development. In this scenario, technological innovation plays a key role in contributing to the competitiveness of our products, particularly in the energy transition currently underway.

Important milestones have been reached in the field of hydrogen utilisation, in accordance with international and European development programmes, with a view to transitioning to a clean energy system thanks to the potential of realising steam generation systems with zero CO₂ emissions. Our commitment to the “Waste-to-Energy” sector and to the use of biomass has also grown in recent years. In addition to improving the utilisation of poor or waste energy sources, we want to be able to play an even more effective role as an integrator of the steam generator and flue gas treatment system.

Challenging thermal “energy storage” solutions are at an advanced stage of development, in cooperation with public and private partners. This is also the case for desalination process efficiency in European “water mining” projects or applications for the use of solar energy in the field of renewable energies.

In a strategic sector like energy where the contrast between necessity and sustainable consumption is most evident, change requires a gradual transition that commits technological development on the one hand, towards the more efficient and less impactful use of fossil resources, and on the other hand, makes the use of renewable sources sustainable, both economically and environmentally.

Over the years and today more than ever, our Group has grasped the changes taking place and has responded on each occasion to social and market needs by making its own contribution. It is thus of paramount importance to define a coordinated development plan with all players in the energy field, implementing actions that strengthen the balance between the company and all stakeholders.

That said, the Sofinter Group is in continuous transformation, with the primary objective of ensuring increasingly sustainable and intelligent energy.”

Roberto Carlo Testore
CEO Sofinter S.p.A.



Sustainability Strategy

Group Organisation - History

1979

Giampietro Tedeschi founds Commissioning S.r.l., quickly establishing a name for himself in the field of providing start-up, operation and maintenance services for industrial plants.

1987

Sofinter S.p.A. is founded as the holding company of an established group of industrial service companies, including some foreign firms.

1997

Sofinter acquires a shareholding in Macchi S.p.A., specialising in the design and construction of industrial boilers for the Oil & Gas sector. In the same year, it establishes the company Saline Water Specialists (SWS) S.r.l., dedicated to the business of desalination and water treatment for industrial plants.

2001

Sofinter acquires a shareholding in Termosud S.p.A., with its factory in Gioia del Colle (BA), named Ansaldo Caldaie S.p.A., a leading company in the design, construction and installation of large-scale boilers. Centro Combustione Ambiente (CCA) joins the Group.

2002

Sofinter acquires Macchi S.p.A. and Itea S.p.A.

2003

Sofinter acquires Ansaldo Caldaie S.p.A.

2004

Macchi and SWS become operational divisions of Sofinter. Sofinter founds Euroboiler S.r.l. (later to become Macchi Romania), a company under Romanian law, located on the Danube, dedicated to the construction of boiler pressure parts.

2005

Ansaldo Caldaie Boilers India Private Limited, a subsidiary of Ansaldo Caldaie, is established in Chennai, India, active in the design, manufacture, supply and after-sales service of power boilers in the country.

2008

International partner GAMMON India joins Sofinter's shareholder base.

2011

BT Global enters the Sofinter stockholding.

2013

The founding of the US headquarters of the Macchi division marks a new phase for the Sofinter Group, with its entry into one of the world's major markets. Ansaldo Caldaie celebrates its first 100 years of industrial history.

2015/2017

Ansaldo Caldaie becomes AC Boilers S.p.A. Ansaldo Energia acquires 10% of AC Boilers.

2019

The Group signs an agreement that ensures banking support for the activities of all Companies.

A process is also underway to find a new investor for the Group.

2020/2022

The search continues for an investor for the acquisition of or stake in corporate capital, in the difficult international context resulting from the Covid pandemic and the implications of the energy and materials market impacted by the Russian-Ukrainian conflict.



Sustainability Strategy

organizzazione di Gruppo - *le aziende*

In its current organisational structure consisting of five companies (**Sofinter**, **AC Boilers**, **Itea**, **Europower**, **CCA**), the **Sofinter Group** represents the evolution of the sector of steam and **energy production** from gas, biomass and urban waste, guaranteeing effective cooperation and sharing of the means and technologies of the member companies, at the service of the end customer and the entire community.

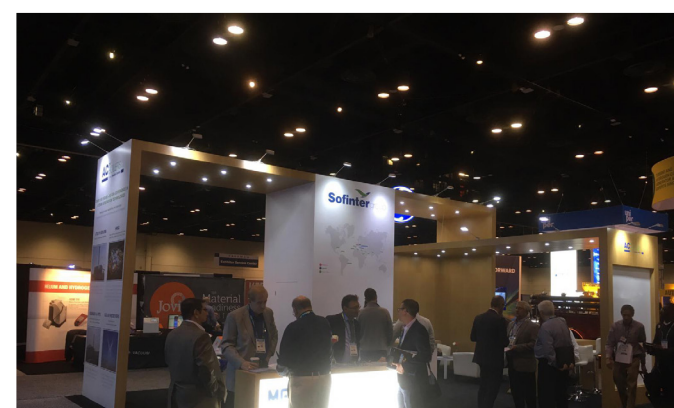







Sofinter S.p.A., established in 1987 and comprising the Macchi and SWS divisions, is the parent company of the Group and a joint owner, together with other industrial partners, of **AC Boilers S.p.A.**, **Europower S.p.A.**, **Itea S.p.A.** and **CCA S.p.A.**

Sofinter S.p.A. provides support and services to all Group Companies and Divisions through its Purchasing, Service, Human Resources, Environment and Safety, Legal, Communications, Technical Infrastructure, Administration, Finance and Control, Maintenance and General Services departments.



As a division of Sofinter S.p.A., **Macchi** is active in the design and construction of industrial and recovery steam generators for Combined Heat and Power (CHP) cycles, boasting extensive and consolidated experience in supplying the industrial sector in complex plants all over the world.

The **Macchi-branded technologies** are as follows:

Industrial steam generators with two cylindrical bodies bearing horizontal (TITAN M) or vertical paths;

Single-drum radiant-type industrial steam generators (MRD);

Recovery steam generators downstream of gas turbines (HRSG) for Combined Heat and Power (CHP) cycles;

Recovery boilers (WHB) on industrial processes;

Development of 100%-hydrogen burners.

Founded in 1959 and becoming part of the Sofinter Group in 1997, Macchi was incorporated into Sofinter S.p.A. as an operating division in 2004.

On the strength of its know-how, consolidated and perfected over 60 years, Macchi supplies major international Engineering, Procurement and Construction (EPC) companies and International Oil Companies (IOCs) with products manufactured in accordance with the most pertinent technical standards in the industry.

60
countries



1.250
units



60+
experience



TITAN M
Macchi



AC Boilers S.p.A., formerly Ansaldo Caldaie, is active in the design, construction and installation of large steam generators including:

Steam Recovery System Generators downstream of gas turbines for combined cycle plants (Heat Recovery System Generator or HRSGs);

Biomass steam generators;

Steam generators for municipal solid waste and waste-derived fuels (Waste-to-Energy or WTE plants);

Power steam generators for steam plants for the production of clean electricity from fossil fuels (Supercritical and Ultra-Super-Critical power plants);

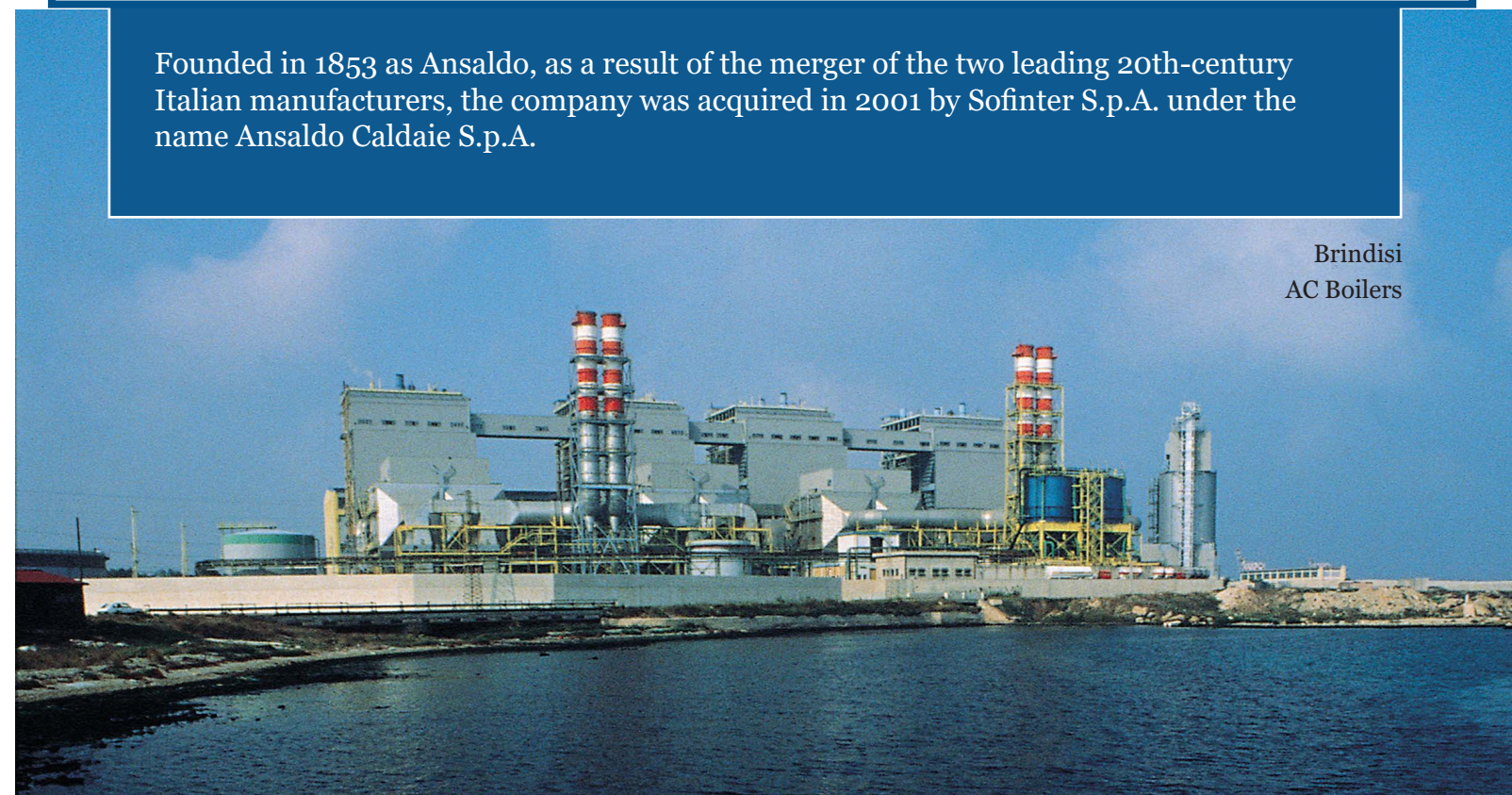
Combustion systems optimised for NOx reduction (DeNOx);

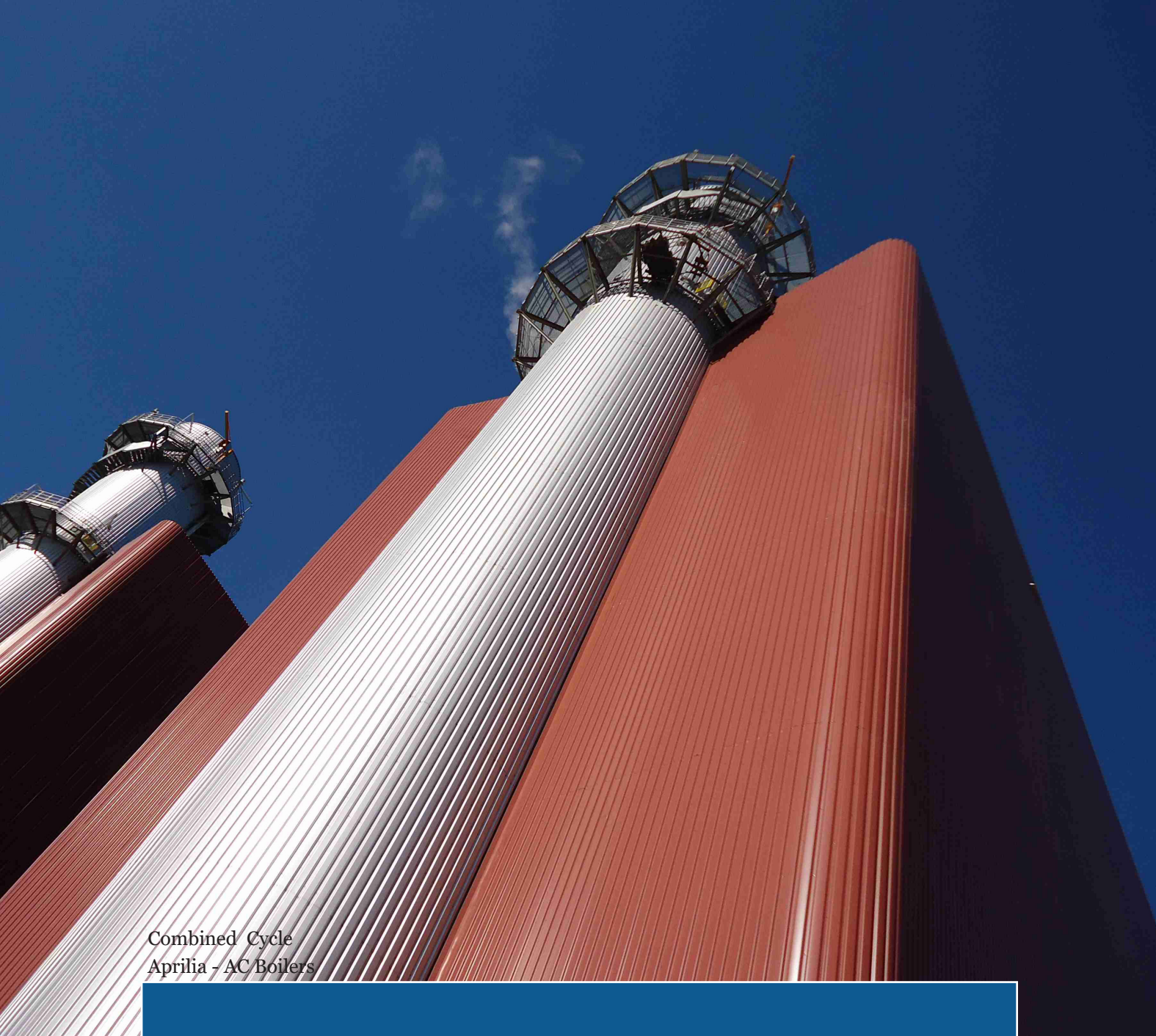
Solar receivers for tower-type Concentrating Solar Power (CSP) plants.

Energy Storage Systems

Founded in 1853 as Ansaldo, as a result of the merger of the two leading 20th-century Italian manufacturers, the company was acquired in 2001 by Sofinter S.p.A. under the name Ansaldo Caldaie S.p.A.

Brindisi
AC Boilers





Saline Water Specialists (SWS) designs and builds seawater desalination plants and industrial water treatment plants in general.

Established in 1996 as an independent company, SWS has created plants for the energy, refining and petrochemical industries.

In addition to desalination, SWS' experience covers all water treatment plants used by power plants and refineries.

SWS designs and supplies degassers of any capacity up to 2,000 T/h in a single unit, being capable of operating under the broadest range of operating conditions, including in a vacuum.

SWS' experience includes condensate polishing plants for steam cycles in thermal power plants and refineries, realised with ion-exchange resins and both internal and external regeneration.

In 2005, Sofinter acquired all shares from the other partners to become the sole owner of SWS.



Europower S.p.A. deals with the design, construction, commissioning, operation and maintenance of industrial plants in the sectors of electricity production, thermal energy, waste-to-energy, biomass plants, waste and water treatment, and industrial utilities.

Founded in 1979 as Commissioning Italia S.p.A. and becoming Euro-power S.p.A. in 2005, it also designs, supplies, and builds turnkey plants and operates them through a dedicated Operation and Maintenance Global Service team.

In order to ensure maximum operational effectiveness, Europower is organised into EPC (Engineering, Procurement and Construction) divisions dedicated to the design and supply of turnkey plants, O&M (Operation and Maintenance) for plant start-up, operation and maintenance services, and Technical Assistance to deal with pre-commissioning, commissioning and staff training.

**50
countries**



**1.000
units**



**80.000
MW**



**150+
experience**



Centro Combustione Ambiente (CCA) S.p.A., a company dedicated to supporting the development of new products and technologies in the energy and combustion sector, pays special attention to environmental protection and sustainability.

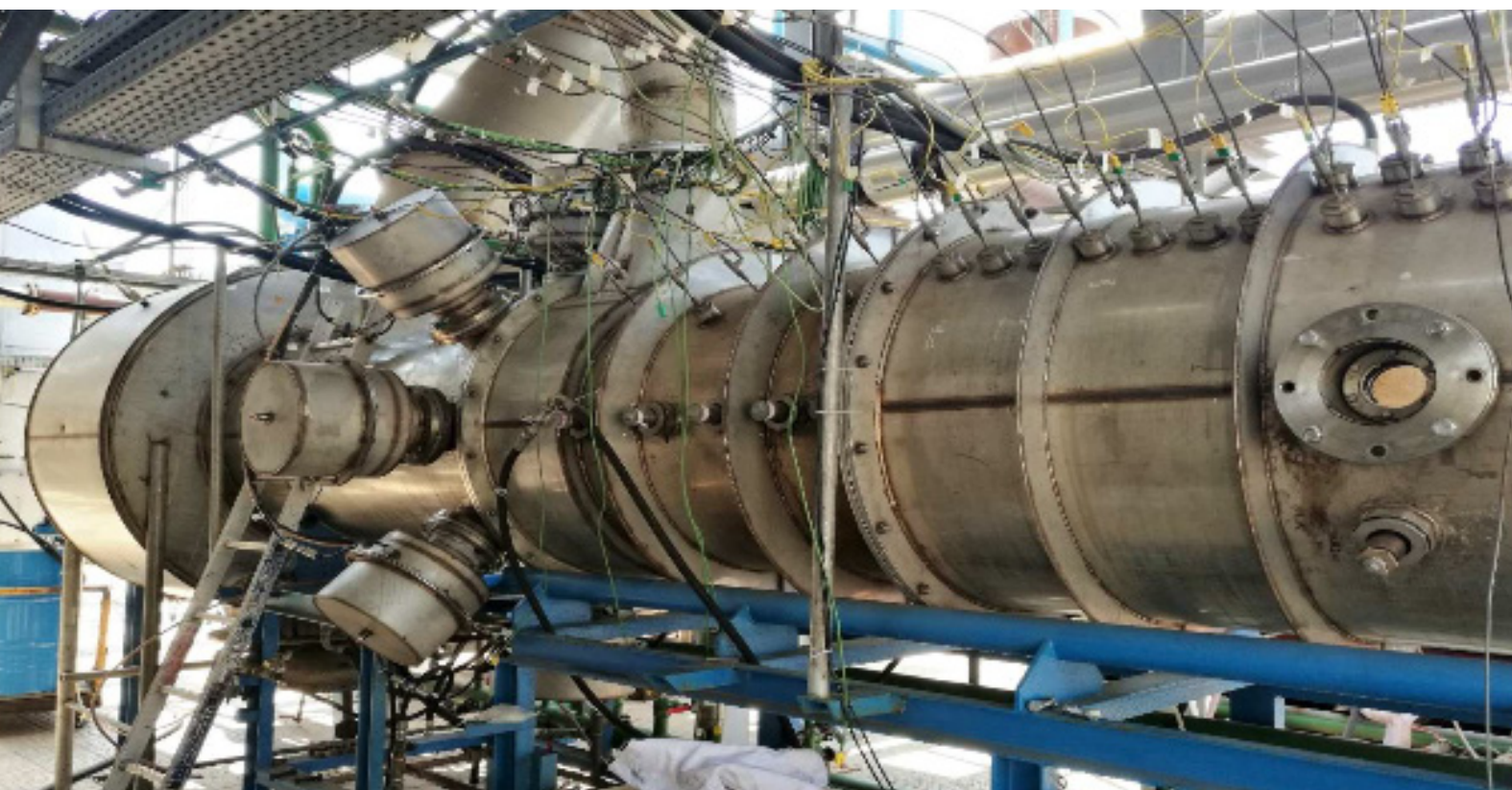
CCA was founded in 1989 as the Ansaldo Group's combustion research centre, with the aim of developing low-NOx burners for steam generators then subsequently, in conjunction with Ansaldo Energia, carried out experiments from 1995 onwards to develop new burners for gas turbines.

Following the privatisation process of Ansaldo Caldaie, in order to offer the services and expertise acquired to a broader market, the company Centro di Combustione Ambiente S.r.l. was founded in 2006, transformed in 2019 into joint-stock company, a wholly-owned subsidiary of AC Boilers. CCA offers an extensive range of industrial-scale experimental tests in the field of combination and energy recovery both for the Group's own products (AC Boilers and Macchi) and for third parties, in particular:

- low-emission burners for steam-electric
- industrial burners for gas turbines
- burners for process applications (refineries, steel industry and so on)

CCA is equipped with experimental equipment able to test the most important fuels in the energy transition: biomass, hydrogen, natural gas and low-calorific gases for energy recovery.

The company is listed in the research laboratories register of the Ministry of Education, Universities and Research, is a member of DiTNE (the National Energy Technological District) and founded the ETF (Energy Transition for the Future) laboratory in conjunction with the Polytechnic University of Bari for the numerical modelling of innovative solutions in the energy sector.



Within the Sofinter Group, Itea S.p.A. is involved in the development and marketing of plants based on the **ISOTHERM Pwr® “flameless” Oxy-Combustion pressure technology**.

The Research and Development division at Itea is of primary importance, being the base for developing new and complete turnkey plants and providing the technical assistance needed to guarantee possible technological solutions for existing plants.

Flameless technology enables the production of low-cost energy (steam and electricity) using lean fuels such as municipal waste, industrial waste, heavy oils, acid gases, petroleum coke and lean-grade coal. This technology ensures a quality of emissions that exceeds the requirements of current environmental regulations, for any combustible/material treated.

ISOTHERM Pwr® technology renders it possible to treat – even simultaneously – combustibles and waste with completely different characteristics and, when applied to the treatment of liquid and/or solid industrial waste, is even capable of treating hazardous industrial waste, including waste accumulated in landfills over decades.

Although not established as a company, the importance of the **Group's Service Department** should be emphasised, operating from its headquarters in Gallarate (VA) to provide products and services to both Italian and international customers, aimed at keeping steam generators operational as well as their maintenance or complete rehabilitation. These generators can be of Macchi, AC Boilers or third-party manufacture.

Products

Pressure parts

Auxiliary systems

Combustion technologies

Services

Long-term support (inspections, remote monitoring systems, dedicated staff, supply of spare parts)

Technical supervision and emergency response

Maintenance, lifecycle extension, adjustment and optimisation of plants



HRSG
Sparanise

80+
countries



2.000
units



strategia di sostenibilità

Group Organisation – *Locations in Italy*

The companies and divisions of the **Sofinter Group** within the country are organised into operating sites, factories and workshops, assembly areas and benches, along with test and experimental facilities.



1 Sofinter Group
Sofinter, AC Boilers,
Europower, Itea
operational headquarters
Gallarate (VA)

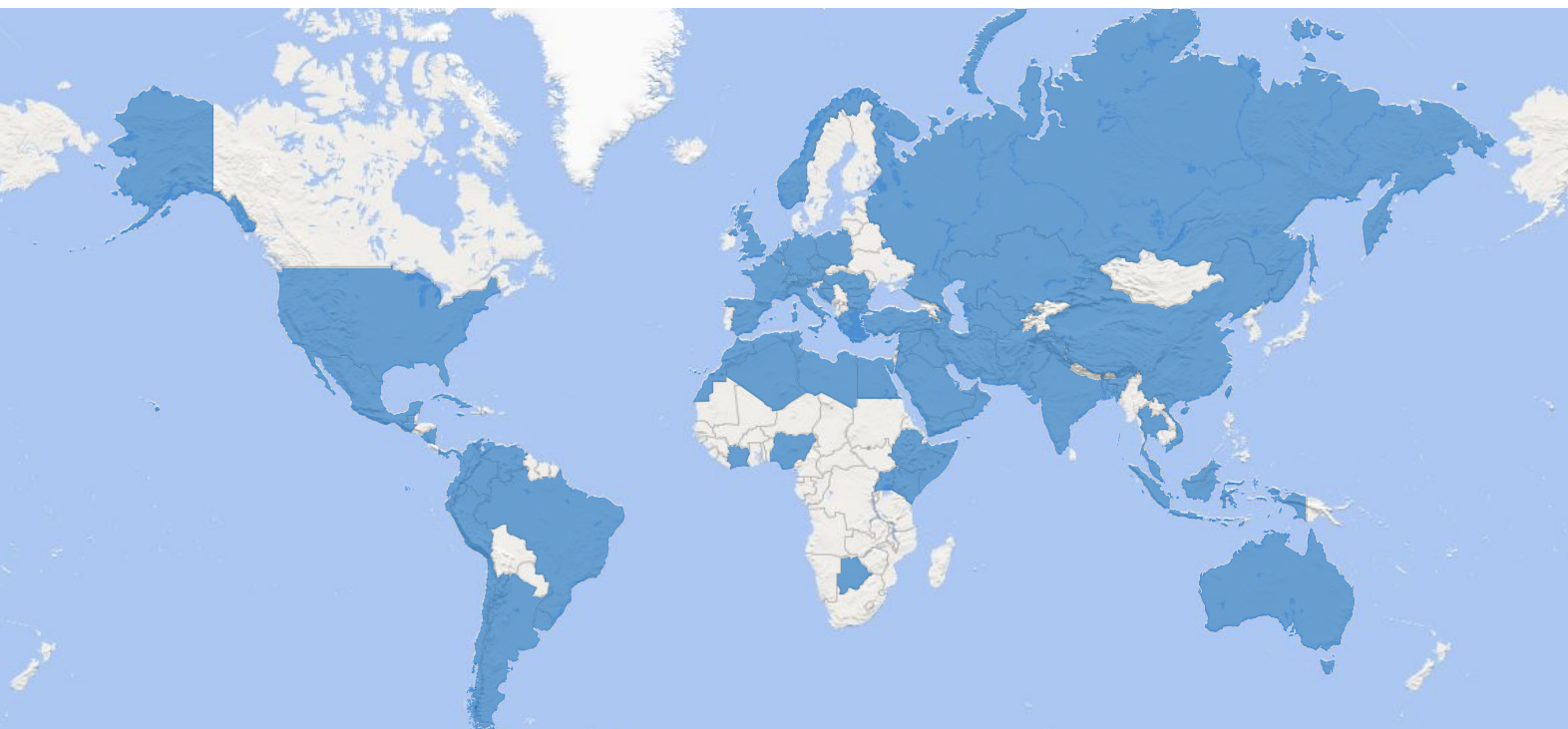
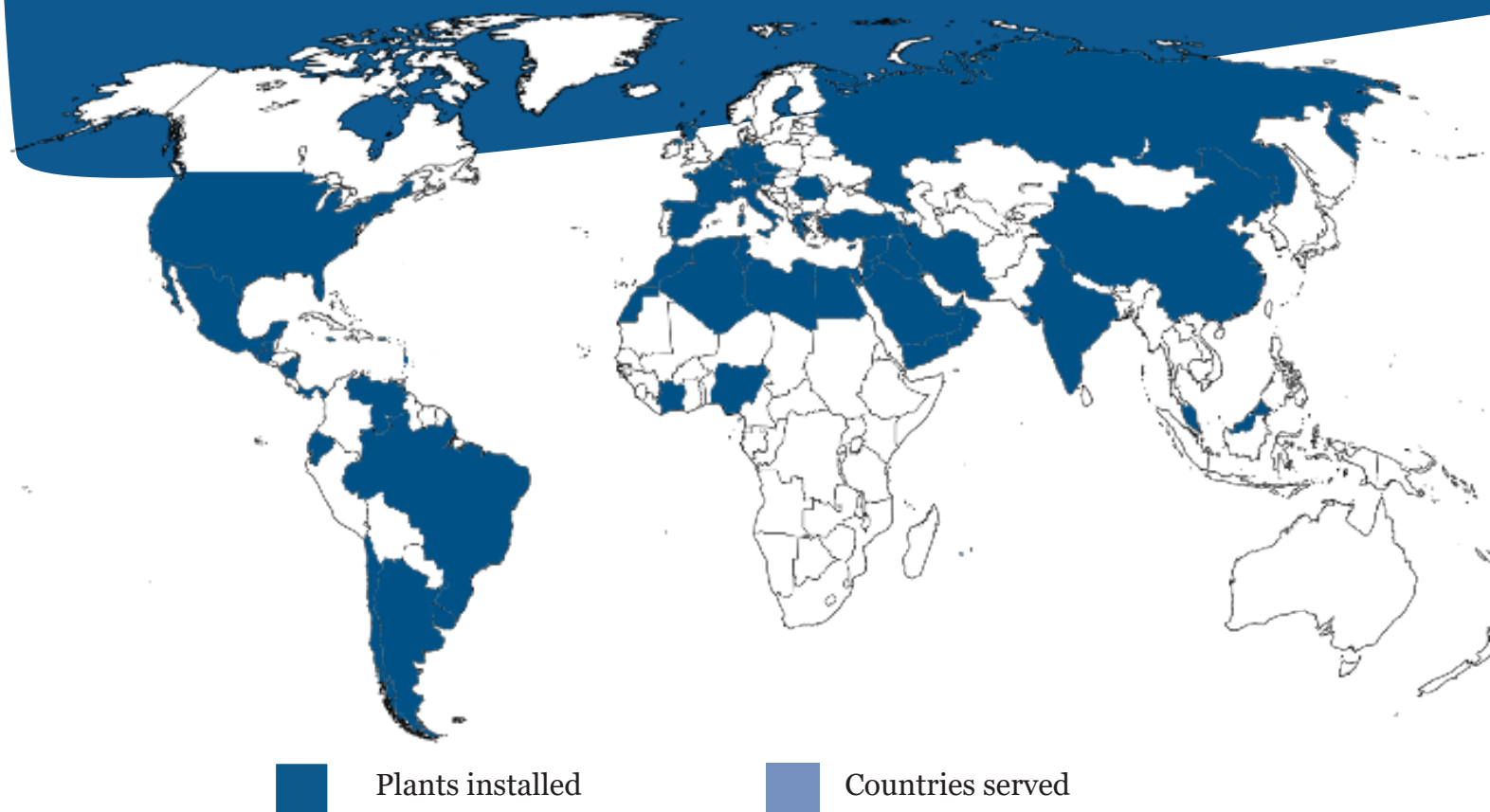
2 Sofinter Div. Macchi
workshop
Fagnano Olona (VA)

3 Sofinter Div. Macchi
*Assembly Area
with dock yard*
Marghera (VE)

4 AC Boilers
Itea
CCA
workshop and plant
Gioia del Colle (BA)

Sustainability Strategy

Group Organisation – *Presence Around the World*



strategia di sostenibilità

Our Commitment

In 2022, the Group established a new Sustainability function with the aim of having dedicated resources actively focusing on the Environmental, Social and Governance pillars, developing policies that contribute to achieving sustainable growth and profitability targets.

Dependent on the Group's Human Resources Department, the function has incorporated the Environment, Health and Safety Department and support for sustainability issues in all other areas of the company – from Sales for responses to customer requirements and ESG ratings, through to Operations for improving environmental and energy performance, Engineering for sustainable product development, Management for the implementation of employee welfare projects and the improvement of corporate governance, along with Purchasing for the assessment of the sustainability degree of the Supply Chain.

ESG performance is periodically discussed by the Sustainability Board – which includes the Managing Directors of all Group companies and Senior Executives – then reported to the Board of Directors of the Sofinter S.p.A. parent company, as the highest governing and decision-making body with regard to the organisation's impacts on the economy, environment and people.

Ratification of this commitment came with the June 2022 publication of the **Sustainability Strategy**, which formalises the commitment to Environmental, Social and Governance issues and represents one of the first milestones on the Sustainability pathway that the Group has undertaken.



Sustainability Strategy

“Running a business in an economically-, socially- and environmentally-sustainable manner is a fundamental value for the Sofinter Group which, at this particularly significant point in time, in an energy context undergoing a major transformation, is inextricably linked to the development of the Energy business.

Integrating Sustainability into the Company’s strategy and business activities expresses the goal of the Group’s progressive evolution, which has led over time to an increasingly strong involvement of all stakeholders, whose interests, expectations and needs are the underlying factors in decision-making processes and the creation of such value.

Reinforcing that stated in the Code of Ethics for its companies and in the Management Systems Policies, in order to drive business in an integral, inclusive, responsible and sustainable manner, the Sofinter Group is inspired by the Ten Principles of the United Nations Global Compact deriving from the United Nations Universal Declaration of Human Rights, the International Labour Organisation’s Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.

The Sofinter Group operates through the Environmental, Social and Governance pillars with the involvement of the entire value chain, requiring the commitment of its Suppliers and demonstrating its achievements to customers, institutions, the local community and all stakeholders.

Environment

The Group is aware that the construction activities for large steam and power generation plants cause impacts on the environment. This is why it is oriented towards the prevention of such impacts already in the research, development and design phase, achieving greater efficiency in the use of fuels and studying new energy source alternatives to fossil fuels in order to contribute to the reduction of atmospheric emissions and the fight against climate change, along with the rationalisation and reduction of raw materials and natural resources used in the subsequent construction phase, in cooperation with its supply chain.

The development of performance monitoring and predictive maintenance systems for the components and spare parts of the plants installed at the client’s premises also provide additional environmental benefits in terms of emissions, use of materials and waste management, whilst helping to extend the life of the plant, delaying its revamping and final decommissioning.

Social Sustainability

The Group bases its strength and vitality on people. The centrality and development of human capital in the transformation of businesses and enterprises is the main driver for the generation of new ideas along with the development of technologies, innovative products and the provision of excellent services. The commitment is thus focused on searching for, selecting and retaining talent, enhancing the value of human resources and accompanying people in their career development, structuring new methods to identify professional and personal needs whilst increasing skills and social and occupational well-being.

The Group is likewise active in ensuring a workplace based on the principles of gender equality, respect for differences and the promotion of inclusion, supporting the effort to implement a corporate culture against discrimination and stereotyping.

The Company’s responsibility towards the protection of human rights, combating child labour and improving occupational health and safety remains paramount, in the support of a participative process of risk management and reduction plus raising awareness amongst all staff to promote and disseminate these values.

Governance

The Sofinter Group companies have structured a Corporate Governance System that complies with statutory regulations, self-regulatory principles set out by the relevant authorities and international best practices. In the interest of shareholders, employees, associates and all those who enter into business relations or are in contact with the Group, this system ensures the founding elements of corporate governance, such as compliance with regulations, prevention of offences and the fight against corruption in all its forms, in a transparent, objective and documented manner.

Adopted to achieve these objectives are the Code of Ethics, Anti-Corruption Manual and Export Control System Manual, valid for all Group companies, along with an Organisation, Management and Control Model pursuant to Legislative Decree no. 231/2001 by the parent company and the main Italian subsidiaries. There are then specific Quality, Safety and Environmental policies implemented through ISO-compliant Management Systems.

In addition to the Control and Supervisory Bodies required by law, the Group has an Internal Control and Risk Management System, structured on the basis of recognised international guidelines. There is then a management and monitoring of strategic, operational, compliance and financial risks as an integral part of the corporate business model.

Besides acting in accordance with the principles of the Global Compact and integrating them into its own strategy and activities, the Sofinter Group is committed to pursuing a selection of the 17 Sustainability Development Goals set out in the United Nations 2030 Agenda, focusing on those that are technically feasible and applicable to the Group’s reality, in order to contribute to solving social and environmental challenges through collaboration and technological innovation.

The degree to which the Group achieves its objectives and the results of its Environmental, Social and Governance performance shall be periodically monitored and evaluated in corporate reporting documents and comprehensively accounted for in a Sustainability Report, with which the Group intends to maintain an active dialogue with all stakeholders and to reaffirm its commitment and full responsibility in the sustainable evolution of the world of Energy.”

Roberto Carlo Testore
CEO Sofinter S.p.A.

20th June 2022

Sustainability Strategy

Context of Reference – Stakeholders

Our values are manifested and communicated in various ways to the various stakeholders, given that each is sensitive to different perspectives of corporate development, in which they identify their needs, expectations, beliefs, priorities.

The **Sofinter Group** believes that an adequate system of stakeholder identification, communication, involvement and engagement is of fundamental importance in improving the **overall sustainability performance** of its organisation. For this reason, the Group has developed a **policy of dialogue** with the stakeholders in order to assess their individual needs and ensure a greater sharing of corporate objectives.

The **protection of the environment and land, the enhancement of social aspects and the safeguarding of human rights** represent the main sustainability issues shared with the stakeholders.

Represented in the figure below is the Sofinter Group's network of stakeholders, constituting the system of internal, external and institutional relations and generally representing the context of influence.



Sustainability Strategy

Context of Reference – Customers

The **Sofinter Group** is oriented towards the greatest satisfaction of the expectations and interests of its customers, with whom it **shares its business values**, with its organisation being open to all requests and insights on **environmental and social sustainability**. All Sofinter Group companies are committed to improving their performance in order to meet the needs and align with the proposals made by their clientèle, as part of the **Qualification, Project Execution, Evaluation and Performance Monitoring phases**.

Sofinter, AC Boilers, Europower, Itea and CCA consistently welcome in-house customers who wish to learn more about the technologies and services offered by the Group whilst verifying the solidity of the organisation, performance and results achieved.

This takes the form of open days at Group workshops and worksites, inspections at third-party plants, audits and occasions for sharing and aligning common needs and interests.

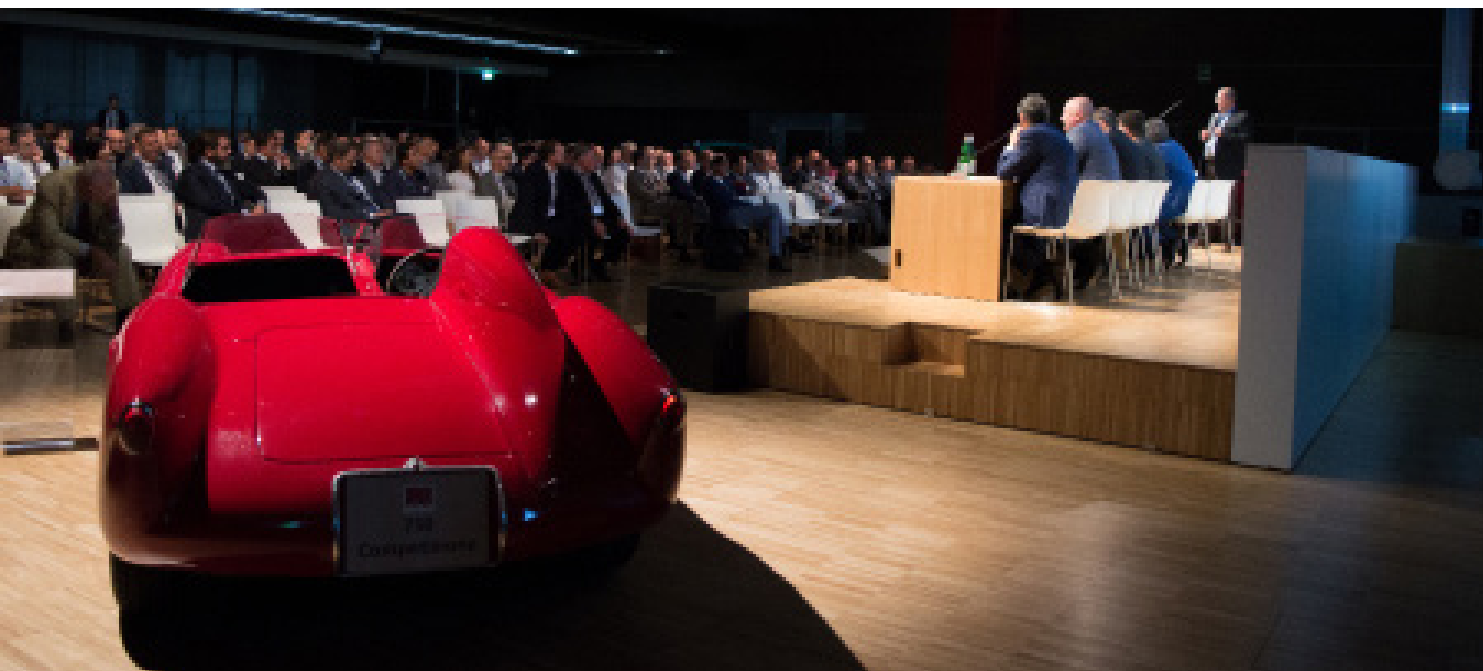


Sustainability Strategy

Context of Reference – *Suppliers*

Sofinter Group companies are intent on building **partnerships with their suppliers** in order to raise the awareness of the entire **supply-chain** on sustainability issues, defining a shared **improvement plan** to reduce environmental and social impacts, in line with the requirements of the current context of the energy transition and promoting the themes of community health and well-being.

In particular, with its suppliers and partners, the Group is committed to the establishment of a value chain, also through structured occasions for discussion and sharing such as the **Key Supplier Days**.



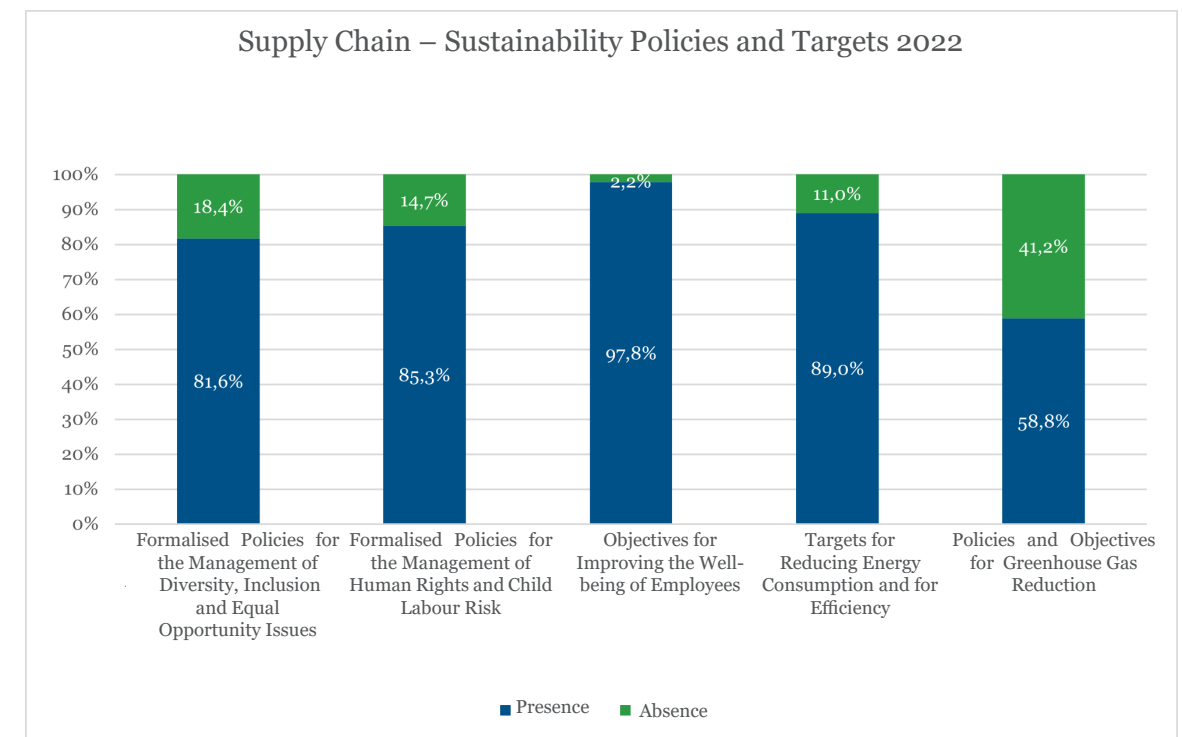
As of 2022, in addition to the already-existing Environmental and Health and Safety performance, the Group has also integrated in its Supplier Qualification and Selection system the verification of Social and Governance aspects, enabling the specific sustainability rating of the supply chain.

This activity, especially for strategic or critical suppliers, takes the form of active collaboration to improve ESG performance, identifying measures for reducing impacts, optimising supplies, defining and monitoring common sustainability goals, raising awareness and pushing for improvement in line with the principles of the United Nations Global Compact.

Below are some of the main indicators, representing the degree of maturity of the Sofinter Group's supply chain with regards to sustainability issues, from which specific targets have been identified as of 2023.

Throughout 2022, for the assessment of sustainability performance, 104 Italian and 32 international suppliers were involved in dedicated interviews and questionnaires, representing the entire Strategic Supplier Register and some additional suppliers of standard use in the Group.

In general, suppliers are very sensitive to employee welfare and workplace rights, as well as to the reduction of energy consumption and waste. In the near future, the Group shall engage in further awareness raising regarding greenhouse gas reduction targets in the supply chain.



Fundamental to this are partnerships with suppliers of the materials that comprise the main components of steam generators, with whom – in addition to quantifying their own environmental importance in the realisation of the product – common strategies are being studied to allow end-customers greater access to better-performing plants and technologies that reduce emissions and waste of materials and resources during operation, maintenance and final decommissioning.



Context of Reference – Polytechnic University | Milan

The Polytechnic University of Milan supports AC Boilers on specific Research and Development activities, which generally have the following objectives:

- Adapt products to increasingly critical operating parameters, linked to the general evolution of plants towards greater efficiency, power or flexibility values, which may involve the development of new technological solutions, the study of new materials and the analysis of the impact of greater operating flexibility on specific components;
- Develop new products, to be introduced in niche markets (such as thermal accumulation systems or concentrating solar power), or anticipate a future market need;
- Adapt computer systems to the latest technological developments;
- Analyse technological and market perspectives in view of the changes taking place in the energy field.

To carry out these activities, the Polytechnic University provides:

- Its know-how, linked to close collaborations with multiple companies;
- A dynamic workforce of young lecturers and undergraduates;
- Its own workshops;
- Its own IT tools.

This collaboration may lead to the activation of internships at AC Boilers for students, often resulting in a job offer for the graduate, having already acquired a knowledge base on steam generator design.



Thermal Battery Module

Context of Reference – Polytechnic University | Bari

CCA entered into a significant cooperation agreement with the **Polytechnic University of Bari** by setting up the **Energy Transition to the Future (ETF) Laboratory**. This project stems from the awareness that we live in a period of energy transition, which must lead to a different way of interpreting and using energy and environmental resources. Such a transition must thus be supported by a constant and continuous technological development. Hence, the ETF Laboratory comes about as a tool in which scientific experience and industrial capabilities find their synthesis on common goals.

Today, workshop tasks are split across various fronts. In particular, activities are focused on the study of clean technologies for the joint use of renewable and fossil fuels in power plants. The Laboratory's mission includes supporting a culture of science and the dissemination of innovative technologies.

The aims of the EFT project are:

- Supporting community energy strategies;
- Creating and maintaining synergy between universities and business;
- Promoting joint RD&D projects;
- Participating in national and international projects;
- Identifying and implementing new models and strategies to strengthen the link with the territory.

CCA makes available to the Polytechnic University of Bari:

- The management of experimental plants (100kW ... 40MW);
- The use and development of diagnostic systems and emission analyses;
- Specialised training on steam generators.

Gioia del Colle Plant - Bari
CCA e Itea



Context of Reference – Educational Institutions

The Sofinter Group promotes territorial relations with local educational institutions, through the placement of students within companies, the organisation of internships and apprenticeships, as well as communications with the population.

Sofinter and AC Boilers adhere to the **Generazione d'Industria project** promoted by the Unione degli Industriali della Provincia di Varese which, with the aim of spreading a culture of business in educational institutions and amongst young people, has involved local schools and companies for more than ten years to promote skills and values, as well as to stimulate both the professional and personal growth of young people.

At the 2022 Scholarship Award Ceremony held at Villa Ponti in Varese, the Sofinter Group also took part along with 45 other participating companies. 61 students from the 17 industrial and economic technical institutes were awarded a Scholarship of Merit by the **Unione degli Industriali della Provincia di Varese (UNIVA)** and thanks to the cooperation of companies in the Varese area. To date, the investments made by UNIVA and its member companies have been instrumental in involving over 10,000 students in online activities plus 800 in face-to-face courses, launching 550 internships and activating around 400 hours of joint company-school training. With the Generazione d'Industria project, the Sofinter Group assists students, facilitating the approach and transition from school to work, as well as promoting business culture through enriching work experience in synergy with training.



Context of Reference – Local community

As far as the relationship with the local community is concerned, the Sofinter Group – and especially the team of the Macchi division – supported and sponsored an initiative promoted by the Rotary Club Satellite Venezia-Mestre-Castellana in September 2020, with the aim of consigning a lift for disabled users to the Polisportiva Terraglio for use in the swimming pool in Mestre. The project aims to promote forms of activism to solve social issues in the area and to sensitise citizens on ethical practices and guidelines to improve the lifestyle and well-being of each individual.





Lunedì 14 Settembre 2020
www.gazzettino.it

Un nuovo sollevatore dal Rotary Castellana

►L'ausilio per disabili destinato alla Polisportiva Terraglio

SOLIDARIETÀ

MARTELLAGO Serviva un sollevatore per far entrare in acqua gli utenti disabili: richiesta esaudita dal neonato Rotary Club Satellite Venezia Mestre Castellana. Il sodalizio presieduto da Roberto Salin, grazie alla fondamentale sponsorizzazione del Gruppo Macchi Sofinter, nella sola serata di giovedì, alle piscine di Ca' della Nave, dove l'attrezzatura è stata subito testata, ha concretizzato il suo primo service consegnando il sollevatore, del valore di seimila euro, alla Polisportiva Terraglio, struttura di eccellenza per le attività sportive e socio-sanitarie per i portatori di handicap.

LA PRIMA USCITA

«Saremo un club aperto alla società civile, propositivo e attivo - ha spiegato Salin - Per questa prima iniziativa volevamo risolvere la problematica di un'associazione che si occupa di persone disabili, verso le quali siamo molto sensibili, e la Polisportiva Terraglio è un modello di questo territorio e ci ha espresso questa necessità». Il presidente ha anche anticipato alcuni progetti del fitto programma del suo Rotary Club dei prossimi mesi, tra cui un convegno sull'economia del Nordest, un evento con decine di istituti superiori per la formazione e l'orientamento nel mondo del lavoro e dell'università e un'iniziativa sulla sostenibilità ambientale per l'acquisto di mascherine biodegradabili per le scuole. «È stato un onore tenere a battesimo questo club, e poi di questo dono fatto col cuore avevano proprio bisogno, ci consentirà di dare un servizio migliore agli utenti», ha detto riconoscendo Davide Giorgi, presidente della Polisportiva, che da quest'anno ha un amico in più: è intervenuto anche Ermes Trovò, presidente di Studio3A-Valore spa, nuovo main sponsor dei Black Lions, la squadra pluricampione d'Italia di powerchair hockey rappresentata dall'allenatore, Sauro Corò.

IL CLUB SERVICE MESTRINO SI È PRESENTATO IN UNA SERATA CONVIVIALE A CA' DELLA NAVE



AUSILIO La consegna del sollevatore per disabili

Context of Reference – Institutions and Employees

There is also a continuous relationship with local institutions and Supervisory Authorities, both to obtain permits and authorisations geared towards business operations, as well as to satisfy specific requests from competent bodies, within the framework of total transparency and to ensure effective alignment in a constantly-evolving regulatory context.

Last but not least, it is worth mentioning the enhancement of the **relationship with all employees and trade union representatives**, in order to foster skill development in human resources plus career paths, along with the creation of a corporate welfare system that integrates business needs with those of people and local social contexts.

WHP - Workplace Health Program

Sofinter and AC Boilers joined the **WHP (Workplace Health Programme) that promotes health**, organised by the Lombardy Region in cooperation with ATS Insubria. The primary aim of the programme is to reduce the preventable and avoidable burden of morbidity, mortality and disability resulting from Chronic Non-Communicable Diseases (NCDs), namely sedentariness, overweightness/obesity, smoking, and so on, by starting to promote health in the workplace so as to be conducive to the competent and conscious adoption of health-enhancing lifestyles.

To implement the programme at the Gallarate and Fagnano Olona sites, all employees were actively involved with a series of activities aimed at improving their well-being both in the company and in their private lives.

As part of the practice of good eating habits, relations were improved with caterers offering canteen service during lunch breaks. The offer of zero-sugar and low-calorie snacks and beverages in company vending machines was expanded and meetings were organised with certain ATS Insubria representatives and a dietician who shared a practical guide to good nutrition. It is also possible to request individual counselling and to book consultations with the National Health Service at no cost.

With regard to physical activity, some company areas were improved in order to facilitate home-to-work travel by alternative means to the car (bicycles and scooters) and the first company sports event was organised.

In addition, for both project areas, an internal awareness-raising campaign was initiated with the aim of spreading awareness regarding a number of measures that could significantly improve people's lives in terms of health and well-being.

The WHP's multi-year commitment continued into 2023 with the extension of practices already initiated and the integration of further activities related to quitting tobacco and other addictions.

On 6th April 2023, Sofinter and AC Boilers received a **certificate of recognition** from ATS Insubria as a company promoting health in the workplace thanks to their activities during 2022.



Programma WHP

“Health promotion is the process of enabling people to exercise greater control over, and to improve, their health,”(Ref. Ottawa Charter for Health Promotion, WHO, Geneva, 1986). The promotion of health is a comprehensive social and political process, which includes not only actions aimed at strengthening the skills and capacities of individuals but also actions focused on changing social, environmental and economic conditions so as to mitigate their impact on the health of the individual and the community. Participation is essential to support actions for the promotion of health. (...)”

Sustainability Strategy

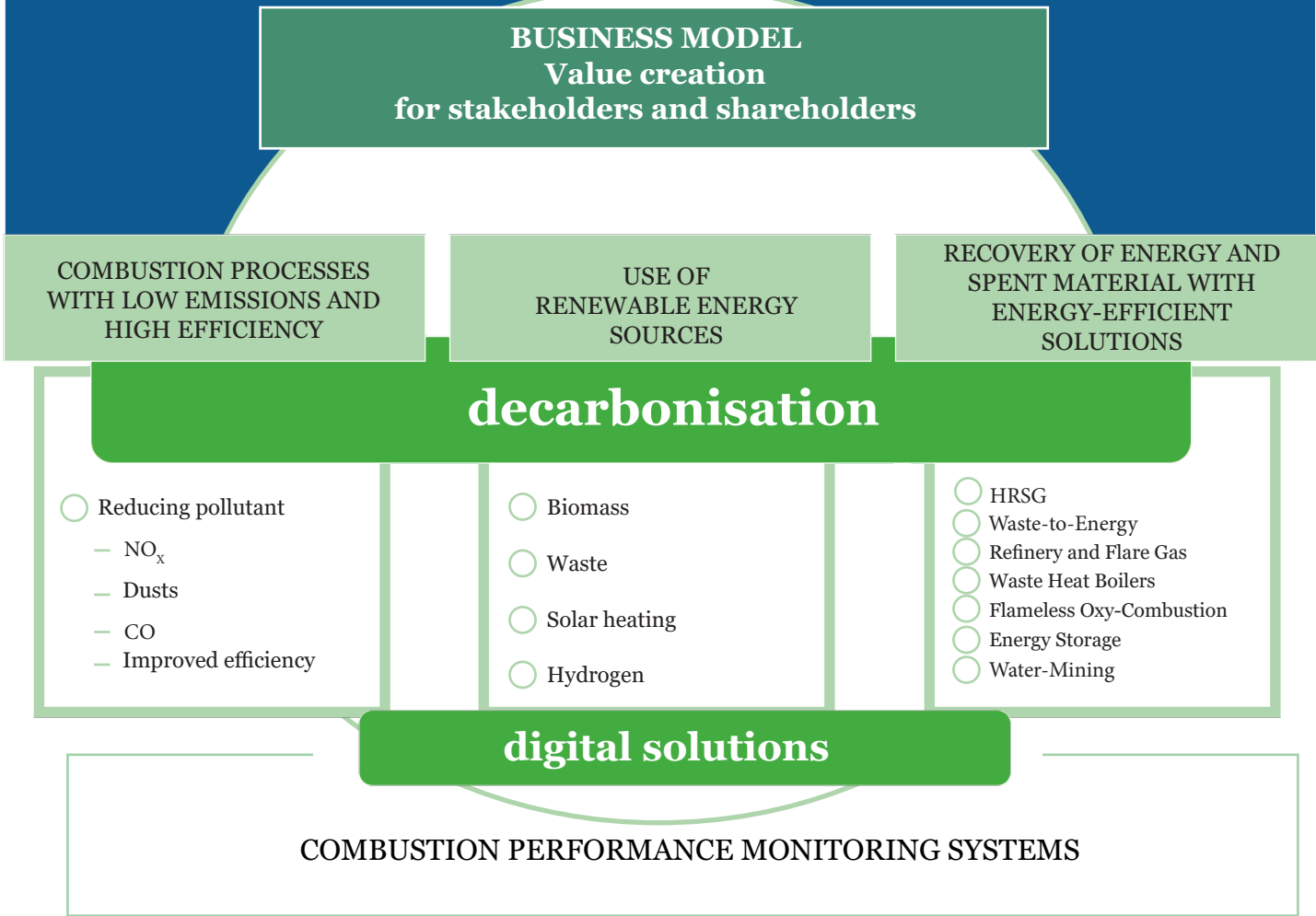
A Sustainable Business Model

The **Sofinter Group Business Model** is aimed at creating value for all stakeholders and shareholders through:

- The design and engineering of products and services geared towards environmental protection, the prevention of pollution in production processes and the optimisation of the use of energy resources;
- The efficiency of production processes and services via a reduction in raw material and energy consumption along with the minimisation of environmental and social impacts;
- The structuring of a supply chain that allows, thanks to solid partnerships with all suppliers, the extension and sharing of the Group’s values to external organisations and contexts.

The Group’s Business Model is founded on Research and Development activities for innovative technological solutions in the field of energy transition and decarbonisation, sustained by a major digitisation process and articulated around the 3 main drivers of:

- Optimisation of combustion processes;
- Participation in the energy transition and decarbonisation;
- Recovery of energy and waste matter.



Sustainability Strategy

Materiality: our priorities

The assessment of material matters is one of the fundamental processes in **corporate sustainability** management, in order to identify the focus and priorities not solely from the Company's point of view but especially from the point of view of all stakeholders.

Over time, numerous approaches for such an assessment have been developed or have evolved substantially from the Global Reporting Initiative (GRI) Standard to the European Union's Corporate Sustainability Reporting Directive (CSRD).

Particularly in recent years, the methodological approach distinguishes "single materiality" from "double materiality". Double materiality requires companies to evaluate both the risk and opportunities related to ESG (Environment, Social and Governance) issues that may influence the company's value creation ("internal impacts") and the ESG impacts that the company may have on the planet and external society ("external impacts").

The Sofinter Group has assessed its material matters of sustainability according to a double materiality approach which, based on the ESG pillars, combines qualitative and quantitative data in order to make explicit, in the simplest way possible, the issues on which it is important to focus in the near future in operation of the business.

INTERNAL IMPACTS

Environmental, Social and Corporate Governance (ESG) risks and opportunities that may impact upon the values of the Sofinter Group



EXTERNAL IMPACTS

ESG issues on which the Sofinter Group can have a greater external impact

Materiality - Sustainability Themes

The identification of sustainability themes was carried out by checking both internal aspects and external sources, international standards, the UN SDGs, sector benchmarks, data based on technical-scientific developments and discussions reported in the media.

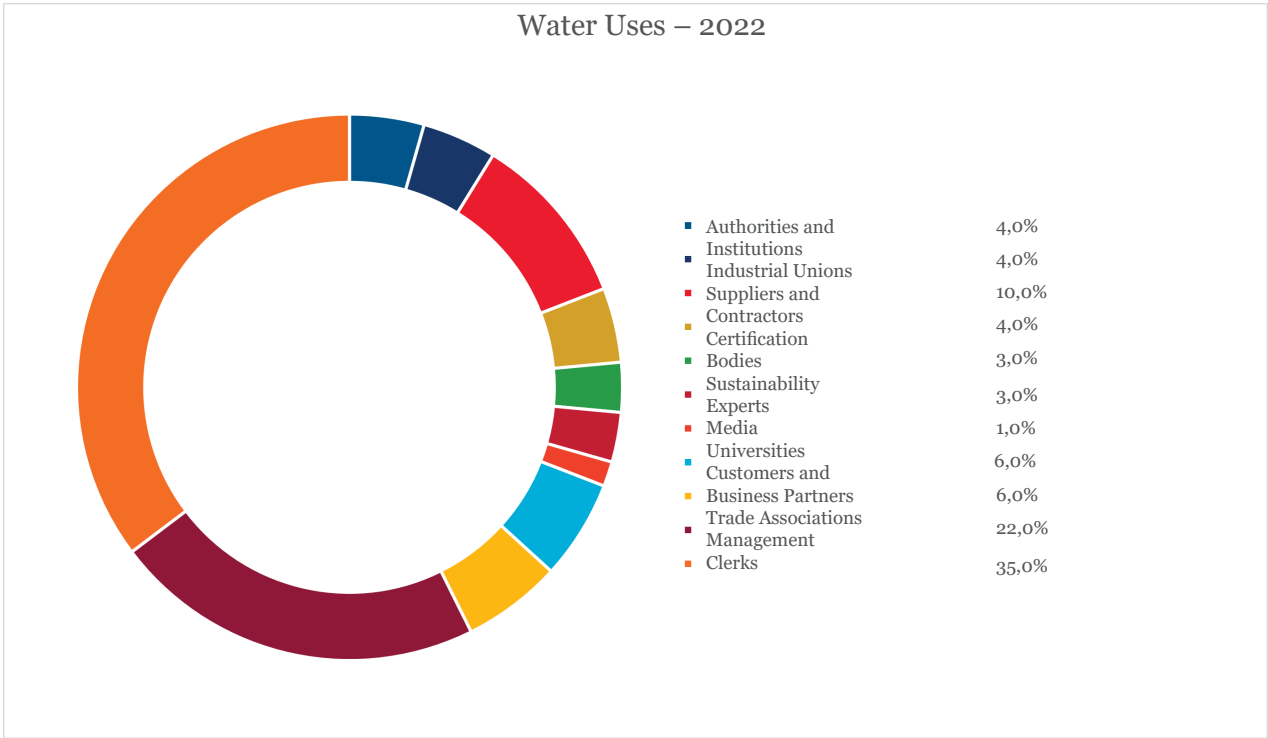
The sustainability themes identified, divided between the Environmental, Social and Governance pillars, are shown in the table below.

THEMES		
environmental	social	governance
Climate	Worker Health and Safety	Laws and Regulations
Energy	Diversity and Inclusion	Business integrity
Water	Development of Human Capital	Privacy
Discharge	Labor standards	
Sustainable Design	Employee Welfare	
Biodiversity	Economic Contribution	
	Humanitarian Initiatives	

Materiality – Stakeholder Involvement

In order to involve our stakeholders and analyse their perspectives on sustainability themes, contacts from various fields were earmarked to obtain an objective representation of the Sofinter Group’s stakeholders.

In particular, a Sustainability Questionnaire was created and submitted to stakeholders for completion following details and an explanation being given regarding the objectives related to the materiality analysis. A total of 68 people – both internal and external to the Company organisation – were involved, divided in percentage terms into the categories below.



The answers obtained from the Questionnaire were then categorised and priority was given by the stakeholders on material topics.

The topic of Energy, closely related to that of Climate, was the main environmental issue to which both the internal and external stakeholders attached most importance. In all likelihood, this reflects the general concern about climate change that is seeing extremely negative impacts on the environment and the land, as well as the possibility of access to permanently available, clean and affordable energy sources.

Regarding further environmental issues, whilst internal stakeholders additionally expressed an interest in maintaining high standards for Discharge, all respondents considered it very important for the Sofinter Group to focus on the Sustainable Design of its products. Development of Human Capital was prioritised amongst the Social issues, as was Occupational Health and Safety, the latter particularly supported by external stakeholders, followed by Labour Standards and Employee Welfare.

Of the Governance topics, all interviewees attached the highest importance to Business Integrity, which should be the main driver for the Group to run a responsible and sustainable business, followed by ensuring compliance with Laws and Regulations.

The size of the icons in the Materiality Matrix reflects the importance given by the stakeholders to the ESG sustainability theme.

Materiality –External impacts assessment (outward)

An analysis was conducted in order to verify which issues on which the Sofinter Group has the greatest impact externally.



























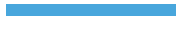

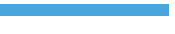






















Impacts were assessed on a simplified value chain:


- Upstream – suppliers of goods and services
- Operations – workshops, worksites and offices
- Downstream – plants and end customers


The data was researched within the relevant sector (mechanical engineering, energy, petroleum), analysed and benchmarked with the data made available by the main players amongst customers and suppliers, internally calibrated and supplemented by experts and contact persons for the various topics.


Each impact was estimated by taking into account the size of its field of application, the severity and frequency, reversibility of the damage and ability to be controlled by the Sofinter Group.

The results thus obtained determined a lesser or greater relevance of the topic on the planet and external society, reflecting the contribution on the X-axis of the Materiality Matrix.

THEME		UPSTREAM	OPERATIONS	DOWNSTREAM
 <div>environment</div>	Climate			
	Water			
	Energy			
	Discharge			
	Sustainable Design			
	Biodiversity			
 <div>social</div>	Worker Health and Safety			
	Diversity and Inclusion			
	Development of Human Capital			
	Working Standards			
	Employee Welfare			
	Economic Contribution			
	Humanitarian Initiatives			
 <div>governance</div>	Laws and Regulations			
	Business Integrity			
	Privacy			







high

medium

low

Materiality – Internal impact assessment (inward)

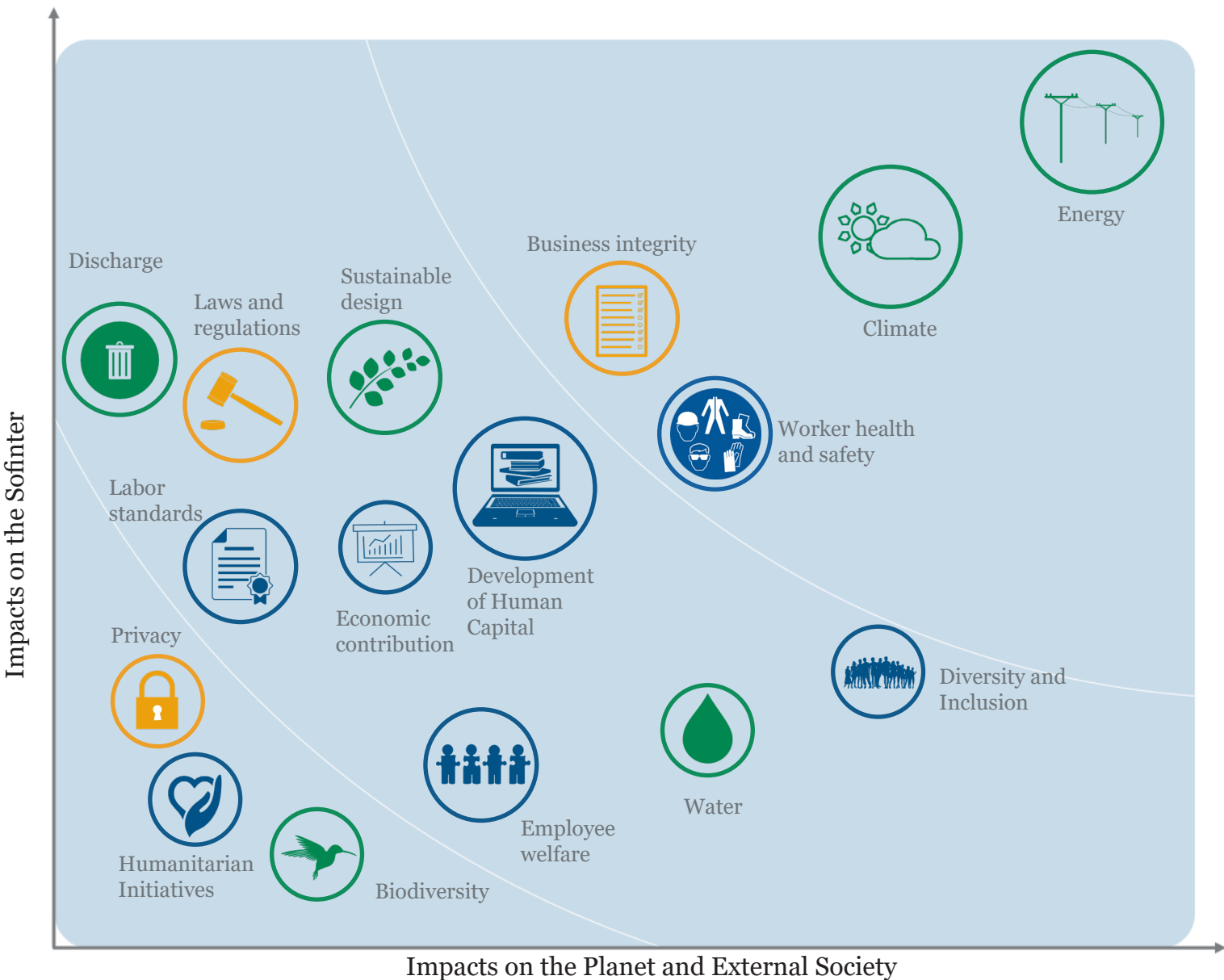
Finally, the impacts of sustainability issues on the Sofinter Group in terms of risks and opportunities for the organisation itself were assessed in accordance with the principles of double materiality.

Impacts were determined by taking into account the results of the Group Companies’ sustainability ratings (where available), legislative developments on ESG issues, internal and industry risk analyses, and data from stakeholder questionnaires.

The results thus obtained, combining risks and opportunities, determined a lesser or greater relevance of the topic on the organisation of the Sofinter Group, reflecting the contribution on the Y-axis of the Materiality Matrix.

Sofinter Group Materiality Matrix

The Materiality Matrix of the Sofinter Group was thus constructed using all the inputs gathered in the process of evaluating material aspects.



Materiality – Sustainable Goals

Since 2015, UN member states have adopted a set of goals to end poverty, protect the planet and ensure prosperity for all as part of a new **Development Agenda**. The **UN’s 17 Sustainable Development Goals** require the strong involvement of all components of society –businesses, the public sector, civil society, philanthropic institutions, universities and research centres, along with information and culture operators. The role of business is obviously important.

By virtue of this, the **Sofinter Group** correlated the material aspects identified with the 17 Sustainable Development Goals proposed by the United Nations, in order to harmonise its sustainability goals with the internationally-proposed classification.

ESG THEMES	PRIMARY SUSTAINABLE DEVELOPMENT OBJECTIVES	SECONDARY SUSTAINABLE DEVELOPMENT OBJECTIVES
<div>energy</div> <div>climate</div> <div>sustainable design</div> <div>discharge</div>	<div><div>7 AFFORDABLE AND CLEAN ENERGY</div><div>13 CLIMATE ACTION</div><div>9 INDUSTRY INNOVATION AND INFRASTRUCTURE</div><div>15 LIFE ON LAND</div></div>	<div><div>7 AFFORDABLE AND CLEAN ENERGY</div><div>9 INDUSTRY INNOVATION AND INFRASTRUCTURE</div><div>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</div></div>
<div>worker health and safety</div> <div>development of human capital</div> <div>diversity and inclusion</div> <div>employee welfare</div>	<div><div>8 DECENT WORK AND ECONOMIC GROWTH</div><div>4 QUALITY EDUCATION</div><div>8 DECENT WORK AND ECONOMIC GROWTH</div></div>	<div><div>5 GENDER EQUALITY</div><div>10 REDUCED INEQUALITIES</div><div>3 GOOD HEALTH AND WELL-BEING</div></div>
<div>corporate integrity</div>	<div><div>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</div></div>	


Sustainability Strategy










Future Objectives and Challenges

In relation to the assessment of the main aspects of materiality and corporate priorities, also taking into account the interests of all stakeholders, the Sofinter Group has defined a **Strategic Sustainability Plan for the 2023–2025 three-year period**, identifying the below Objectives.

In addition to the correlation with the UN SDGs, the targets are broken down into specific activities applicable to all Group Companies with regards to operational aspects or product development and referred to the current status or degree of maturity, taken as a reference and baseline.

2023/2025 ROADMAP

ASPECT	OBJECTIVE	SDG	CONTEXT	ACTIVITIES	BASELINE 2020/2022	KPIs/ TARGET
climate	Contribute to the fight against climate change	 	operations	Data certification by a third-party organisation and development of a dedicated CO ₂ calculation system	Data validated by energy suppliers and calculated with ESG rating system tools	100%-certified fuel and energy data
				Reduction of CO ₂ emissions from Scope 1 and 2		
energy	Supporting the process of global energy transition	 	product	Timely definition of the carbon footprint of different types of products and installations	Data taken from raw material purchases and estimated through EPDs of suppliers	Life Cycle Assessment (LCA) Macchi and AC Boilers main products
				Dissemination of hydrogen technologies, WTE installations, biomass and oxyfuel plants	The development and initial implementation of hydrogen technology, realisation of WTE and biomass plants, testing and first implementation of oxyfuel plants	

ASPECT	OBJECTIVE	SDG	CONTEXT	ACTIVITIES	BASELINE 2020/2022	KPIs/ TARGET
discharge	Reducing pollutants in the environment to a technically-feasible minimum.	 	operations	Maintenance of high percentages of waste for reclamation or recycling in offices, factories and construction sites	High percentage of hazardous waste for reclamation or recycling	Percentage of waste recovered > 95%
	Promoting the enhancement of energy from waste		product	Further improvement of combustion parameters (NO _x , CO, dust) in relation to changes in the technologies used. Using waste as a resource for energy production through WTE, biomass and Oxy-Combustion technology	High performance of emission parameters in traditional methane combustion processes Exploitation of Waste Resources in WTE and Biomass Plants built	 
health and safety	Protecting workers and ensuring a safe and healthy workplace		operations	Further improvement of safety performances, reduction of accidents with serious injuries to zero, reduction of minor injuries for all types of contracts (employees, contractors, sub-contractors)	Absence of serious injuries, gradual reduction of minor injuries over time	Creation, calculation and monitoring of an integrated accident index for all contract types
diversity and inclusion	Developing inclusive workplaces	 	operations	Promoting a culture of diversity and inclusion, improving gender equality at all organisational levels	Limited female representation in leadership and managerial roles	+25% Female representation in executive and managerial roles + 10% Percentage of women
development of human capital	People's professional and personal growth	 	operations	Improvement of development pathways and employee training in quantitative and qualitative terms, also in the context of the changing technological, digital and social environment	Ongoing in-company training, evaluation and improvement of skills	+ 100 % of resources trained in sustainability issues (environment, social, governance) by 2024
employee welfare	Focus on well-being and job satisfaction		operations	Remodulation of corporate culture concepts, further involvement of employees in projects focused on physical and mental well-being	Participation in institutional projects (Workplace Health Promotion) for the improvement of well-being in the company and the promotion of healthy behaviour	100% extension of WHP project practices in the workplaces

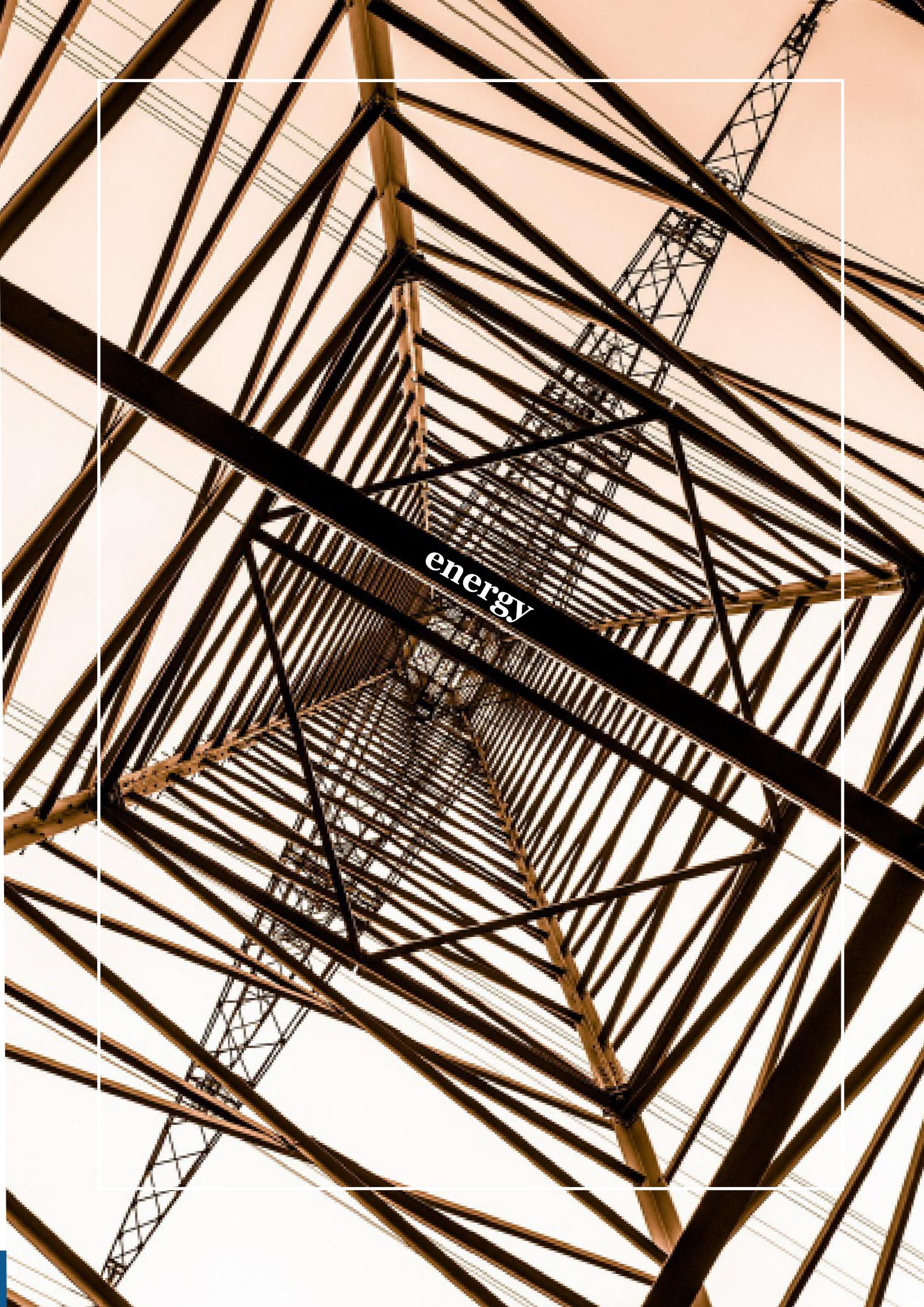
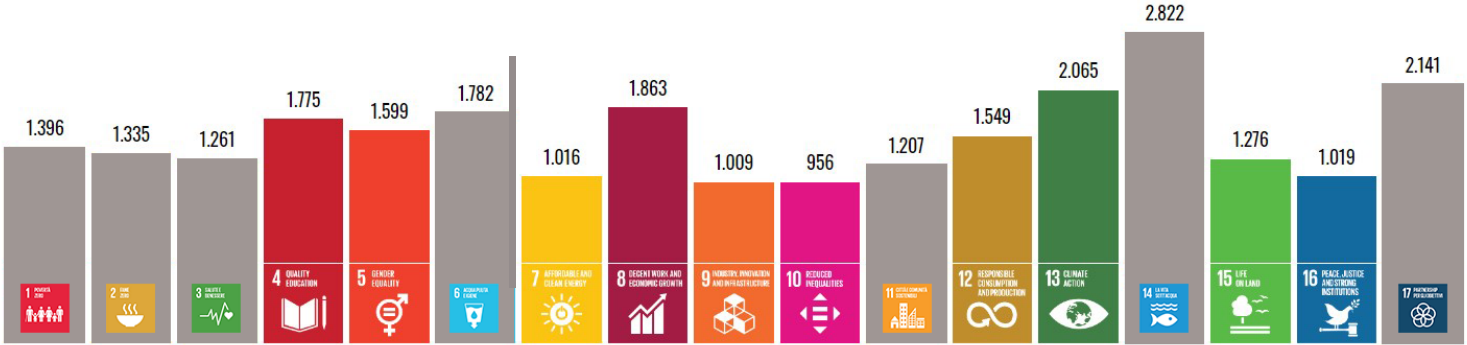
ASPECT	OBJECTIVE	SDG	CONTEXT	ACTIVITIES	BASELINE 2020/2022	KPIs/ TARGET
 corporate integrity	Healthy working environment and absence of corruptive		operations	Implementation of a new Group whistleblowing system	Reporting Offences and Irregularities through an unstructured system	100% reporting via a new whistleblowing system

Focus - Status of global actions on our SDGs

SDG Actions Platform

The SDG Actions Platform is a global registry of voluntary policies, commitments, multistakeholder partnerships and other initiatives implemented by governments, the UN system and a broad range of stakeholders to support the acceleration of the Sustainable Development Goals (SDGs).

The graph below represents the overall status of actions on the SDGs, highlighting those on which the Sofinter Group has defined policies and strategies in the short- to medium-term.



The contribution of Sofinter Group products and services to the current global energy transition looks to the technological prospects of the steam generation sector and to their role in reducing emissions and increasing energy efficiency.

The latter two aspects are closely linked, since the contribution of steam generators to a reduction of greenhouse gas emissions, essentially CO₂, is directly proportional to the fuel consumption and thus to the reduction of energy consumption of the plants.

One crucial factor is the application of steam generators as part of alternative energy solutions to avoid CO₂ production.

Technological Perspectives

International forecasts for the near future for thermo-electric plants show that the power transition shall be based on multiple energy sources (renewables and fossil fuels) applied in combination with the most energy-efficient technological solutions.

Thermal energy from fossil fuels with low CO₂ emissions will help to support the growth of renewable energy sources and, over the next three decades, shall continue to be an important source of electricity generation, accounting for over 50% of global generation.

Natural gas will remain the last fossil source in use in Combined Cycle plants based on gas turbines, steam turbines and Heat Recovery Steam Generators (HRSGs).

Meanwhile, the Oil & Gas industry aims to increase the energy efficiency of plants and reduce environmental impact by means of Clean Energy solutions involving the use of medium- and low-calorific refinery waste gases that were traditionally burnt in flares in an uncontrolled manner, thus upping the release of CO₂ and polluting gases into the atmosphere.

The goal of zero flaring by 2030 is shared by most of the major inter-national companies in the Oil & Gas production sector, with an important contribution to its achievement coming from the combustion systems of industrial steam generators.

One further innovative aspect is the use of hydrogen, considered a priority in the programmes for developing new energy technologies at international and especially a European level (European Commission plan of “A Hydrogen Strategy for a Climate-neutral Europe”).

Focus - European Energy Regulation

The new European energy strategies, based on CO₂ emission reduction targets and the subsequent phase-out of coal are founded on the recent **European Regulation on the Internal Market for Electricity (2019/943/EU)**. The new rules set general criteria to ensure capacity margins and safety requirements in terms of stability of the electricity grids. Such criteria are then implemented by each country with the introduction of suitable remuneration for additional, low-carbon electricity capacity made available by producers.

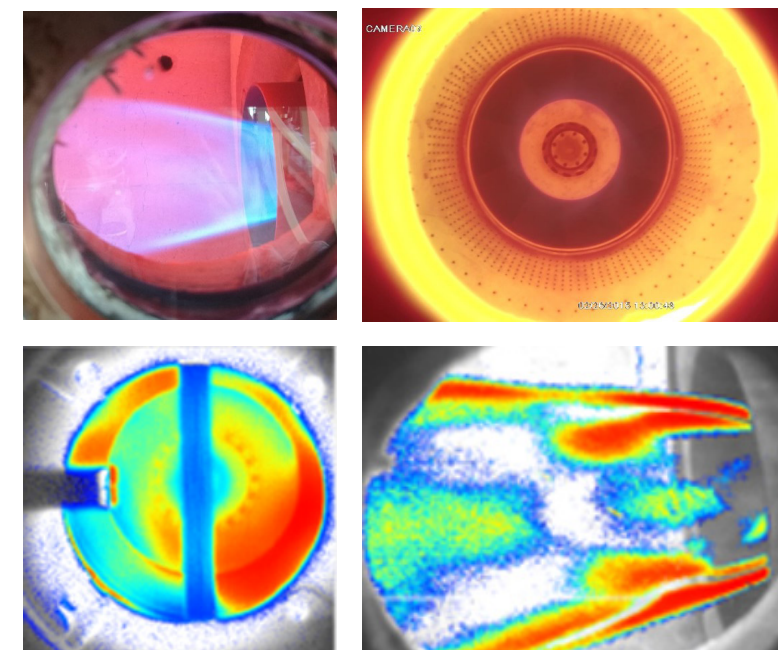
Product Development

The development of AC Boilers and Macchi steam generators is geared towards solutions that contribute significantly to decarbonisation, either directly through the use of renewable energies or through the sustainable use of fossil fuels. This is achieved through employing established technologies that allow for minimal greenhouse gas (CO₂) production and minimal environmental impact in terms of emissions, in line with the international climate control agreements and initiatives.

These guidelines have a decisive impact on the strategic choices of the product application sectors of Group companies.

Steam generators are considered essential for power generation and co-generation in industrial plants so as to guarantee in the coming decades the on-demand sustainable, safe, continuous and efficient production necessary to support the growing share of renewable energy sources (such as wind power and solar photovoltaics).

Wind and solar power are currently still sources with possible large daily variations in the amount of electricity produced, so conventional thermal power plants can quickly compensate for any reduction, allowing electricity production to be fully available in accordance with the demands of the grid.



Hydrogen Combustion in Gas Turbines
– Study of Thermoacoustic Phenomena

AC Boilers and Macchi have conducted extensive product development activities in recent years so as to have increasingly suitable solutions for achieving decarbonisation and emission reduction targets.

Such activities essentially concern the following areas:

- The development of low-emission and high-efficiency combustion processes;
- The use of renewable energy sources;
- The recovery of energy and spent matter with energy-efficient solutions;
- The use of alternative energy solutions.

Product development activities also include Digital Solutions, as tools to support the dissemination of innovative technologies.

Reducing the Materials Used

AC Boilers and **Macchi** are engaged in a broad-ranging project to reduce the weight of their products in order to offer the market the most energy-efficient and low-emission solutions combined with low investment and maintenance costs.

Weight reduction brings clear benefits in terms of environmental impact (consumption of raw materials and energy) of all stages of the supply chain with the production of semi-finished materials, manufacture of components, transport of materials to the fabrication workshops and of finished components to worksites for installation on customers' equipment, assembly of components and assembly on worksites.

Below are some significant examples.

Over the past three years, AC Boilers has reduced the HRSG product weight by more than 8% for a corresponding overall reduction of some 600 tonnes in HRSGs for high-efficiency large combined cycles.

Macchi has further optimised the solutions for maximum modularisation of industrial boilers according to the proprietary plug-and-play design. This solution allows for a high degree of pre-assembly on the shop floor with the boiler being shipped in one large package, resulting in a significant reduction in assembly time with marked reductions in the number of resources on-site and thus the associated environmental impacts.

energy

Steam Generators



Steam generators for thermal power stations

Heat Recovery Steam Generators (HRSGs) are an essential component for Combined Cycle power plants in which the HRSG recovers the heat content from the exhaust gas of the gas turbine then feeds the steam produced into a steam turbine. Combined cycles achieve the highest energy efficiencies (over 63%) and low CO₂ emissions (around 40% less), using natural gas as fuel.

Steam generation systems for renewable energies are able to utilise thermal energy from renewable sources such as municipal solid waste (Waste-to-Energy Boilers) or biomass in their combustion systems.

By means of Steam Generators designed for efficient combustion with very low emissions, Waste-to-Energy plants represent the best available technology for the reuse of non-recyclable municipal solid waste, thus preventing the negative environmental impact of landfilling or transfer to non-European geographical areas where waste management could take place with less stringent environmental limits.

Focus - WTE: the Fate of Waste in the European Union

In the European Union (EU 27) in 2019, 48% of municipal waste alone was recycled, 27% was used by WTE plants and 25% was landfilled. Over the past 10 years, the recycled portion has increased from 39% to 48% as the portion sent to landfill has also decreased from 38% to 25%, thus the share for WTE has gone up from 23% to 27% precisely to utilise what cannot be recycled.

The main advantages of WTE systems are:

- **To manage residual waste not suitable for recycling** – materials that have already been recycled too many times, waste consisting of mixed product types, special waste such as hospital waste;
- **To use residual waste as a resource for energy production** – recovered energy is transformed into steam, electricity and process heat;
- **Avoid the use of landfills, which have high environmental impacts** – landfills carry the risk of soil and water pollution, occupy large areas and emit unpleasant odours, as well as being responsible for uncontrolled emissions of methane, a greenhouse gas much more potent than CO₂.

Basically, WTE plants use residual waste that is not suitable for recycling for various reasons. Think materials that have already been recycled too many times, waste consisting of different product types and special waste such as hospital waste.

In WTE plants, residual waste is utilised as a resource where energy recovery is transformed into heat, electricity and process heat whilst the recovery of secondary materials enables them to be fed back into the economic cycle. As such, WTE plants are complementary to recycling and significantly contribute to the EU target of reducing the amount of waste going to landfill to 10% by 2035.

Furthermore, WTE plants impede the use of landfill sites, representing a major environmental impact since landfill sites pose the risk of soil and water pollution, occupy large areas and emit unpleasant odours. They are responsible for uncontrolled emissions of methane, a greenhouse gas 84 times more potent than CO₂ when evaluating the effects over a 20-year period.

The development of WTE plant technologies is important for reducing the environmental impact even on a global level since 70% of the waste produced is still sent to landfill and the perspective is that global waste generation will increase by about 60% by 2050.

From the point of view of CO₂ emissions, the residual waste used in WTE plants is predominantly comparable to a renewable source. Indeed, recent European studies have estimated the biomass content to be 67% by weight and 55% in energy terms. The production of CO₂ of biogenic origin (neutral with respect to climate impact) is thus just under 60%, whilst the production of greenhouse gases due to the fossil component of residual waste is around 40%.

Biomass Steam Generators can utilise an extremely broad range of renewable energy sources such as wood pellets and chips, recycled wood, straw, varieties of agricultural or forestry plant residues, sugar cane processing residues and so on, all under environmentally-sustainable conditions.

Biomass steam generators are able to utilise, under environmentally-sustainable conditions, an extremely broad range of renewable energy sources such as wood pellets and chips, recycled wood, straw, varieties of agricultural or forestry plant residues, sugar cane processing residues and so on.

Steam Generators for Industrial Plants

Steam is a vital resource for a broad range of industrial processes. Industrial steam generators power numerous complex processes such as those downstream of the Oil & Gas industry, power pumps and turbines in production plants, support production in the steel, paper and wood industry and, above all, enable the construction of co-generation plants that combine the united production of process heat (such as for water desalination or district heating) and electricity (Combined Heat and Power plants) and achieve the highest overall energy yields in plants.

Industrial steam generators in the Energy Transition thus remain a key component of industrial processes and are characterised by their ability to ensure a change in the fuel mix towards clean, environmentally-friendly solutions and CO₂ production by improving combustion systems in terms of efficiency and pollutant abatement systems for:

- Greater use of gas instead of oil;
- An increase in plant energy efficiency through the use of residual process gases with medium to low calorific values;
- The use and recovery of flare gas.

Focus - flare gases

As a guide, 1 tonne of flare gas (assuming a typical calorific value of 40MJ/kg) burned in a steam generator saves on the equivalent consumption of natural gas, saving approximately 2.2 tonnes of CO₂eq.



WTE AC Boilers



Plug&Play Macchi



CCA, AC Boilers and Macchi are involved in the BE4GreenS project, financed under a Programme Contract with the Region of Puglia, which aims to innovate traditional combustion systems by means of solutions with minimal environmental impact, namely:

- ❑ **Burners for industrial natural gas steam generators (Macchi MARS II model) with very low nitrogen oxide emissions.** The tests carried out have demonstrated the ability to achieve single digit NOx levels below 10 ppm (in reference to 10 mg/Nm³), which is the lower limit amongst the technologies available on the market today. This ensures compliance with the most recent environmental regulations with just the combustion system, without having to install additional NOx abatement systems downstream.
- ❑ **Burners for Macchi multi-fuel industrial steam generators for efficient and low-emission combustion of mixtures of medium and low calorific value refinery gases and gases that were traditionally burned in flares in an uncontrolled manner.** Such burners already enable the achievement of zero flaring requirements by 2030 shared by most major international companies in the Oil & Gas production sector, in addition to the multi-fuel burner proving capable of running on 100% hydrogen alone, allowing for steam generation systems with zero CO₂ emissions and low nitrogen oxide (NOx) emissions.
- ❑ **AC Boilers for low-emission natural gas combustion in supercritical power boilers for high-efficiency steam cycles.** The multi-burner system tested in large-capacity units (600 MWe) installed in Egypt demonstrated in acceptance tests the achievement of NOx levels of approximately 20% lower than the limits for combustion chamber emissions specified by the applicable international guidelines and operation at low excess air (O₂ less than 1%) with consequent energy benefits in terms of plant efficiency and fuel savings.
- ❑ **AC Boilers for highly-efficient combustion of pulverised solid fuels.** The new AC Boilers' BE4G Bio burner enables the high-efficiency, low-emission combustion of pulverised biomass and has moderate biomass fineness requirements, resulting in significant savings in the electrical energy absorbed by the biomass grinding system. The burner is based on innovative design solutions for which a European patent is positively pending.



Heat Recovery Steam Generators (HRSGs) are an essential component for Combined Cycle power plants in which the HRSG recovers the heat content from the exhaust gas of the gas turbine then feeds the steam produced into a steam turbine. Combined cycles achieve the highest energy efficiencies (over 63%) and low CO₂ emissions (around 40% less), using natural gas as fuel.

Steam generation systems for renewable energies are able to utilise thermal energy from renewable sources such as municipal solid waste (Waste-to-Energy Boilers) or biomass in their combustion systems.

By means of Steam Generators designed for efficient combustion with very low emissions, Waste-to-Energy plants represent the best available technology for the reuse of non-recyclable municipal solid waste, thus preventing the negative environmental impact of landfilling or transfer to non-European geographical areas where waste management could take place with less stringent environmental limits.

Biomass

In the context of steam generation systems using biomass, AC Boilers has developed solutions with high plant efficiency and the consequent reduction of biomass consumption, including:

- High-pressure and high-temperature configurations, where applicable, with reheating of steam to increase the regenerative level of the plant's thermodynamic cycle;
- The use of local agricultural production residues (vegetable residues, olive pomace, prunings) specific to certain geographical areas in order to increase the circular economy;
- High-efficiency use of pulverised biomass (typically wood pellets) thanks to the use of the new BE4G Bio burners.

Hydrogen

Macchi developed and built a burner capable of operating with various fuel mixtures and pure hydrogen. The burner consists of a plurality of injectors capable of operating separately or jointly with various fuels and pure hydrogen in particular.

Specifically, a refractory cone (or, heat shield) was developed to separate the external injectors from the airflow. A central stabilising injector with flame guard is provided.

The burner was engineered through CFD simulations, which confirmed its design precision. Once the engineering phase was completed, the construction of the 35 MWth industrial-size burner commenced.

The construction was carried out within the Sofinter Macchi Group at the CCA environmental combustion centre in Gioia del Colle (Bari).

After construction, a functional test was carried out at 35 MWth in order to monitor typical burner parameters and, in particular, NOx emissions.

Innovative Project Characteristics

The innovative features of the project can basically be summarised as follows:

- Presence of numerous injection lances required to flush out the gas stream of hydrogen which, being low in density, requires large passage profiles;
- Presence of the heat shield that allows the highly-reactive hydrogen current to be injected into an area with less oxygen;
- Being quite numerous, the lances or injectors can be divided into several separate circuits, capable of operating with different fuels.

The above characteristics allow the burner to be operated with traditional fuels, pending the availability of hydrogen: “Ready for H₂ Switch”.

In many cases, hydrogen is not yet available to plants but users require a burner that can be used immediately with hydrogen without modification.

Ready to Switch

The burner is designed to be installed in new as well as existing steam generators to replace previous generation burners.

The possibility of operating with hydrogen mixtures renders it possible to reduce CO₂ emissions in the atmosphere at the same heat output.

The most modern calculation techniques were used (Fluent Analysis) along with the installation of latest-generation FIREYE 95UVS4-1CEX, MACCHI BFS flame detectors. In particular, safety in the presence of flame is always guaranteed by the presence of the flame scanner, which has demonstrated excellent detection performance even with hydrogen flames that are generally less visible than those of more traditional fuels. The commercial burner will be equipped with two flame detectors that guarantee full operational safety, even if one detector ends up failing or undergoing maintenance.

Focus - Hydrogen vs. Natural Gas

Each tonne of hydrogen, which replaces the equivalent heat input of natural gas in a steam generator, contributes to saving approximately 6.6 tonnes of CO₂.

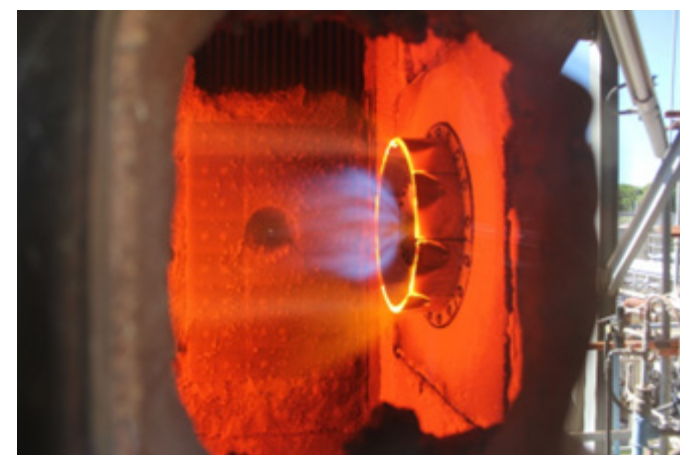
The combustion of only hydrogen does not involve the production of CO₂ and is thus, by definition, CO₂-neutral by meeting the requirements of international and European development programmes (EU plan of “A Hydrogen Strategy for a Climate-neutral Europe”) in the transition to a clean energy system.



100% hydrogen burner



Burner installed on a steam generator



Hydrogen burner in operation



Hydrogen burner flame

Solar

AC Boilers is also engaged in the development of molten salt solar receivers that are applied in **Concentrated Solar Power (CSP) tower-type plants**.

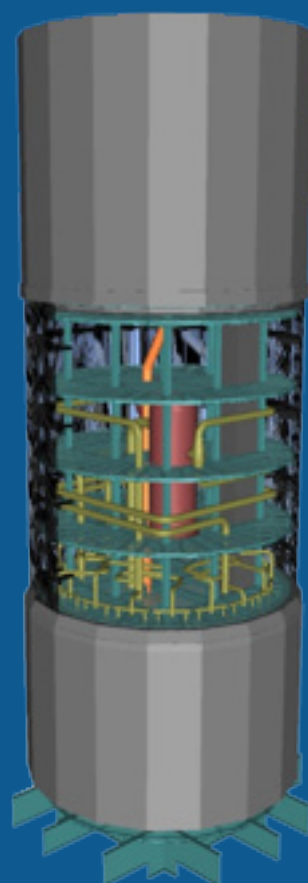
Solar thermal power plants are based on using solar energy in a different way from the more common and widely-used Photovoltaic (PV) plants that convert solar energy directly into electricity in panels.

The PV system is simple and low-cost but suffers from a limitation in the availability of the electricity produced, as it necessarily follows the daily fluctuations of the solar energy flow on the ground due to weather conditions and is not available during the night. Current electric battery technologies also do not yet allow for prolonged and efficient energy storage on a large industrial scale.

In Concentrating Solar-Thermal Systems, rather, the sun's rays are focused towards the receivers by means of various types of mirrors. In particular, tower systems use a field of flat mirrors (heliostats) that concentrate solar energy on the top of a tower bearing the solar receiver.

Thanks to the use of molten salts (sodium and potassium nitrates) as the solar energy-absorbing fluid inside the receivers, CSP tower systems have the ability to separate the absorption of solar energy from the production of electricity thanks to large reservoirs with a storage capacity of several hours, in which thermal energy is stored. This energy is then released by exchanging heat with water in special heat exchangers that produce the steam needed to power a turbine and produce electricity on-demand, 24 hours a day in accordance with the needs of the grid, akin to the traditional use of fossil fuels.

Solutions for large-scale solar power plants could thus include hybrid solutions that combine the low-cost electricity production of photovoltaic panels with the energy storage enabled by molten salt receivers.



AC Boilers riprendendo l'esperienza positiva guadagnata oltre 10 anni fa nella realizzazione dei ricevitori solari ad acqua e vapore per gli impianti a torre, sta attivamente sviluppando il progetto dei ricevitori solari, che rappresentano la "caldaia solare" e costituiscono uno dei componenti chiave e tecnologicamente di maggiore complessità in questa tipologia di impianti.

Lo sviluppo del prodotto comporta il dimensionamento per le massime capacità termiche richieste dal mercato (fino a 700 MWth) grazie ad un importante sforzo interdisciplinare che coinvolge l'ottimizzazione geometrica e la scelta dei materiali avanzati (leghe ad alto tenore di Nichel) per resistere agli elevatissimi flussi termici, ai gravosi cicli di fatica del materiale ed alle condizioni di potenziale corrosione dovute alle alte temperature dei Sali fusi.

Coalinga Solar
Receiver – California





Energy storage

One field closely linked to decarbonisation is energy storage, the solutions for which render it possible to stockpile power, also from renewable sources, to make it available on demand according to grid requirements and/or to introduce operational flexibility and major savings in energy consumption and CO₂ generation.

AC Boilers has been working with a Norwegian partner in the development of the application of **ThermalBattery™** technology for Thermal Steam Power Plants and for steam production networks in industrial plants.

The ThermalBattery™ system stores thermal energy by means of a special type of cement with high thermal storage capacity, specifically developed and tested for energy storage in industrial plants.

The system operates with steam as the heat transfer fluid. To this end, AC Boilers developed the design for the water-steam system in particular, which transfers the stored energy to consumers. An initial demonstration of this application was realised in 2021 in a large industrial plant in Norway.

An alternative application of energy storage pertains to the development of CO₂ cycles. In collaboration with other partners, AC Boilers is developing feasibility studies for a heat recovery unit for a CO₂ cycle using compressed CO₂ as stored energy.

In such cycles, CO₂ is compressed using electricity from a renewable source and is kept in a liquid state inside pressurised tanks, subsequently releasing the stored energy in a special expander. The combination with a gas turbine and a heat recovery unit for the heat contained in the exhaust gases for the purpose of raising the temperature of the pressurised CO₂ makes it possible to maximise the overall efficiency of the storage system by swiftly upping the capacity to feed electricity into the grid with a renewable component.

Water-Mining

In the desalination sector, Sofinter (through its SWS brand) is playing a technically-important role in the European Water-Mining project, financed under the HORIZON 2020 plan, with an activity within Work Package 3, led by the Dutch University of Delft, with the aim of demonstrating the feasibility of a water-smart economy in which all water resources are managed to prevent scarcity and pollution.

SWS aims to develop the evaporator of an advanced desalination system that can be powered by renewable energy (solar), contribute to energy savings and facilitate maximum water recovery and utilisation of concentrated residues (high-purity salts). The prototype was installed on the island of Lampedusa in 2021. Such technological solutions are of great importance in a context of circular economy and the high environmental compatibility of desalination systems.



Developed by Itea, **Oxy-Combustion technology** is a flameless thermal oxidation process, operated under pressure at very high temperature and in an oxygen atmosphere.

Flameless Oxy-Combustion represents the technological evolution of over 150 years of international experience in combustion systems, being able to generate a transparent flame and replace ordinary combustion in industrial processes.

This **innovative and proprietary technology** is protected by dozens of patents that were generated in Italy and extended internationally.

Itea technology represents an important technical evolution towards **Zero Emission targets** for waste management processes, generally characterised by a very low propensity for innovation (Best Available Techniques, or BATs).



Flameless Oxy-Combustion renders it possible to minimise gas, liquid and solid emissions in terms of quantity and quality of pollutants down to nothing and to zero out the CO₂ emitted into the environment in order to make new products to replace virgin raw materials.

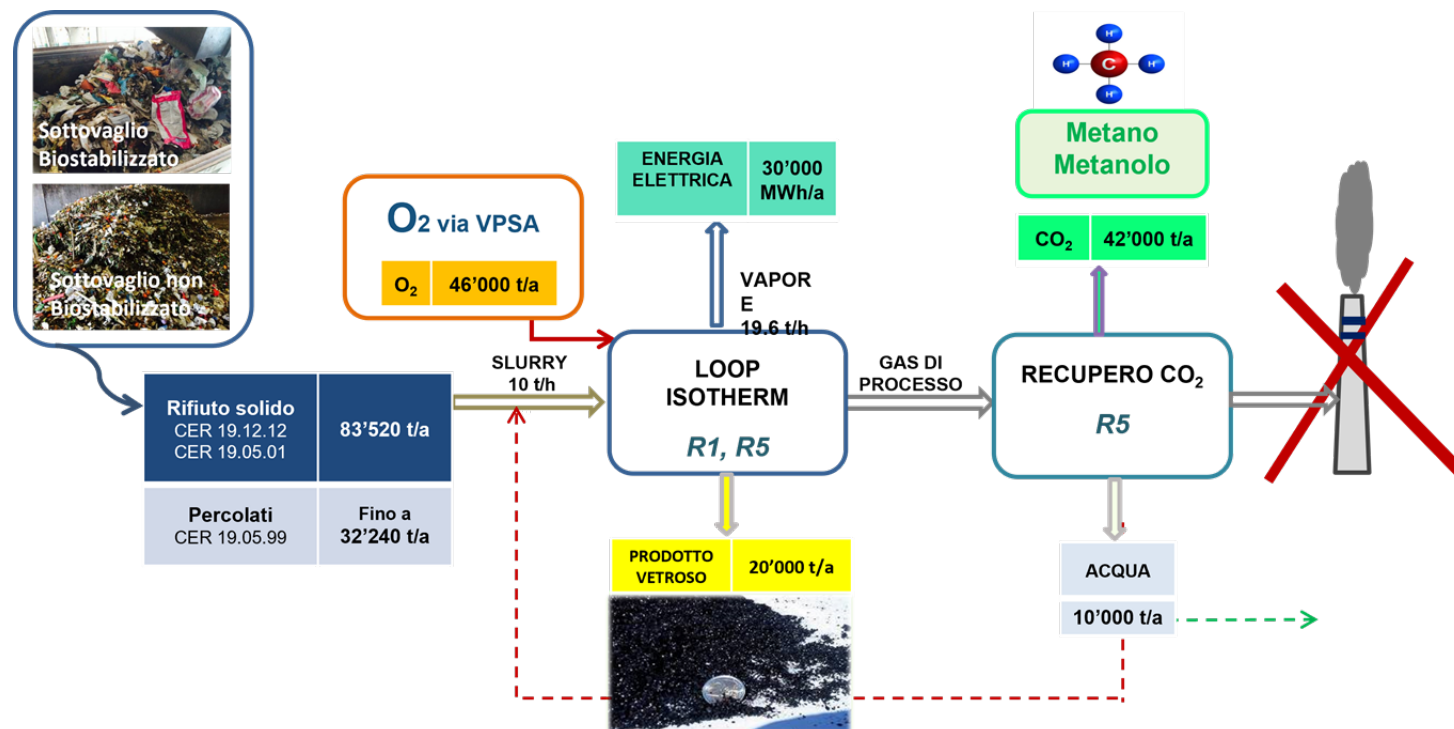
This technology also generates raw material for new uses (glassy material – End-of-Waste instead of ash).

Flameless Oxy-Combustion also impedes the emission of hazardous and climate-damaging fumes from waste heat treatment and the burial of exhausted landfills by reclaiming waste.

All new technologies are checked and tested at the Gioia del Colle (BA) site.

From Waste to Product, Salvaging Matter from the Unsalvageable

The production of H₂ from other (electrolysis) processes also generates O₂ that can be used as an oxidiser. In addition, H₂ combined with the CO₂ produced by the Oxy-Combustion process is able to generate methane/methanol.



energy digital solutions

One 2021 study by European House and Microsoft Italia set out to investigate the contribution of digital technology to sustainable development, identifying its areas of application and quantifying the impacts on various components. The results of this study showed that:

- In terms of economic sustainability, digitised companies can achieve an important benefit in terms of labour productivity compared to companies that have not yet implemented digital transformation pathways (+64% for Italian companies compared to +49% for European companies);

- In terms of environmental sustainability, an innovative model built to estimate the contribution of digital to decarbonisation identified digital as one of the most significant weapons for green transition, with an impact by 2030 equal to the incremental impact of renewable energies and overall estimated that between 2020 and 2030, digital technology will contribute up to a 10% reduction in emissions compared to 2019 levels (37 million tonnes of CO₂ per year);

- In terms of social sustainability, the adoption of new models of collaboration will be the main lever through which companies may contribute to people's well-being, social inclusion and the inclusion of territories – in a survey sampling over 200 Italian companies, the new forms of remote working (63.7% of the sample) and collaboration (59%) were noted as the main levers through which digital technology can contribute to social sustainability.



AC Performance Plus is a proprietary system developed by AC Boilers as an Original Equipment Manufacturer of steam generators based on the latest Internet of Things (IoT) solutions to provide remote assistance to thermal power plant operators in the functioning and maintenance of steam generators installed in power plants.

AC Performance Plus is a digital service system that continuously analyses the operation of steam generators based on algorithms derived from AC BOILERS' exclusive experience and knowledge. Such monitoring is carried out remotely at AC BOILERS' operational headquarters to provide a permanent link to alert plant staff to abnormal values and trends in variation to critical operating parameters that may have a negative effect on the performance or maintenance of the steam generator over time.

Built on Cloud architecture, the AC Performance Plus system uses Cloud-based databases, data analysis systems, machine learning algorithms and business intelligence systems for analysing and visualising the data collected.

Effective performance is increasingly required in modern steam generators, with reduced atmospheric emissions, increased efficiency and reliability being key factors in the design approach of steam boilers.

With its technologies, Macchi has the ability to meet the needs of its customers in terms of ever-lower NOx and CO₂ emissions, fuels varying in quantity and composition, along with the use of fast maintenance programmes that allows the unit to operate stably and continuously for years.

The Advanced Boiler Systems by Macchi ABS is essentially based on several proprietary mathematical algorithms capable of monitoring and operating boilers in the most efficient way, in the various disciplines of operability, atmospheric pollutant emissions and predictive maintenance.

ABS can be applied in new steam generators or in existing units of any brand or type.

The many advantages of the ABS system include:

- Offering immediate availability of the various KPIs to operators and plant owners for feedback on boiler operation – this interface means there is no need to analyse huge amounts of data made available by the DCS system;
- Providing the information needed when troubleshooting the boiler and maximise the efficiency and performance with greater economic return;
- Adapting boiler operation to fluctuations in fuel composition for cases where chemical/physical characteristics may depend on the process (such as calorific value);
- Giving an idea of the remaining lifetime of the boiler and anticipate maintenance activities;
- Being environmentally-friendly, since ABS reduces pollutants, intervening on the combustion logic and increasing the possibility of using green fuels;
- Providing useful data to Macchi headquarters for remote assistance;
- Last but not least, increasing the knowledge of plant personnel on boiler operation.

Macchi's continuous evolution and innovation has led Macchi' Advanced Boiler Systems to feature a new technology: the PEMS, or Predictive Emission Monitoring System.

Created in collaboration with an applied intelligence company, it merges more than 60 years of Macchi's experience into the engineering and construction of advanced steam generation units with 20-plus years of experience in the development of industrial software and the construction of emission control systems integrated with the companies' management infrastructure.

As advanced data acquisition and processing software, PEMS communicates in real time with the plant DCS by taking process data and implementing it within a matrix of mathematical and statistical modules, the result of a long period of development and Macchi's in-depth knowledge of combustion.

A complex process data validation mechanism prevents the use of values that do not comply with the system and stops interference from external factors or the erroneous transmission of input data affecting the forecast processing of pollutants emitted at the stack.

Macchi's ABS-PEMS can be utilised as a stand-alone system for the predictive monitoring of stack emissions, or as a hybrid CEMS + PEMS system. In this way, data availability values close to 99.9% can be achieved.

Environment

Environment

Discharge

The Sofinter Group companies classify atmosphere emissions as a significant environmental factor, in particular those from workshop activities and related to welding processes, production machine operation and heat treatment in furnaces.

The main sites causing atmospheric emissions are the AC Boilers plant in Gioia del Colle (BA) and, to a lesser extent, the Macchi workshop in Fagnano Olona (VA). There are also marginal industrial emissions in the Macchi port assembly area in Marghera (VE), along with emissions related to civil use – heating originating from the head office in Gallarate (VA) and the other sites.

The activities related to the optimisation tests of combustion parameters conducted by the Centro Combustione Ambiente (CCA) as well as, to a more limited degree, Itea's Oxy-Combustion technology testing campaigns, may result in discontinuous emissions at the Gioia del Colle (BA) site.

Discharges into the environment are exclusively water-based and originate from the civil uses of offices and workshops.

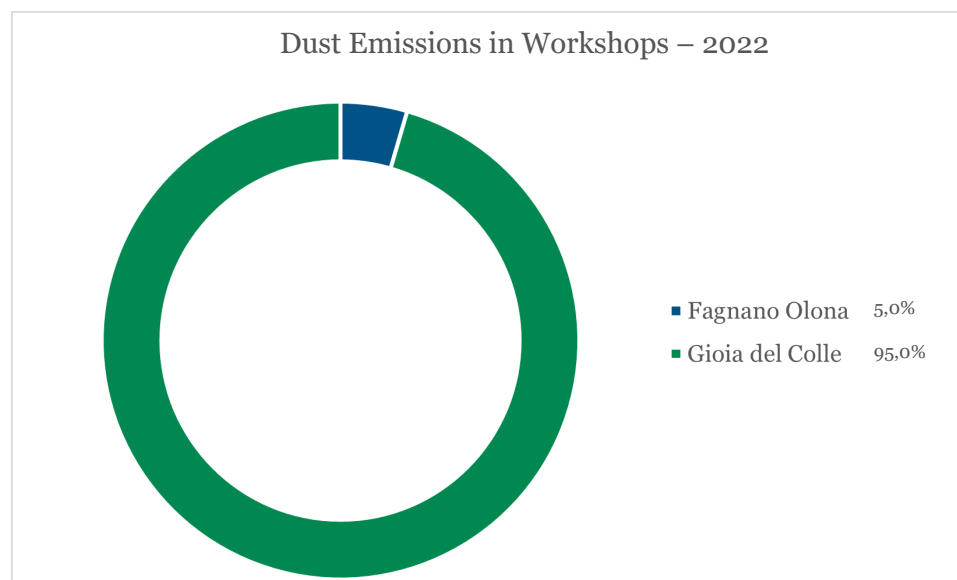


Dust emissions

Dust is the main type of emission in workshops, originating from manual and automatic welding processes and thus directly influenced by the Sofinter and AC Boilers workload and projects.

In 2022, the total amount of dust emitted saw a downturn compared to the previous two-year period, going from 2,249 kilograms in 2020 to the current 1,374 kilograms, mainly due to a reduction in the number of hours worked at the two workshops in Fagnano Olona and Gioia del Colle. The total emission parameters thus decrease from 0.0072 kilograms/hour in 2020 to 0.0051 kilograms/hour in 2022.

It is emphasised that, compared to the limits imposed by the regulations in force and in reference to the Best Available Technologies for atmospheric emissions, the dust emitted is more than twenty times lower at Fagnano Olona and between seventy and one hundred times lower at Gioia del Colle, in terms of concentration and emission factor plus mass balance.



Focus - Welding Emissions

In Italy, according to the latest ISTAT (Italian National Institute of Statistics) survey, there are over one million full-time welders/solderers and a large number of workers who occasionally perform technical welding/soldering work, giving rise to the associated fumes, dusts, vapours and gases.

Indeed, it is well known that during the metal welding process, depending on the technique used, welding fumes, dusts and gases containing dozens of different chemical and harmful substances are generated from the processed material, which remain in the air in the form of metal particles or metal derivatives (such as oxides), filler materials (electrodes, rod electrodes, lead, welding powder and so on) or are stripped from coatings like paints, coverings and cleaning agents.

The quantity of fumes generated and their dangerousness depend on a number of variables:

- The type of electrode, the wire diameter, the gas flow rate and its composition;
- The welding/soldering technique adopted and the technical settings, such as intensity and tension;
- The type of coating, thickness, composition and very often the presence of coating substances.

Welding/soldering produces airborne substances in the form of small particles. A considerable proportion of these particles (with a size of less than 10 micro-metres, or PM10) are respirable, meaning they reach the innermost parts of the respiratory system and are called welding or soldering fumes. PM10, which is considered a good indicator of air quality, consists of a collection of solid particles of various nature, chemical composition and size (between 10 and 2.5 microns). Numerous chemical substances, such as Polycyclic Aromatic Hydrocarbons (PAHs) and metals (such as lead, nickel, cadmium, arsenic, vanadium, chromium), can adhere to the surface of fine dust and have effects on the health of the exposed population.

Atmospheric particulate matter remains in the air for quite a long time and can thus be transported over long distances. Atmospheric phenomena like wind and rain help dilute and lower PM10 levels in the air, causing it to fall and settle on the ground.

Environment

Climate



The urgency of tackling climate change through concerted actions and a shared plan amongst all states of the world, after years of discussion and disagreement, is now a fully-recognised fact in both scientific and political circles.

Indeed, the climate change threatens multiple areas of life on Earth, including the degradation of ecosystems, human health, extreme environmental events, food security, the reduction of bio-diversity and access to water resources.

Also at the 27th United Nations Conference of the Parties (COP27) on Climate Change, held in Egypt from 6th to 20th November 2022, the 100-plus Heads of State present reaffirmed the need to limit the planet's temperature rise to 1.5° C, ratified the commitment to reduce emissions through an energy transition process and even identified mitigation and adaptation measures with new technological developments, in conjunction with assessing and requesting the financial resources needed to achieve such goals.

Aware of its role in this global challenge, especially in terms of technological innovation and the development of higher-performance systems and in cooperation with customers, research institutes and scientific partners, the Sofinter Group is designing plants that not only optimise consumption or vary the type of fuels used but also allow a drastic reduction in greenhouse gas emissions.

Furthermore, in addition to the constant monitoring and reduction – where technically possible – of emissions in its own operational processes, in cooperation with the entire supply chain, the Group as a whole is proceeding with the identification and management of the carbon footprint in its plants, through the selection of materials and suppliers that are attentive to the CO2 associated with their products.

Also crucial is the development and dissemination of technologies that enable the use of alternatives to fossil fuels (for example, hydrogen) or from renewable sources (for example, solar).

Focus - Greenhouse Gases

The main cause of climate change is the greenhouse effect. Certain gases in the Earth's atmosphere capture the sun's heat, preventing it from returning to space and causing global warming.

Many of these gases occur naturally, yet human activity increases the concentrations of some of them in the atmosphere:

- Carbon dioxide (CO₂);
- Methane (CH₄);
- Nitrogen oxide (N₂O);
- Fluorinated gases.

CO₂ produced by human activities is the main driver of global warming. In 2020, the concentration in the atmosphere exceeded pre-industrial levels (prior to 1750) by 48%.

Other greenhouse gases are emitted by human activity, albeit in smaller quantities. Methane is a gas with a more powerful greenhouse effect than CO₂ but it has a shorter atmospheric lifetime. Nitrogen oxide, like CO₂, is a long-living greenhouse gas that accumulates in the atmosphere for decades and even centuries.

The main factors leading to a rise in emissions are:

- the combustion of coal, oil and gas produces carbon dioxide and nitrogen oxide;
- felling of forests (deforestation), since trees help regulate the climate by absorbing CO₂ from the atmosphere and by cutting them down, this action is lost so the CO₂ stored in the trees is released into the atmosphere, thus fuelling the greenhouse effect;
- the development of cattle and sheep breeding, since livestock produce large quantities of methane during the digestion process;
- nitrogen fertilisers producing nitrogen oxide emissions;
- fluorinated gases emitted by equipment and products that use such gases, with these emissions causing a powerful greenhouse effect, up to 23,000 times stronger than that caused by CO₂.

Commitment to Combating Green House Gases

As of 2020, all companies in the Sofinter Group have committed to a path towards a reduction of carbon dioxide emissions:

- Generated directly from fuel consumption in factories, offices and construction sites and from company vehicles (Scope 1 of the GHG Protocol);
- Generated indirectly by electricity, steam or heating/cooling purchased or acquired from third parties (Scope 2 of the GHG Protocol);
- Generated indirectly along the value chain such as from the purchase of goods and materials, business travel and home-work routes of employees, transport and distribution of raw materials and products, use and management of generators and goods sold to the customer (Scope 3 of the GHG Protocol).

As part of the fight against climate change, the Sofinter Group is at the forefront of the development of steam generators and technologies that facilitate – as described in the dedicated chapter – the optimisation of combustion processes in order to reduce the use of fossil fuels and limit the emission of CO₂ into the atmosphere. At the same time, the use of alternative energy sources, in particular the development of renewable energy sources such as solar energy, allows the end user to wipe out CO₂ emissions from the generator.

AC BOILERS S.p.A.
formerly **Ansaldo Caldaie**

**Concentrating of Solar
Thermal Power**

MACCHI
STEAM & POWER GENERATION

a division of **Sofinter**

Using 100% hydrogen

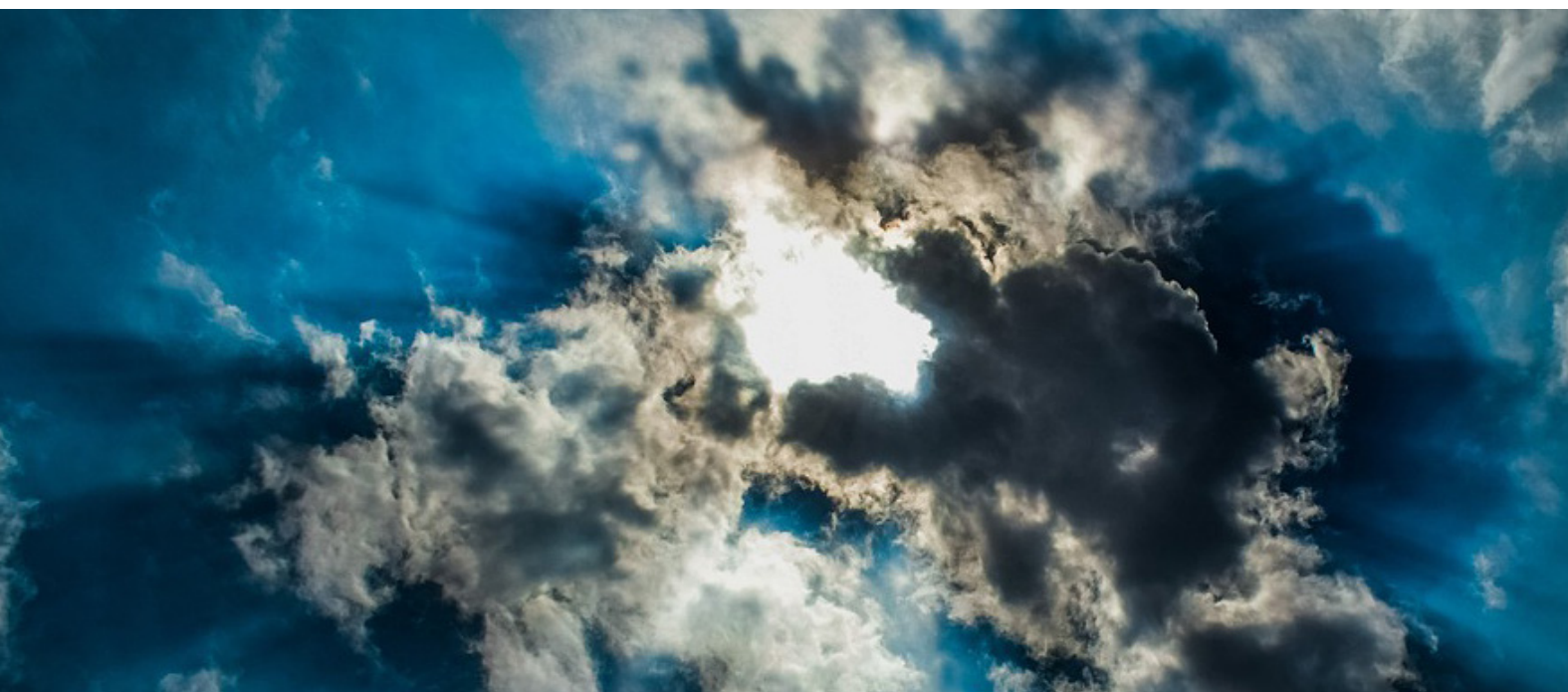
**FIGHT
AGAINST
CLIMATE CHANGE**

itea FLAMELESS
TECHNOLOGY

Flameless Oxy-Combustion

CCA CENTRO
COMBUSTIONE
AMBIENTE

**Optimisation of
Combustion Parameters|
Hydrogen test**



Decarbonisation Pathway

The Sofinter Group’s decarbonisation pathway envisages direct (Scope 1) and indirect (Scope 2) emissions to achieve neutrality by 2027 through the following actions:

- Replacing fossil fuels with renewable resources;
- Optimising energy use and process efficiency;
- Purchasing electricity from renewable sources from suppliers;
- Offsetting CO2 emissions.

Scope 3 emissions, which will involve the collaboration and engagement of the entire supply chain and customers/partners throughout the full lifecycle of the Group’s products and services, are expected to be gradually reduced, reaching neutrality in the near future.

It is envisaged that Scope 3 emissions will be reported as envisaged for 2024, reduction targets will be determined as of 2025, with a possible neutrality for this category of greenhouse gas emissions by 2040.

CARBON NEUTRALITY ROADMAP

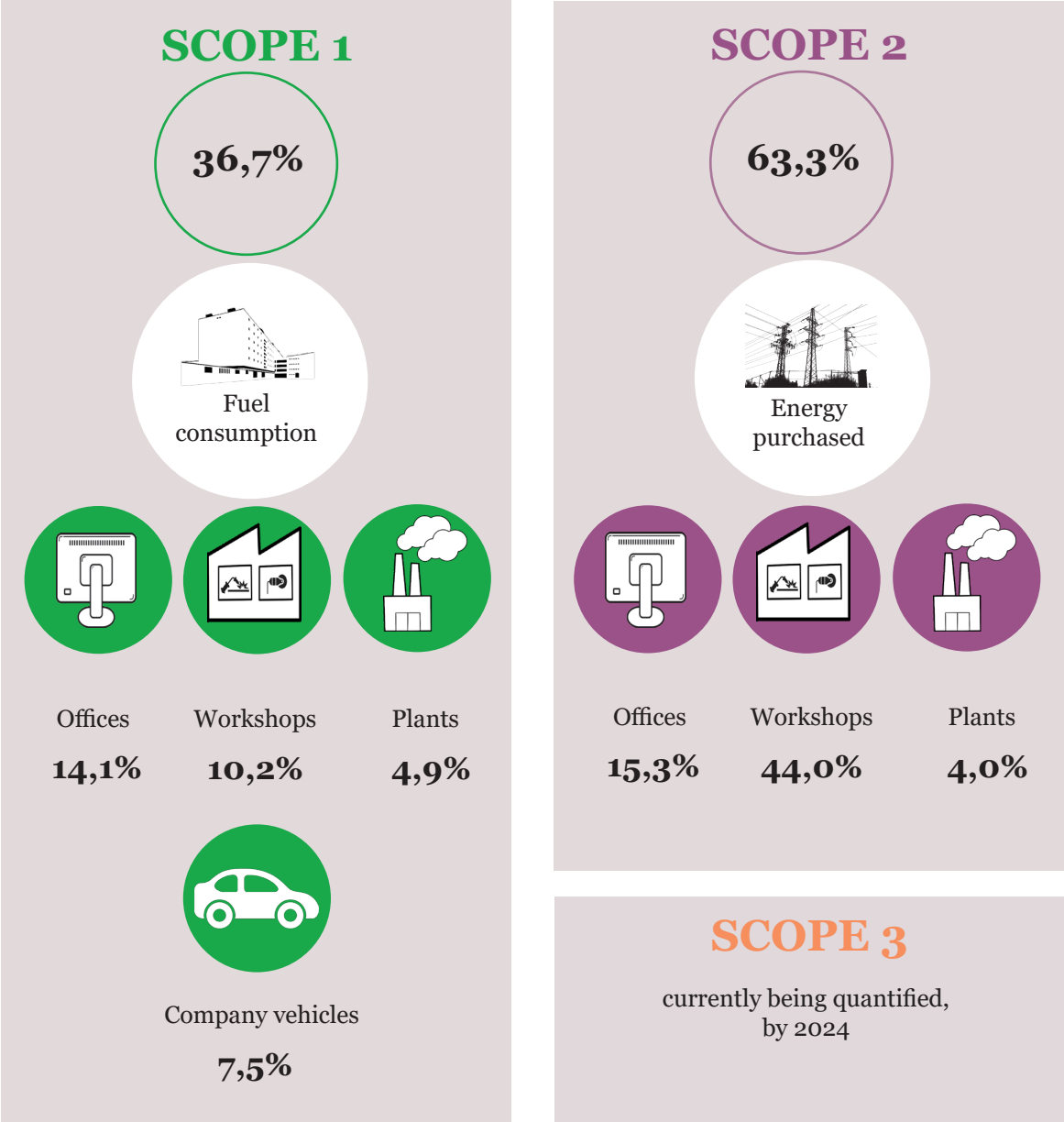
2020	Commitment to GHG reduction
2022	First quantification of GHG emissions (Scope 1 + 2)
2024	First quantification of GHG emissions (Scope 3)
2025	Target: -50% GHG emissions (Scope 1 + 2) vs 2020 Baseline
2027	Carbon neutrality in Direct Operations (Scope 1 + 2)
2030	Target: -50% GHG emissions (Scope 3) vs Baseline 2024
2040	Carbon Neutrality in the Value Chain (Scope 1 + 2 + 3)

Carbon Footprint Calculation

The tally of Scope 1 and Scope 2 GHG emissions related to the direct activities of the Sofinter Group companies was conducted through the use of a calculator developed by a sustainability rating company from fuel and energy data certified by energy service providers and suppliers.

The methodology used by the calculator is that indicated by the GHG Protocol formulated by the World Resources Institute (WRI) in collaboration with the World Business Council for Sustainable Development (WBCSD). The emission factors taken into account were extracted from the EPA’s Emission Factor Hub database for fuels and the ADEME, Association of Issuing Bodies (AIB) and Institute for Global Environmental Strategies (IGES) databases for electricity, applicable specifically for countries outside the US.

Carbon footprint map
Year 2022



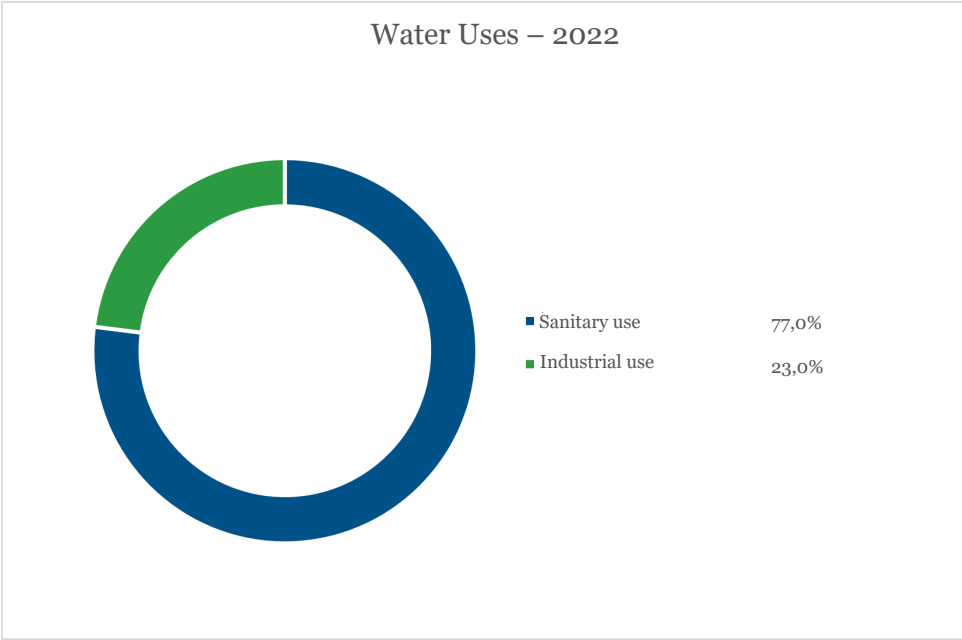
Environment

Water Supply



“Currently, more than a third of the world’s population (approximately 2,400 million people) live in countries where water is scarce, a number that is expected to rise to two-thirds by the year 2025. Moreover, water contamination is on the rise, as a direct consequence of industrial water waste and inadequate waste elimination. Additionally, climate change is increasingly causing extreme weather phenomena, such as droughts and floods. In many countries, there are also difficulties in accessing clean water and thus adequate hygienic conditions, causing great humanitarian, social, environmental and economic impacts.”

Source: Global Compact Network Italia



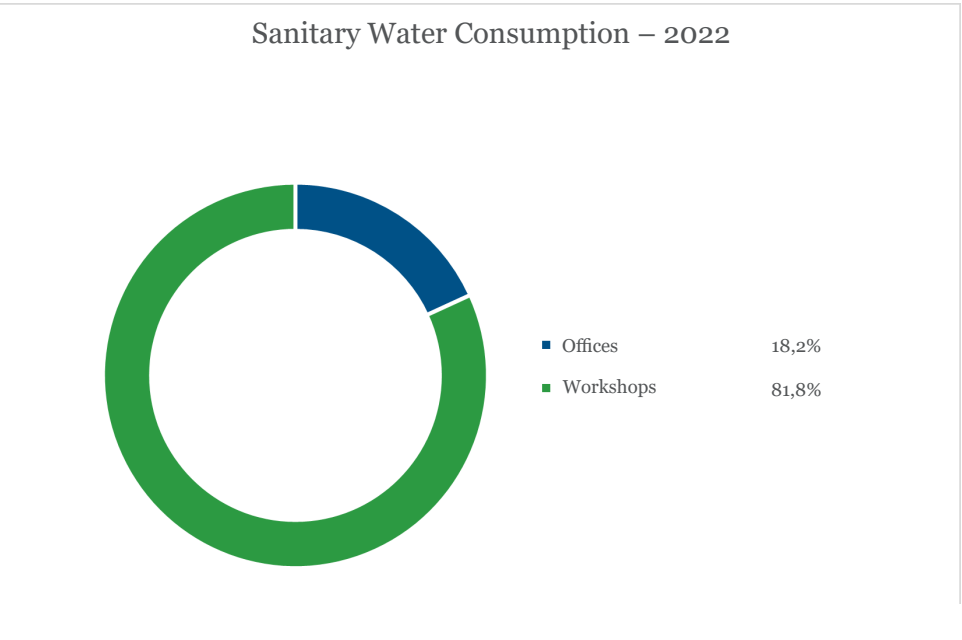
Water Supply

The main use of the water supplied in the Sofinter Group companies is for sanitary purposes, whilst industrial use is much more limited, being mainly for hydraulic testing purposes in workshops and worksites, albeit of an occasional nature.

Although the Sofinter Group thus has a limited impact on water resources in its direct operations, it is aware of the importance of water resources and that “every drop counts”.

For this reason, the Group is committed to:

- Carrying out internal awareness-raising actions towards all employees on water consumption and the sustainable management of water resources;
- Guaranteeing workers – and the staff of their contractors – access to drinking water dispensers and personal hygiene areas within the Company premises;
- Verifying that its production and site processes in any country do not impact on water resources or harm local communities.



Treatment and Purification

In accordance with the provisions of local legislation, Group companies also collect rainwater run-off from external draining surfaces of workshops and plants then separate first and second rainwater.

The rainwater collected in this way is purified through various systems depending on the environmental and spatial contact. At the workshop and dockyard of Sofinter – Macchi Division in Marghera (VE), the objective is to restore water quality so that it can be discharged into the Venetian Lagoon, according to stringent protocols of the competent authority, resulting from the complexity and sensitivity of the Site of National Importance for contamination. In 2022, the Macchi Division treated and discharged 7,110 m³ of water originating from meteorological phenomena into the lagoon.

In Gioia del Colle, the system for the collection, separation and treatment of rainwater falling on the draining areas of the AC Boilers workshop plus the Itea and CCA plant areas, due to the absence of watercourses or neighbouring sewage systems, sees a treatment and purification system with subsequent sub-irrigation of the surface layers of the soil, in the green area of the production site. In 2022, at the AC Boilers’ Gioia del Colle site, 84,240 m³ of water originating from meteorological phenomena was treated and sub-irrigated.



Environment

Waste



Focus - Resource Efficiency and Circular Economy

Past and present patterns of resource exploitation have led to high levels of pollution, environmental degradation and depletion of natural resources. EU waste policy has an extensive history and has traditionally focused on a more environmentally-sustainable waste management. The roadmap to a resource-efficient Europe and the circular economy package should change this trend, transforming the EU economy into a sustainable economy by 2050. The four new waste directives in the recent circular economy package introduce new waste management targets in the areas of prevention, re-use, recycling and landfilling. As part of the European Green Deal, the new action plan for the circular economy establishes a future-oriented programme to build a cleaner and more competitive EU that fully contributes to climate neutrality.

Source: European Parliament, Fact Sheets on the European Union – April 2021

Selection and Reduction of Materials

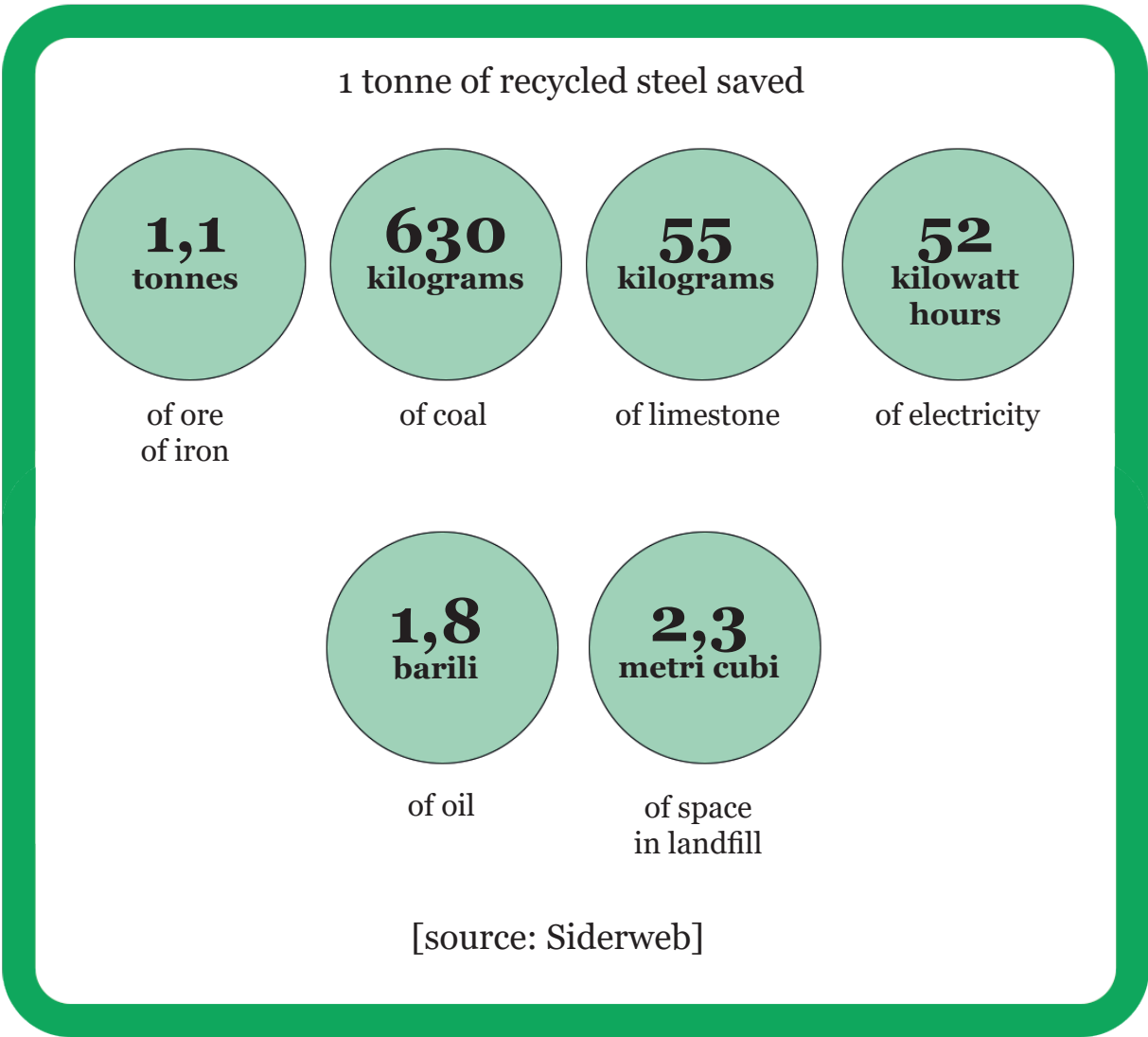
The Group companies – in particular Sofinter-Macchi and AC Boilers, which conduct major product construction and assembly activities in their workshops – are engaged in a consistent selection of the materials constituting the steam generators and a greater reduction of the raw materials used which, together with a rise in the level and technological efficiency implemented, lead to the following advantages:

- Reduction of resource consumption and relative costs;
- Optimisation of components and increased speed in the manufacture of boilers;
- Lightening of weights and optimisation of transport of boilers by land and sea;
- Improvement of management, maintenance and servicing processes;
- Reduction of decommissioning and the impact of final disposal.

Iron and Alloys

Pipes, manifolds, burners, cylinder bodies, along with other major boiler components are manufactured from recycled ferrous scrap.

The ferrous scrap recycling and recovery industry is strategic in the development of the circular economy since the recycling of metals and steel in particular is not only a means of acquiring raw material for steel production but also helps save on natural resources.



In 2022, Sofinter and AC Boilers used **steel and alloys exclusively from metal recycling processes** for the production of their steam generators.

Optimising Packaging Management



Packaging

The product, composed of any natural material and containing certain goods from raw materials to finished products, is packaged in order to be protected, to allow its handling and delivery from the producer to the consumer or user and to ensure proper presentation, along with the disposable items used for the same purpose.

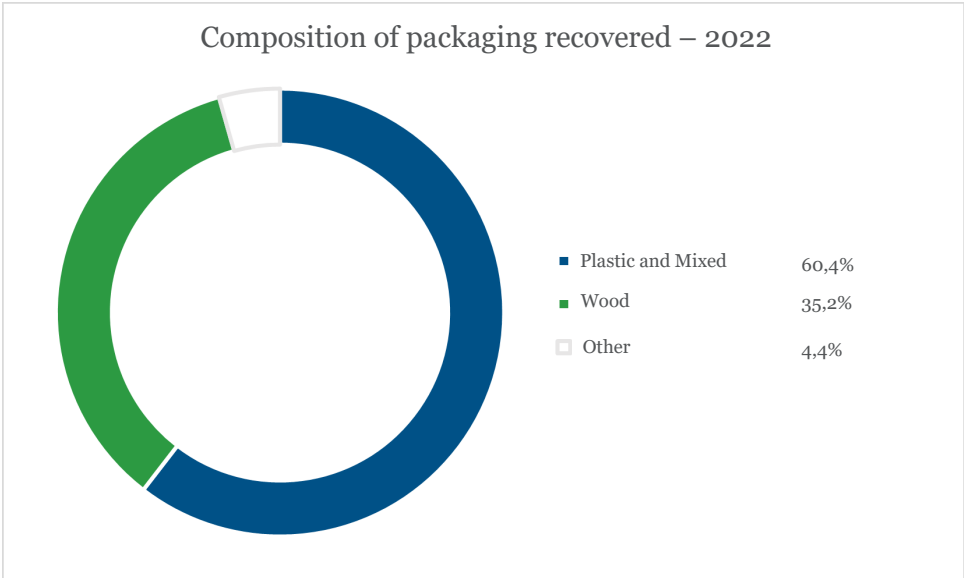
In order to contain the production of packaging – both imported from abroad or purchased in Italy and subsequently managed as waste – the Group carries out **checks on the materials coming from the supply chain**, identifying possible alternative solutions to the conferment of goods packaged or accompanied by wood, paper and cardboard or plastic.

Over the years, agreements have also been established with a number of suppliers for the return of intact packaging that can be reused for the packaging of subsequent goods.



Packaging accounts for about 5% of the total waste produced by Group Companies over the 2020–2022 three-year period and 15% of the ordinary waste produced by the operation of workshops, worksites and plants.

Specifically in 2022, 60% of the packaging consisted of plastics and mixed plastic-like materials, 35% wood and 5% of packaging in other materials, in line with the percentages for 2020–2021.



Group companies that predominantly utilise packaging and may generate packaging waste through their operations, are members of CONAI, a private, non-profit consortium that is the instrument through which packaging manufacturers and users in Italy guarantee the achievement of the recycling and reclamation targets for packaging waste set by law.

Sofinter and AC Boilers are amongst the users as importers of “full packaging” (ergo, packaged goods) and thus participate in the Consortium. When buying goods abroad, every importer simultaneously purchases the packaging containing the goods and consequently brings this packaging into the country. From this point of view, it can be likened to a producer, in that it “generates” materials to be transformed into packaging waste (and to be collected and recycled at the expense of the national system).

Environment

Waste



Focus - Special Waste

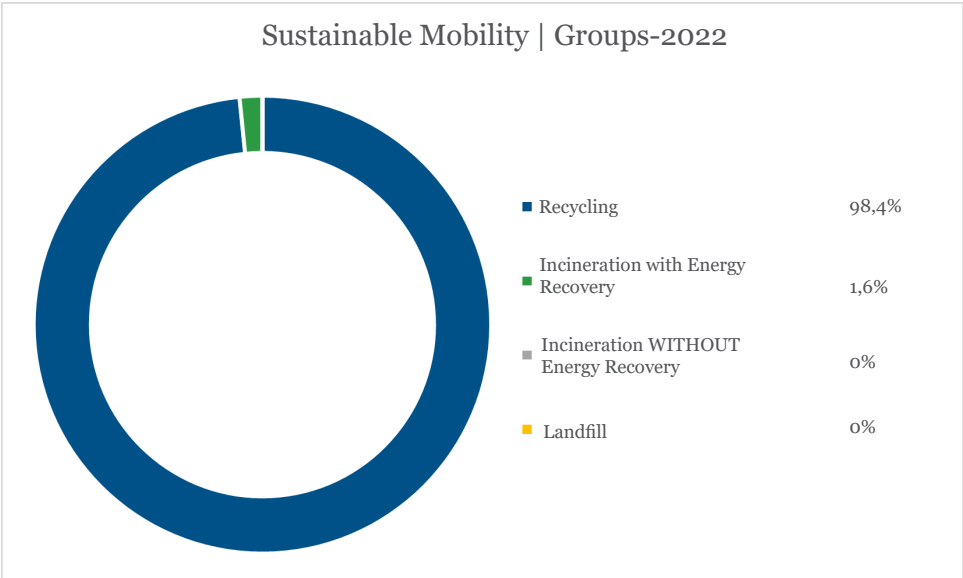
ISPRA recently released the 2022 edition of the Special Waste Report, containing waste data for the year 2020, which will serve as a strategic guide in view of the National Recovery and Resilience Plan. The challenge, ISPRA reiterates, is to decrease the amount of special waste through optimisation of production cycles and eco-design, applying techniques that render products more recyclable or easily dismantled.

In 2020, the year of the pandemic and lockdown, the national production of hazardous waste stood at 147 million tonnes, showing a decrease of 4.5%, corresponding to almost 7 million tonnes, compared to 2019. Non-hazardous waste, which accounts for 93.3% of the total waste produced, decreased by almost 6.7 million tonnes (-4.6%) and hazardous waste by just over 300,000 tonnes (-3%). Within special waste management activities, material recovery constitutes the predominant share with 70.6% (112.8 million tonnes), whilst disposal operations account for approximately 16.5% (26.3 million tonnes).

The proper separation of waste to boost recovery and recycling is one of the main objectives of the Sofinter Group companies, in line with the European Union’s waste policy that aims to contribute to the circular economy by extracting as many high-quality resources from waste as possible. Municipal waste or garbage assimilated to municipal waste produced by activities mainly carried out at the Group’s offices is sorted according to local waste collection regulations and conferred to the municipal management and treatment system.

Special waste from production and industrial activities carried out at the workshops, plants and worksites of the Sofinter Group companies is predominantly non-hazardous (98.4% in 2022) and, due to its nature and type, is almost entirely sent for material reclamation. Only a limited percentage, less than about 5% of the total, is destined for incineration for energy recovery (1.6% in 2022).

In 2022, no waste from Group companies was incinerated without energy recovery or sent to landfill.





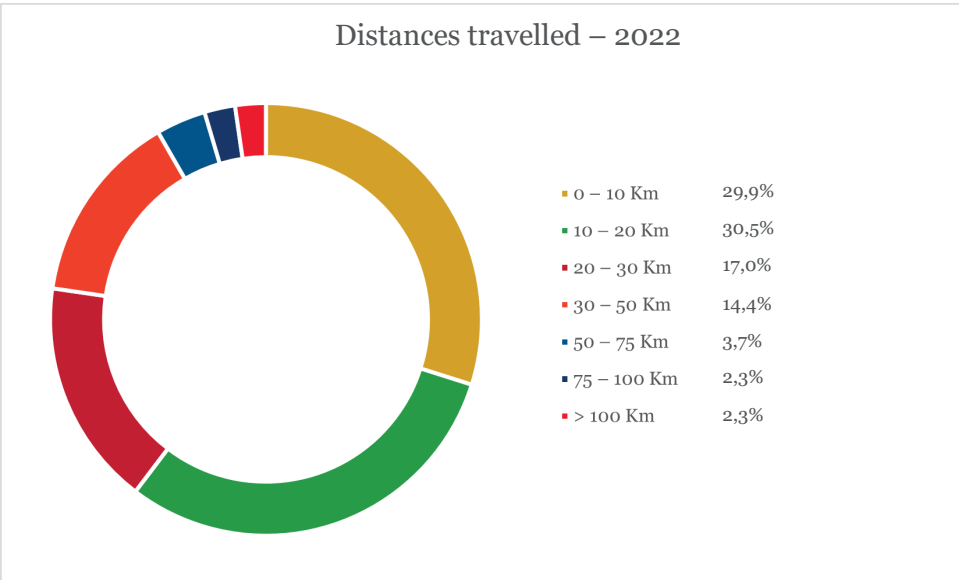
In order to analyse the impact related to staff commuting between home and work, a survey was updated amongst all Sofinter Group employees, who answered a questionnaire on the following topics:

- Origin and ranges of travel;
- Vehicles and technologies used;
- Tendency towards sustainable mobility.

The survey involved a substantial number of employees and is considered a representative investigation to assess the environmental and social impact of mobility for the Group.

Origin and distances travelled

Most employees have their residence/domicile close to their regular place of work and travel less than 20 kilometres per day to get to work.

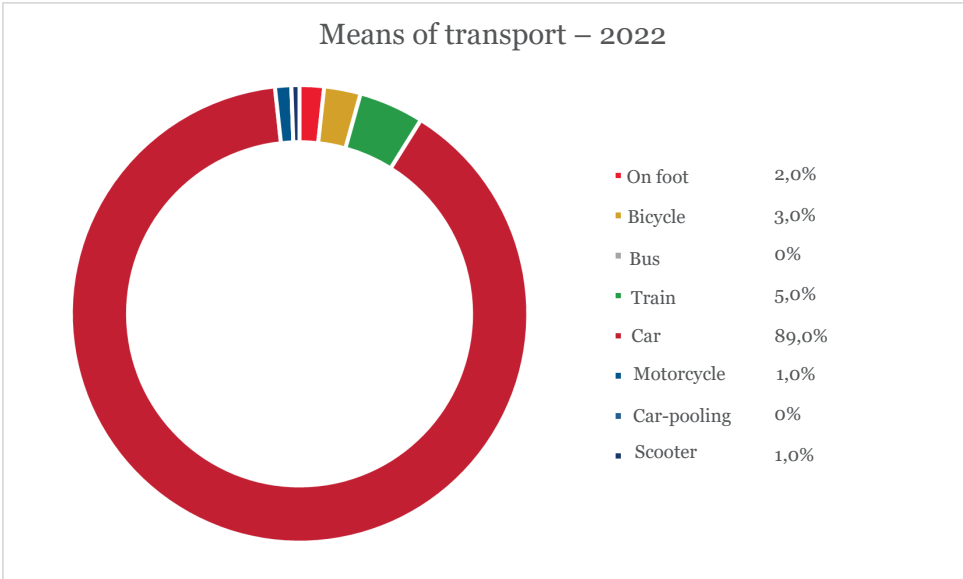


Means of transport

Almost all employees use a motor vehicle to travel to work.

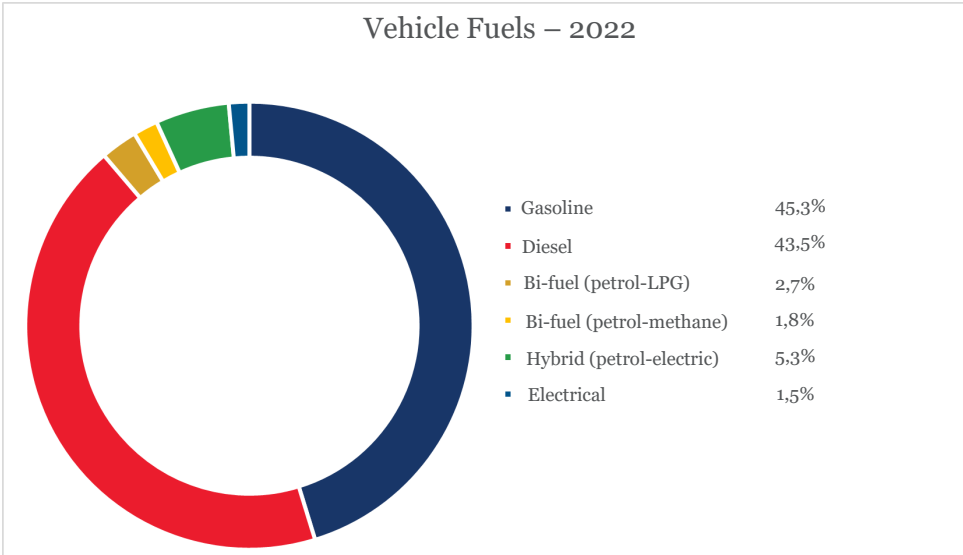
It should be noted that, compared to the data collected in 2021, the percentage of employees taking the train has further contracted, passing from 10% to 5% of respondents.

The use of electric scooters for commuting to work has also been taken up, albeit in a small percentage (1%).



Traditional fossil fuel engines (gasoline and diesel) remain the most broadly used for the home-work journey.

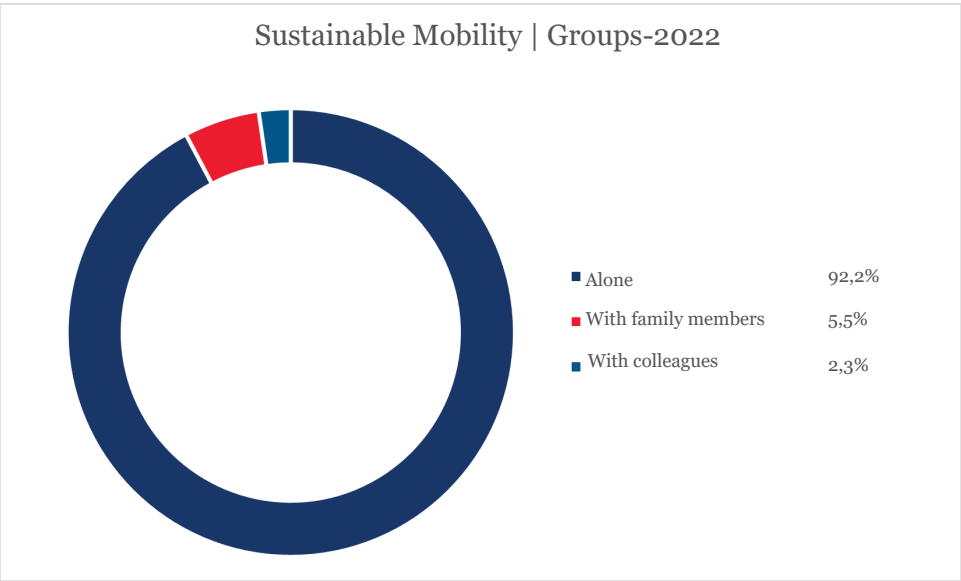
Hybrid engines (gasoline-electric) or electric motors account for 6% of the total, with a slow but gradual growth by 2021.



Sustainable Mobility

In the context of sustainable mobility, 92% said they travelled to work alone, 5% with family members and only 3% with colleagues.

However, 35% of the participants were willing to change their usual mode or means of transport. In particular, 28% of the participants showed interest in carpooling with colleagues to get to work.



Despite the presence of more environmentally-friendly but still relatively expensive technologies and vehicles on the market, the results currently available on the topic of mobility show employee behaviour based on traditional standards, preferring the individual use of the endothermic engine vehicle, aggravated by the absence of an effective local public transport network for commuting between home and work.

On the other hand, rising costs for fuel, vehicle management and maintenance, facilitated by an increased awareness of sustainability issues, are an important lever for changing such behaviours.

The Sofinter Group supports and facilitates this change, especially in the area surrounding the Gallarate headquarters, where most employees are concentrated, also through issuing and periodically updating a Home-Work Travel Plan (HWTP), which identifies good practices and concrete actions on three main axes:

- Disincentivising the use of individual private vehicles;
- Encouraging the use of public transport;
- Promoting cycling and/or micro-mobility.

Such activities are currently focused on activities to ensure employees are well-informed, the creation of carpooling groups and raising awareness about the use of bicycles and scooters.

Society

Human Capital

As early as 1953, the United Nations Economic Department defined Human Capital as “the investment made to increase the productivity of the labour force”. Some fifty years later, in 2001, the Organisation for Economic Cooperation and Development (OECD) spoke of Human Capital as the set of “knowledge, skills, competencies and attributes that allow people to contribute to their personal and social well-being”. In addition to an idea of progress involving factors such as well-being, there is an emphasis on the qualitative aspects of the contribution that human labour makes to economic progress.

Today, Human Capital is universally recognised as the decisive factor in development.

All Sofinter Group employees, regardless of their role, geographical location, type of employment or length of service, have the right to work under fair conditions.

Treating people with respect and dignity is fundamental, in line with the principles on which the Code of Ethics is based and which guide the business conduct of all Group companies.

Labour Rights

Labour rights are an integral part of human rights.

The Sofinter Group recognises workers’ rights, promoting stability and collaborative labour relations in ensuring high standards of employment.

Indeed, constructive engagement with workers’ representatives are crucial for effective labour relations.

All Group companies undertake to respect the rights of workers to form or join trade unions and other employee representative organisations of their choosing.

Interactions between corporate, local and national trade union representatives are common and indeed very frequent, in order to establish a dialogue capable of leading to the common goals of prosperity, well-being and growth.

National and collective labour agreements govern many of the terms and conditions of employment for employees and include agreements on working time, occupational health and safety, holidays, wages, dispute management procedures and termination of employment.

Employees of all Group companies are informed of their rights through the corporate Human Resources department, which explains the relevant collective bargain agreement (CCNL Metalmeccanico), internal policies and regulations concerning personnel management, as well as the Company’s Code of Ethics.

Society

Talent Attraction and Retention

Attracting and retaining talent within the organisation is one of the fundamental pillars, also expressed in the SOFINTER Group’s Sustainability Strategy, in order to constantly develop and boost Human Capital.

In the last three years, the work world has undergone a strong backlash brought about by global variables such as the pandemic, the energy and economic crisis, the evolution of traditional working methods, the acceleration towards digitalisation and new technological developments, which has led to a desire on the part of workers to improve their working conditions, to have greater career development and to show a real “thirst for change” overall.

In a general sense, this resulted in the emergence of a sometimes-unexpected turnover, which the Group’s companies had to cope with in order to consolidate skills and know-how and to avoid the risks caused by this accelerated trend.

In 2022, the negative turnover rate was 15.3%, compared to a 2021 rate of 12.3%.

This rate was dictated not only by a natural exit trend but also by a strong and generalised instability in the global lab

In 2022, the Group hired 61 new employees, in addition to filling numerous roles with internal candidates.

All new employees and those who changed roles underwent an onboarding process, whereby knowledge about the business and products, internal regulations and procedures, company management systems, as well as sustainability issues were taught or consolidated.

This on-boarding process is constantly monitored not only by direct and area managers but also by the Human Resources department that conducts the staff on their new career path.

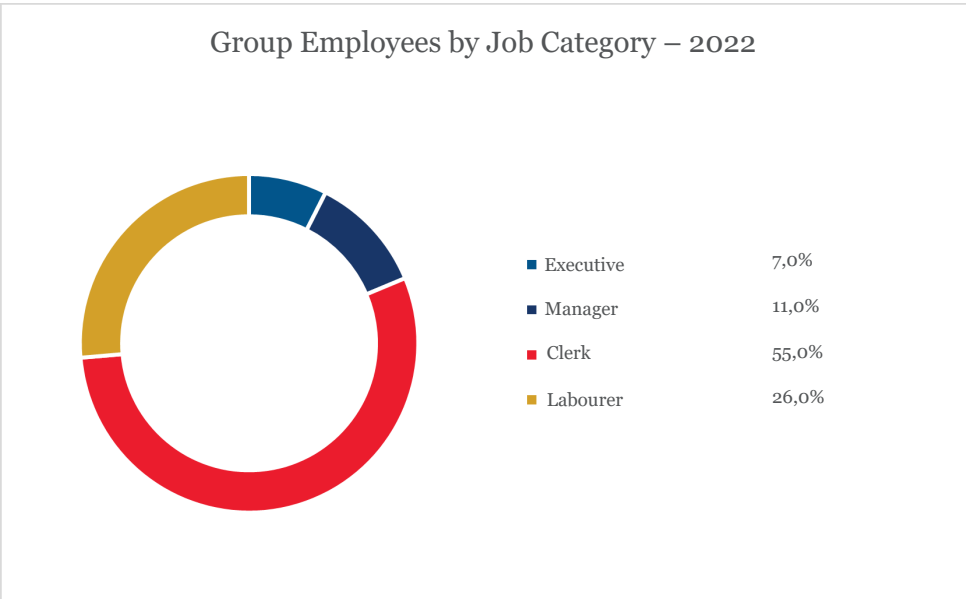
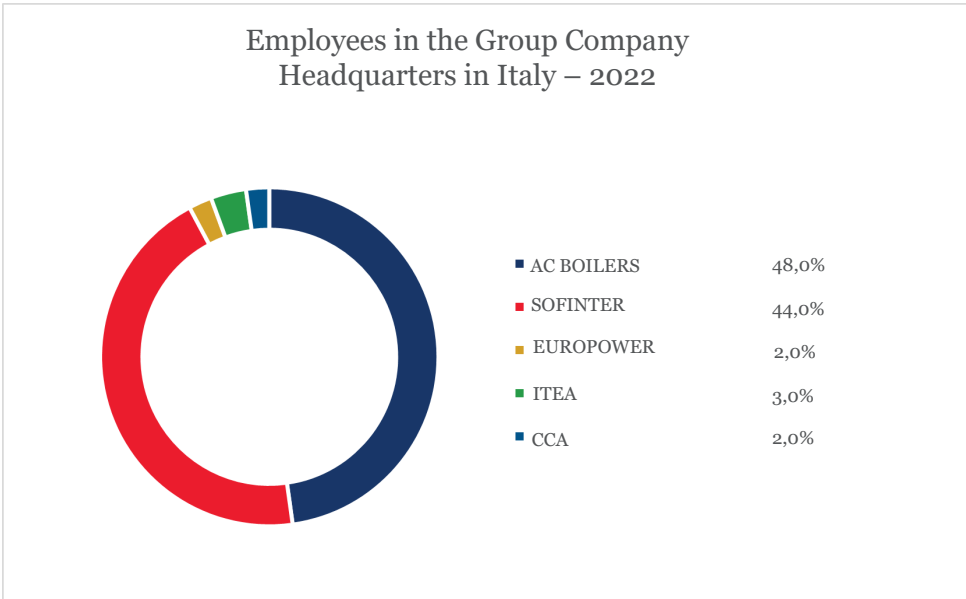


Group Employees

As of 31st December 2022, there were 588 Group Company employees in the Italian locations covered by this Report.

AC Boilers employees accounted for 48% of the entire Group workforce, followed by those of Sofinter at 44%.

In terms of occupational categories, white-collar workers made up 55% of the workforce, blue collar workers 26%, followed by middle managers and executives (11% and 7% respectively).



Society

Enhancing Resources



The history and evolution of the Sofinter Group goes hand-in-hand with that of its organisation, of the people who have experienced the business environment and contributed to the achievement of important strategic goals through their work, both for the business and for society as a whole.

The skills and capabilities of these people are thus critical and strategic to maintaining the Group's high quality standards and improving its performance, developing talents and capitalising on the experiences of the most valuable resources.

Training and Skill Development

One of the fundamental processes within the Companies to consolidate and develop new skills is that of continuous training.

Training in the Sofinter Group occurs at all levels, for all roles and tasks, at different times in people's careers, supported by various, increasingly-advanced means, also to facilitate learning and to integrate this process into everyday activities as naturally as possible.

With this in mind, over the past few years, the Group has promoted the use of tools, both internal and external, such as webinars, e-learning and digital workshops, in order to optimise learning in a more agile and effective manner without always requiring people to travel.

The development of video courses, disseminated via the Company intranet platform, was a further success factor in this. Promoted by internal departments with the support of the Group's Information Technology, they facilitated the dissemination of specific topics, in particular relating to corporate regulation, regulatory insights and technological developments.

Another success factor in the training and skill development process is to critically evaluate what employees need plus when and how they need it to be more effectively available. Many training needs arose from the skill assessment process as well as direct requests from managers and management.

This mainly translated into technical and managerial training courses for workshop operators, site supervisors and technical staff at headquarters.

During 2022, the Group provided 5,641 hours of training to employees, which rises to 16,692 when taking into account the development of the skills of apprenticeship staff, as part of the continuous training project and partnerships with external bodies.

The Group's main training themes are:

- HS&E – covers both compulsory courses on employee health and safety management, certified Management Systems, the safe use of machinery and equipment, the issuing of new operating instructions and procedures, tool-boxes in the field and, in recent years, the improvement of staff welfare;
- Management – courses for improving organisational and management performance, business planning, project management, logistics and expediting, along with the quality of business processes and products;
- Technical – training for workshop operators (welding/soldering, machine operation, handling, use of equipment) as well as for engineering and process supervision personnel (design, controls in the production and construction process, detailed mechanics and so on);
- Regulation – evolution of mandatory legislation and corporate governance regulations (privacy, compliance programme, corporate crime prevention and anti-corruption, etcetera);
- IT – courses to improve basic and specific skills on the tools provided by Group Companies, courses for designers, courses on ERP use, cyber-security, prevention of IT problems and issuing of new IT procedures.



Skills and Performance Assessment

For almost a decade now, the Group has run a structured process for assessing the technical and managerial skills of its personnel, through computerised assessment systems for Sofinter and AC Boilers, supported by discussions and interviews between managers and employees, in a traditional manner for the other companies, through talks with managers and management.

The objective is to verify the degree of maturity of human resources and the coverage of the repertoire of core skills for effective execution of activities, pursuing the business, personal and professional growth objectives of employees.

As of 2022, Sofinter and AC Boilers have introduced a new applicative Performance Appraisal System to assess effectiveness in order to improve and record the management of performance data, achieve advanced reporting of individual resources, of teams and of the company as a whole, in line with the corporate organisational evolution.

During 2022, Sofinter and AC Boilers carried out assessments of the technical, managerial and soft skills of 370 resources.



Society Human Rights

The idea of human rights is as simple as it is powerful – that people have the right to be treated with dignity. Human rights are inherent to all human beings, no matter their nationality, place of residence, gender, national or ethnic origin, colour, religion, language or any other factor.

Everyone has the right to enjoy human rights without discrimination. These rights are all interrelated, interdependent and indivisible.

(United Nations Global Compact)



The Basic Principles

In general, the companies of the Sofinter Group refrain from having relations of any kind with parties that:

- Do not comply with current legislation;
- Are part of or support criminal organisations;
- Employ workers illegally or violate workers' rights;
- Engage in or are linked to terrorist activities.

During the Group's audits, particular attention is paid to activities, projects and relations with countries that do not have structured legislation in place to protect human rights, workers, health and safety conditions, gender equality or the weakest and most vulnerable.



Focus - Human Rights Benchmarks

- Over 90% of the 169 SDGs are related to human rights and Work,
- Over 90% of UN Global Compact participants say they have human rights policies in place, yet only 18% report conducting human rights impact assessments;
- For companies that are not committed to the UN Global Compact, the 2020 Corporate Human Rights Benchmark shows that 46% of all companies surveyed did not score within the due diligence indicators of the benchmark;
- The Global Compact's annual survey shows that 72% of responding companies are committed to implementing the UN Guiding Principles (UNGPs) on Business and Human Rights yet 36% noted that extending the UNGPs to their entire supply chain was a challenge,
- Whilst 66.9% of respondents said they thought human rights would become a major issue for investors, 18% showed a lack of understanding of their human rights responsibilities.

(United Nations Global Compact)

In the Sofinter Group, protecting and promoting the rights of all stakeholders is paramount. With its presence in countries and markets around the world, the Group strives to uphold human rights within the organisation and throughout the value chain, including suppliers and business partners.

The founding principles on which the Sofinter Group's sustainability strategy is based are derived from the Universal Declaration of Human Rights. In addition, the Group is inspired by the conduct of its business by the founding and operating principles set out in the UN Guiding Principles (UNGPs) on Business and Human Rights, which define:

- The duty to protect human rights;
- The responsibility to respect Human Rights;
- The obligation to remedy any violations detected.

Following the definition of the principles and the dissemination of their contents inside and outside the organisation, as well as the preliminary assessment of Human Rights impacts, the greatest challenge to maintain a high level of attention and effective control over this issue is the necessary periodic monitoring and verification of ongoing compliance, particularly within an international, diverse and complex supply chain.

In this context, in addition to process auditing and the assessment of suppliers' sustainability performance, the Group intends to implement an internal and supply chain auditing system by 2025 through investigating social issues, including respect for Human Rights, also in accordance with the guidelines on the duty of care of companies, currently being discussed in the European Union.

Society

Worker Health and Safety



Focus - A Safe Working Environment

Each year, around 2.78 million workers around the world die from occupational accidents and work-related illnesses, whilst another 374 million workers suffer non-fatal work accidents. This means that 7,500 people die every day due to unsafe and unhealthy working conditions. Work-related deaths exceed the annual average of deaths from traffic accidents (999,000), war (502,000), violence (563,000) and HIV/AIDS (312,000).

Unsafe and unhealthy working conditions often result from a combination of latent causes, such as gaps in governance, weak legislative frameworks, insufficient knowledge and resources, unsustainable business practices and a lack of a culture of prevention at a national level and in the workplace itself. Governments and companies have their respective roles to play in addressing the challenges of occupational health and safety.

(United Nations Global Compact, 2022)

The Sofinter Group has long been committed to a healthy and safe workplace that promotes a culture of risk prevention.

Over time, methodologies, procedures and control systems have been developed in offices, works, plants and worksites to improve the health and safety management of employees, contractors and anyone working for the Group.

This approach is based on recognised international guidelines and standards, most prominently ISO 45001, which has enabled the design and implementation of management systems for monitoring health and safety execution, verified both internally and externally. Currently, the entire Sofinter S.p.A. organisation, with all its divisions and workplaces (offices, workshops and worksites), together with Europower S.p.A., is certified to ISO 45001 by a Third and Independent Body. AC Boilers S.p.A. is ISO 45001 certified for activities carried out in offices and worksites within Italy and abroad.



Prevention Activities

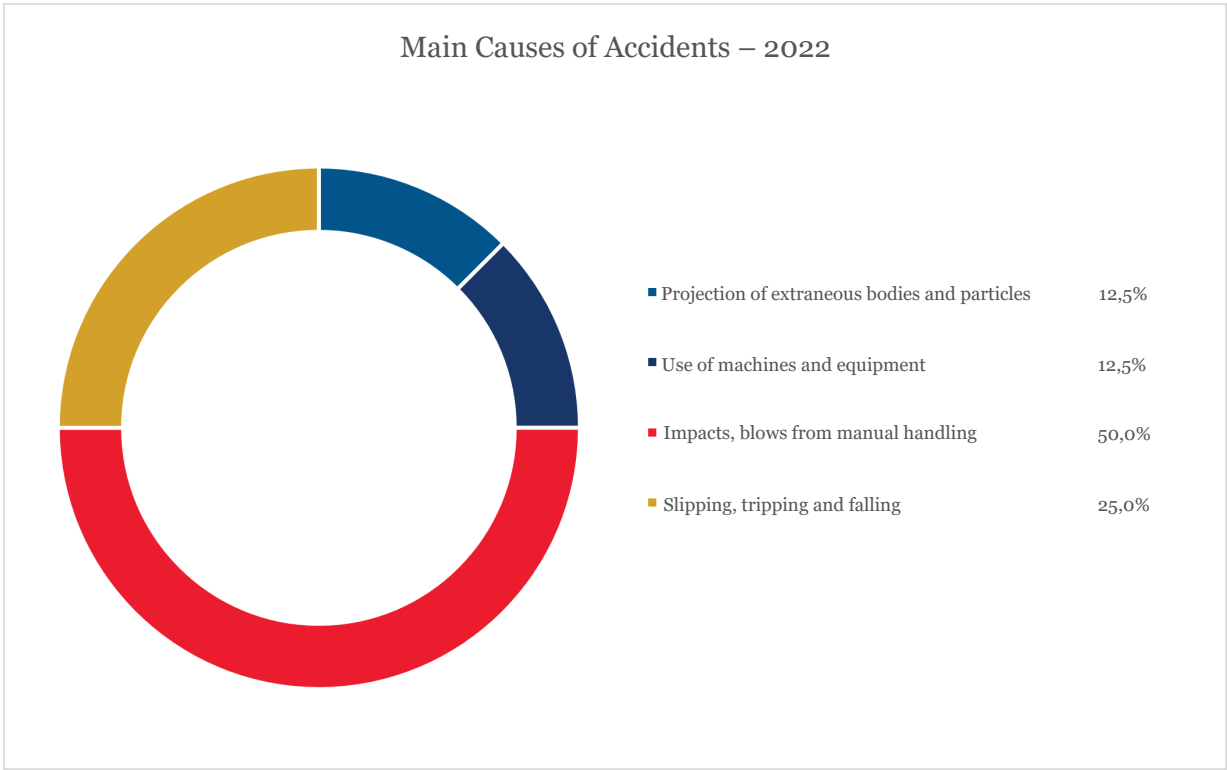
The continuous and systematic identification of hazards and risk assessment in all workplaces is one of the main tools for prevention implemented by the Group, along with the elimination of risks in the design phase of work and plant engineering, to protect both employees and contractors but also third-party workers of customers and end users.

In 2022, the overall Group accident frequency index per million hours worked was 8.28 (compared to 10.60 in 2021 and 6.14 in 2020).

The overall severity index per thousand hours worked was 0.15 (compared to 0.31 in 2021 and 0.29 in 2020).

No work-related deaths were reported amongst employees, temporary workers or contractors. 3 accidents occurred on the home-work route in 2022. For every recorded accident or incident, a thorough root cause analysis is carried out so as to implement appropriate actions to systematically avoid recurrence.

The main direct causes of accidents in 2022 are shown in the graph below.



A Culture of Safety

The Group firmly believes in the process of developing a culture of safety, intended as a fundamental value and the basis of everyday work. For this reason, particularly for roles exposed to higher risk in workshops, on worksites and in plants, it is committed to disseminating this value through occasions for discussion and sharing with all workers.

Toolbox meetings are one of the main instruments that Group Companies use for this purpose during normal working activity – fast, effective and experienced directly in the working environment, related to specific topics or risks, undertaken before starting new activities, in small or large groups, to review any issues and check the effectiveness of processes.

Another key to success is represented by the capitalisation of systems and tools adopted by major Italian and international customers, which allow internalising and improving processes for detecting near misses, observing behaviour, enhancing good practices as well as monitoring performance and the effectiveness of actions carried out.

Through specific surveys, the instruments made available or during discussion sessions, Group Company workers are periodically called upon to express their opinions or suggestions, as part of a participatory process of boosting the culture of safety.

The most important feedback and suggestions that have led to the greatest positive impacts for the organisation and regarding improvements in terms of health and safety can also be included in reward systems for employees, through agreements with trade union representatives.



Society

Diversity and Inclusion



The Group is committed to enhancing diversity in the company (meaning employees with disabilities, from different ethnic groups, of other religions, etcetera), to establishing practices to combine extra-professional needs with work-related ones (for example, extending parental leave to include fathers) and an improvement in the working environment to be healthier, more respectful and inclusive also through dedicated and control procedures (Whistleblowing, protection measures against gender- or orientation-based bullying).

Raising awareness of diversity and the fight against all forms of discrimination in conjunction with promoting a culture dedicated to respect for others are fundamental themes included in the Group's Code of Ethics.

Code of Ethics – Diversity and Inclusion Extract

“The Group promotes respect for and amongst people, being impartial in the choices made during all activities with regard to gender, age, race, religion and political affiliations. Each Group employee, associate, member of the Boards of Directors and Boards of Statutory Auditors shall observe the Principles.

The capacity and skills of each person must be enhanced so that they can fulfil their potential, whilst the relevant corporate functions must:

- Understand the skills and aptitudes of candidates in the selection phase and be able to assess whether they are a match for the Company's needs;*
- Apply criteria of merit and professional competence to employees;*
- Select, recruit, train, remunerate and manage employees without favouritism, nepotism or discrimination of any kind, ensuring that everyone is treated fairly and equally, regardless of gender, age, nationality, religion or ethnicity;*
- Ensure equal opportunities for each employee.*

The Sofinter Group requires that, in internal and external work relations, there shall be no harassment or attitudes in any way associated with bullying practices nor any form of violence or harassment, be it sexual or pertaining to personal or cultural diversity.

Considered as such are:

- The creation of an intimidating, hostile, isolating or otherwise discriminatory working environment towards individuals or groups of workers;*
- Unjustified interference with the performance of others' work;*
- The obstruction of the individual job prospects of others for mere reasons of competitiveness on a personal level or on behalf of other employees;*
- Any unwanted behaviour with sexual connotations or any other type of gender-based discrimination that offends the dignity of people in the work environment, including physical, verbal or non-verbal conduct.*

Discounted Services for Employees

The Group has several conventions available for employees, which can be used depending on each employee's place of work.

These agreements, grouped into macro-categories (Welfare, Wellness, Health) aim to guarantee a set of benefits and non-monetary provisions for staff, with the aim being to improve the quality of life and well-being of workers and their families.

Examples of this include agreements with insurance companies to promote policies (vehicles, real estate, etcetera) at preferential rates or with car rental companies and car parks, especially near airports.

With regard to wellness, agreements were established with gyms in the vicinity of the Group's headquarters, with various service packages to choose from. In addition, the Group has also joined e-commerce platforms that provide employees with discounts on cultural, recreational and travel events as well as on the purchase of coupons for household goods (such as domestic appliances, furnishings, personal care, electricity and gas offers, etcetera) and also for meals.

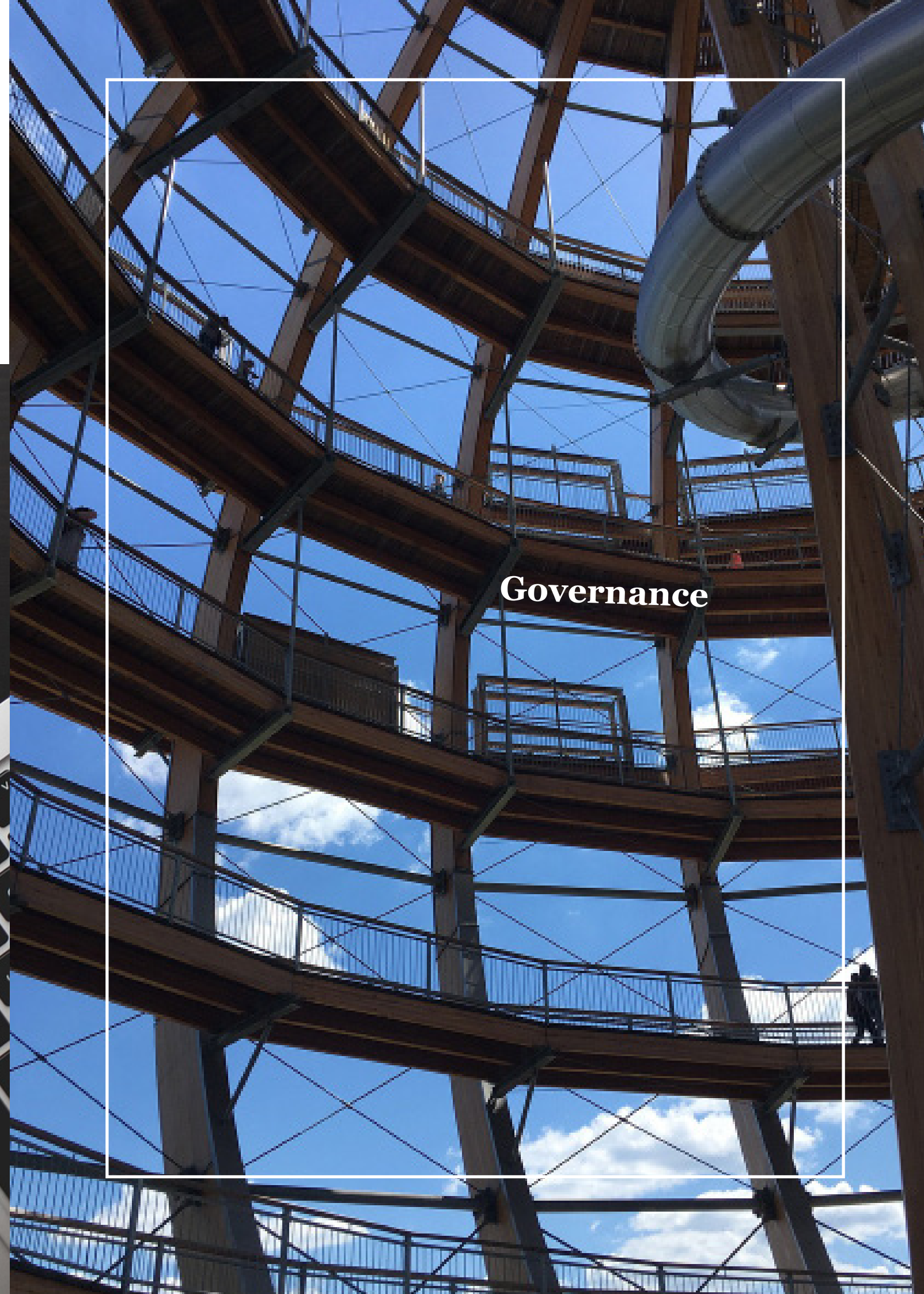
Affiliations with pharmacies, dental practices and opticians, on the other hand, fall under the health category.



Additional Employee Benefits

As of 1st January 2023, the Group has increased the value of restaurant vouchers for employees who work at the Company's headquarters and who work during the day. In addition, all Group employees receive – as company welfare – an annual voucher to the value of 200 euro as set by the metalworking industry collective bargaining agreement.

Finally, a percentage of workers at some Group locations were included in the project Individual Smart Working.



Governance

The Corporate Governance System of Sofinter Group Companies complies with statutory regulations, the self-regulatory principles set out by the responsible authorities and international best practice. Reputation is a core value for the Group. To this end and in the interests of shareholders, employees, collaborators and all those who enter into business relations and/or are in contact with the Group, it is necessary that the administration observes the principles of corporate governance best suited to ensure the greatest possible realisation of the Group's activities in compliance with the rules of good corporate governance and the provisions of the Code of Ethics.

All Sofinter Group legal entities avail of a traditional **administration and control model**, which includes **the Shareholders' Meeting, the Board of Directors, the Board of Statutory Auditors and the Auditing Firm**. The corporate bodies are appointed by the Board and remain in office for a maximum of three financial years.

The representation of Independent Directors and the role they play on the respective Boards of Directors of the Group companies are safeguards able to ensure an adequate balance of interests for all shareholding components, as well as guarantee a significant degree of participation in Board discussions.

Additionally, the Sofinter Group has an Internal Control and Risk Management System structured on the basis of recognised international standards, such as the CoSO Report – Internal Control Integrated Framework.

The Control System complies with the main regulations and guidelines in the field of Corporate Governance, including Legislative Decree 231/2001 – Administrative Responsibility of Entities.

Within the scope of their functions and competences, Group Executives take part in the realisation and implementation of an effective corporate control system and involve their subordinates therein. Likewise, Group employees are obliged, to the extent of their competence:

- To define and ensure proper function of the control system;
- To responsibly safeguard the company assets, whether tangible or intangible, instrumental to their activity, and not to misuse them.

The Group Internal Audit Department and the appointed Auditing Firms have free access to data, documentation and any information useful for carrying out internal control and audit activities.

The **Sofinter Group's Integrated Risk Management system** is geared towards protecting and increasing the value of the Company for the benefit of its stakeholders, supporting the objectives through the provision of a methodological framework that facilitates a consistent and controlled performance of all future activities, improved decision-making, planning and prioritisation through a comprehensive and structured understanding of the activity itself.

In particular, **Risk Mapping** serves to design an integrated Risk-Opportunity Control Model inspired by the **international standards of Enterprise Risk Management (ERM)**, with the definition of a global Corporate Risk Model and Risk Assessment methodologies aimed at identifying the Company's primary risks, the potential assessment of the main adverse events and the implementation of the most appropriate actions to mitigate them.

This model is designed to involve not only the first levels of the Company's "Top Down" approach, but also those responsible for the main sensitive processes in place by means of a "Bottom Up" approach.

This encompasses all areas of risk that are potentially significant for each of the Group's Companies and are represented in the Group Risk Map that brings together the four macro-categories of risks, endogenous and exogenous in nature, characterising the business models of the Sofinter Group Companies:

- Strategic Risks – arising from factors internal and external to the Group Companies, such as potential changes in the market environment, lack of ability to generate future cash flows;
- Operational Risks – inherent in the operational part of business processes that lead to an inability to create value and compromise business continuity;
- Compliance Risks – related to non-compliance with laws, rules and regulations that may lead to the imposition of sanctions, fines, revocation of authorisations or, in the most serious cases, the suspension of activities;
- Financial/Reporting Risks – affecting the reliability of financial balances and the representation of business performance.

Managing and monitoring these risks is an integral part of the **Group’s Business Operating Model**. The main safeguards implemented in relation to the identified risks, with particular reference to the **sustainability issues** most relevant to the Sofinter Group, in regards to Organisational and Control Models as well as policies developed by the Group, include:

- The adoption of a Code of Ethics, Anti-Corruption Manual and Export Control System Manual, valid for all Group Companies;
- The adoption by Sofinter S.p.A. and its main Italian subsidiaries of the Organisation, Management and Control Model pursuant to Legislative Decree no. 231/2001;
The adoption of specific Quality, Safety and Environmental Policies;
- The implementation process for specific Management Systems certified or to be certified, as better illustrated below, as well as the progressive implementation of initiatives to improve the quality and reliability of products from a customer satisfaction perspective;
- The constant monitoring of health and safety conditions in the workplace, of any non-compliance including on environmental, social and labour law issues, and of the main impacts generated or suffered in regards to Group activities.

In relation to the potential risks associated with responsible supply chain management, each Company has its own supplier qualification procedures that contain specific provisions on ethics, quality, health and safety, and environmental protection.

Further supplementary information in relation to the policies, procedures, operating instructions and specific initiatives adopted by the Group in the area of sustainability, useful for the mitigation of related risks, are developed in the below sections of this document.

In regards to economic and financial risks, refer is to be made to that described in the Group’s Consolidated Financial Statements.



Governance

Business Ethics and Integrity

Company activities are carried out in line with the **Sofinter Group’s Code of Ethics**, in order to ensure full compliance with national and international regulations. This document represents the ethical principles such as values, commitment, ethical responsibilities, business conduct and the behaviour to be maintained in executing business and corporate activities undertaken by the various Group Companies. It additionally regulates and governs the rights and duties that the Sofinter Group expressly assumes towards the stakeholders with whom it interacts.

The parent company Sofinter S.p.A. and its main Italian subsidiaries (AC Boilers S.p.A., Europower S.p.A. and Itea S.p.A.) have adopted their own **Organisation, Management and Control Model pursuant to Legislative Decree no. 231/2001** in order to prevent, as far as possible, the commission of the offences set out in that Decree.

In order to actively promote business ethics and integrity, the most closely involved and “senior” persons carry out training activities on the topics of Legislative Decree no. 231/2001 and, more generally, on compliance issues.

To promote and reinforce its commitment against corruption, in accordance with the Ethical Code, the Sofinter Group has also adopted an **Anti-Corruption Manual** to enable the performance of corporate activities in a lawful and ethical manner. Disseminated to all Group Companies, the document made binding the application of all principles and rules of conduct relevant to the reasonable prevention of offences of active or passive corruption, direct or indirect, towards third parties (public and private), both domestic and foreign.

In particular, the document sets out the rules of conduct to be observed in regards to various activities and cases, including the management of gifts, gratuities and representative expenses, payments, reimbursement or advancement of travel costs, the making of contributions, the use of business intermediaries, the establishment of joint ventures, acquisitions, the prohibition of incentives, personnel safety/security expenses, the keeping of company documents and the management of conflicts of interest.

As a demonstration of the commitment to fight corruption and other offences under Legislative Decree 231/2001, in addition to the above, the Group Companies have adopted specific control protocols and operating procedures aimed at defining behavioural rules to guard against the risk of active and passive corruption, money laundering, corporate offences, health and safety in the workplace, IT crimes and so on.

The set of Manuals, Codes, Models, Procedures and Operating Instructions that guarantee the compliance of corporate activities with organisational provisions and regulations are included in the **Sofinter Group’s Corporate Compliance Programme**, which has the broader objective of preventing the risks of non-compliance of Company activities with all Company rules and regulations in force.

To guard against the aforementioned risks, Group companies are subjected to periodic audit cycles by the Group **Internal Audit Department** on a rotating basis, aimed at performing specific tests and checks. The Group’s Code of Ethics, together with the respective Organisational, Management and Control Models, pursuant to Legislative Decree no. 231/01, along with the Anti-Corruption Manual, are all published on the respective Group Company websites.

Focus - Whistleblowing

The Sofinter Group is committed to constantly updating and improving the Corporate Compliance Programme, as an internal governance system adopted to prevent the commission of offences, whilst ensuring a safe and respectful working environment. For this reason, the Corporate Compliance Programme was supplemented with a new Whistleblowing Procedure.

This Whistleblowing Procedure adopted by the Company applies to all Group managers, employees and collaborators, as well as to all third parties (such as contractors, suppliers and consumers) who deal with the Company in any way. Internal and External Reporting Channels have been set up, which allow reports to be made in written or oral form.

The identity of the Whistleblower is exempt from the application of Article 15(1)(g) of the GDPR and cannot be disclosed during any stage of the procedure, except to the person involved in the report. Management of the internal channel in the Sofinter Group has been entrusted to the Head of Internal Audit, also referred to as the Reporting Officer. The Whistleblower may also make a Report externally through one of the channels made available by the ANAC – Italy’s National Anti-Corruption Authority – which guarantee, also through the use of encryption tools, the confidentiality of the identity of the Whistleblower, of the person being reported, as well as of the content of the Report and of the relevant documentation.

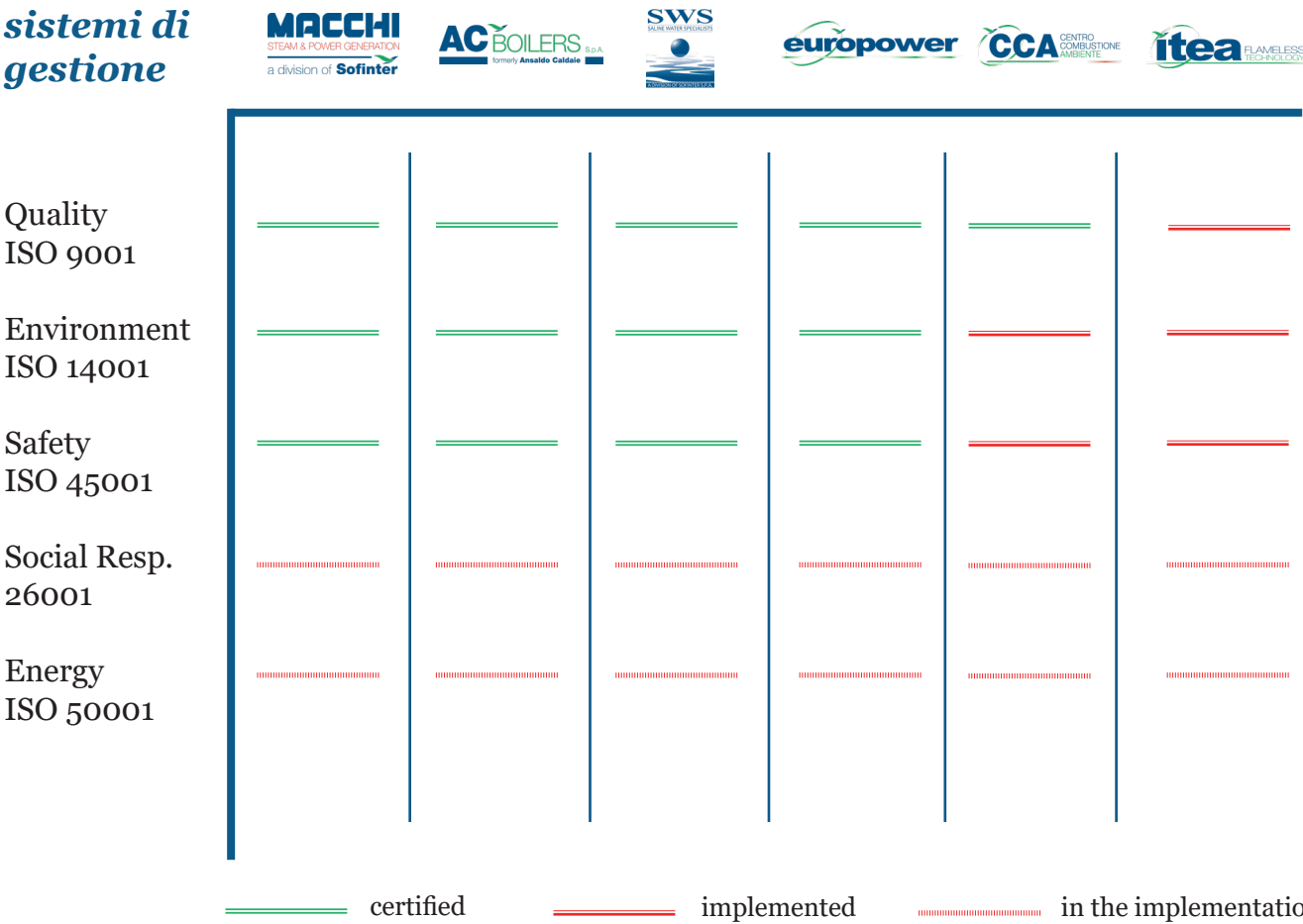
Cybersecurity

The Group has set the goal of activating new solutions for preventing and protecting digital intrusions in defence of data assets. This undertaking is to guarantee the protection of computer systems and data by minimising the risk of network breaches, as well as to ensure full operational continuity of the Group’s information systems. In particular, guidelines were outlined in terms of ensuring compliance with the GDPR for protection of personal data and cybersecurity, so monitoring the vulnerability of systems, introducing new state-of-the-art security measures and promoting awareness and training programmes for employees on IT security. In 2022, the SOC and EDR projects were completed. SOC is the Security Operation Centre, an external structure operating 24 hours a day, which analyses network anomalies and can rapidly implement remediation measures to mitigate IT security risks. The additional audit and risk management activities provided by the external SOC include the periodic generation of Security Assessment Reports, with the application of consolidated international methodologies in accordance with ISO/IEC 27001:2005 and ISO/IEC 27005:2008 standards. EDR stands for Endpoint Detection and Response, an advanced technology that works through automatic behavioural learning and Artificial Intelligence to track potential threats, intervening in good time. In 2023, the Group activated a new Disaster Recovery System, totally replicated in the Cloud in IaaS (infrastructure as a Service) and PaaS (Platform as a Service) systems, capable of guaranteeing an RPO (Recovery Point Objective) of 30 minutes. Finally, employees are constantly informed about cybersecurity risks with informative and educational emails focusing on the conduct to be maintained in order to avoid the risk of phishing and consequent data leakage.

Governance Management Systems

The **Management Systems**, designed and implemented in accordance with international ISO standards, are the founding structure of the organisation, the governance and the driving force behind the continuous improvement of the Sofinter Group in relation to Environmental, Health and Safety, Energy and Social Responsibility matters. The **Group’s Integrated Environment, Health and Safety Policy**, which also includes aspects of Corporate Social Responsibility, respect for Human Rights and Anti-corruption Principles, expresses the Company’s main concept of Sustainable Development. In addition to the Quality Management System according to ISO 9001, all companies in the Sofinter Group possess or are structuring:

- An Environmental Management System in accordance with ISO 14001;
 - An Occupational Health and Safety Management System in accordance with ISO 45001.
- Social Responsibility Management Systems in accordance with ISO 26000 and Energy Management Systems per ISO 50001 are also being designed.
- The complete implementation and subsequent certification of the Management Systems by a Third and Independent Body is one of the main sustainability objectives that the Group has set for itself for the near future.



reporting

Sustainability Rating



In addition to the Corporate Sustainability Reporting Directive (CSRD) concerning the disclosure of companies' non-financial data, the European Commission recently published its proposal for a Directive on a company's duty of care for sustainability purposes, requiring each company to assess the potential risk to human rights and the environment within their value chains as well as to account for the proactive actions they are taking to address any issues.

In order to boost the robustness and transparency of ESG assessments by companies, it is also important to use reporting standards that can guide the transparent reporting of their own performance and link corporate objectives regarding environmental, social and governance aspects to objective, quantifiable and measurable parameters.

Over the past few years within the Group, Sofinter and AC Boilers have audited their ESG performance through the rating company EcoVadis, which has developed a dedicated platform for assessing the environmental, social, governance performance and recently also the sustainable management of their supply chain.

The use of such a structured rating system enabled the two Group companies to:

- Undergo a performance evaluation with a methodology aligned to international standards, specific to each sector, country and company size;
- Understand sustainability results and scores, identifying strengths and areas for improvement, as well as benchmarking with competitors and companies in the same sector;
- Improve performance and track progress over time, monitoring quantitative parameters or implementing appropriate corrective actions;
- Interact with external stakeholders (customers, business partners) and call on suppliers to improve their own ESG performance.

This path, initially undertaken as part of the value chain of large international Energy and Oil & Gas players, has recently been structured as an individual challenge to improve internal and external sustainability results, achieving important outcomes.

With regard to the 2022 performance, both Sofinter and AC Boilers were awarded a Silver Medal with overall scores being Good, set amongst the top 25% of companies analysed by EcoVadis.

Reporting

Sofinter



AC BOILERS S.p.A.
formerly Ansaldo Caldaie



reporting


Key Performance Indicators





theme	KPIs	2020	2021	2022	objective
WASTE 	Total amount of waste produced [tonnes]	2.534	2.327	2.298	--
	Quantity of hazardous waste [tonnes]	94	55	29	--
	Percentage of recycled waste	96,6%	98%	98,4%	>95%
	Percentage of waste incinerated with reclamation Energy	3,3%	2,0%	1,6%	<5%
	Percentage of waste incinerated without reclamation Energy	0%	0,1%	0%	0%
	Percentage of landfilled waste	0%	0%	0%	0%
	Total amount of packaging [tonnes]	116	106	151	--
	Packaging as a percentage of total waste	4,6%	3,3%	6,6%	--
	Percentage of plastic and mixed packaging	62,1%	66,3%	60,4%	<=60%
	Percentage of wood packaging	32,5%	30,8%	35,2%	--
	Percentage of other packaging	5,4%	2,9%	4,4%	--
EMISSIONS 	Total dust emissions in workshops [Kg]	2.249	n.d.	1.374	--
	Dust emission factors in workshops [Kg/h]	0,0072	n.d.	0,0051	

theme	KPIs	2020	2021	2022	objective
CLIMATE AND ENERGY 	Total energy consumption in offices, workshops and plants [GJ]	68.737	47.968	43.495	--
	Total fuel consumption [GJ]	22.878	16.643	13.115	--
	Scope 1 - Total CO ₂ eq [tonnes]	1.291	953	762	--
	Scope 1 - Total CO ₂ eq from offices [tonnes]	270	330	293	--
	Scope 1 - Total CO ₂ eq from workshops [tonnes]	349	199	212	--
	Scope 1 – Total CO ₂ eq from plants [tonnes]	546	279	102	--
	Total electricity consumption [MWh]	5.857	4.001	3.880	--
	Total electricity from renewable sources [MWh]	1.378	1.358	1.317	--
	Scope 2 - Total CO ₂ eq [tonnes]	1.983	1.354	1.314	--
	Scope 2 - Total CO ₂ eq from offices [tonnes]	297	302	317	--
WATER 	Scope 2 - Total CO ₂ eq from workshops [tonnes]	1.558	960	914	--
	Scope 2 – Total CO ₂ eq from plants [tonnes]	128	92	83	--
	Scope 1 + 2 - Total CO ₂ eq [tonnes]	3.274	2.307	2.076	-50% by 2025 (vs baseline 2020)
	Total volume of water used [m3]	27.391	22.755	19.550	--
	Total volume of water used in offices [m3]	1.658	2.067	2.733	
	Total volume of water used in the workshops [m3]	25.733	20.688	16.817	
	Total volume of treated stormwater in the workshops [m3]	110.84	62.486	96.378	
HUMAN CAPITAL 	Number of Group employees	660	623	588	
	Number of Executive Category employees	47	45	44	
	Number of Management Category employees	78	74	66	
	Number of Clerk Category employees	358	347	323	
	Number of Labourer Category employees	177	157	155	
	Negative turnover rate	16%	20%	26%	

theme	KPIs	2020	2021	2022	objective
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ENHANCEMENT RESOURCES 	Average number of training hours (full-time equivalent, excluding apprentices)	4	25	10	
	Average number of training hours (full-time equivalent, including apprentices)	17,5	45,5	29	
	Number of employees assessed for technical-managerial skills	371	--	367	
	Percentage of employees assessed for technical-managerial skills	77%	--	85%	>90% by the year 2025

HEALTH AND SAFETY 	Group Employee Accident Frequency Index (per 1 million hours worked)	6,14	10,60	8,28	--
	Group Employee Accident Severity Index (per thousand hours worked)	0,29	0,31	0,15	
	Number of fatal accidents for Group employees	0	0	0	
	Number of commuting accidents (home-work journeys) for Group employees	0	0	3	
	Number of occupational diseases reported for Group employees	0	0	0	
	Number of occupational diseases reported for former Group employees	1	1	2	
	Average number of hours of health and safety training (total number of employees)	1,5	3	3,5	

DIVERSITY AND INCLUSION 	Percentage of female Group employees	13%	16%	16%	20% by 2025
	Percentage of female managers and executives	1,7%	1,9%	2,1%	
	Average age of Group employees	45,6	45,7	46	
	Percentage of employees by age group				
	- under 30	7%	7%	7%	
	- between 30 and 40	22%	22%	22%	
	- between 40 and 50	39%	37%	35%	
	- between 50 and 60	24%	28%	29%	
	- over 60	7%	6%	7%	
	Number of nationalities employed by the Group	11	11	7	

theme	KPIs	2020	2021	2022	objective
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MANAGEMENT SYSTEMS	Percentage of Group companies certified ISO 45001	20%	20%	60%	100% by 2026
	Percentage of workshops certified ISO 45001	0%	0%	75%	100% by 2026
	Proportion of worksites certified ISO 45001	33,3%	33,3%	100%	
	Percentage of Group companies certified ISO 14001	20%	20%	60%	100% by 2026
	Percentage of workshops certified ISO 14001	25%	25%	100%	
	Proportion of worksites certified ISO 14001	33,3%	33,3%	100%	

CORPORATE GOVERNANCE	Number of audits on risk and compliance issues	9	11	8	10 by 2024
	Training activities on risk and compliance issues	0	1	1	update by 2023
	Number of training hours on risk and compliance issues				
	Group Risk Map updating activities	1	0	1	update by 2024
	Average number of hours of training on corporate governance topics (total headcount)	0,5	1,5	2	

BUSINESS INTEGRITY	Number of remediations/recommendations received	21	23	11	--
	Percentage of remediations/recommendations taken up and managed by the Group	100%	91,4%	73%	100%

SUSTAINABI- LITY OF THE SUPPLY CHAIN	Percentage of strategic suppliers involved in the sustainability performance assessment	--	--	100%	
	Percentage of suppliers with formalised policies for managing Diversity, Inclusion and Equal Opportunity issues	--	--	81,6%	> 90% by 2024 100% by 2025
	Percentage of suppliers with formalised policies for Human Rights Management and Risk Child labour	--	--	85,3%	> 90% by 2024 100% by 2025
	Percentage of suppliers with targets for Improvement to enhance employee well-being	--	--	97,8%	>95%
	Percentage of suppliers with targets for reducing energy consumption and for efficiency	--	--	89,0%	> 90% by 2024
	Percentage of suppliers with policies and Objectives for the reduction of Greenhouse Gases	--	--	58,8%	> 75% by 2024 > 90% by 2025

reporting

A Note on Methodology

This document represents the Sofinter Group’s first Sustainability Report and was drawn up internally by the Group Sustainability Department, with the contribution of the Communications Department and the involvement of all other relevant corporate departments.

The Report was drafted in accordance with the Sustainability Reporting Standards of the Global Reporting Initiative (GRI), updated in January 2023. All data and information in this document, which shall be updated and revised as necessary in future publications, have been taken from the Group’s certified Management Systems along with the Governance and Compliance System.

The Sustainability Board of the Group Companies, in agreement with the Board of Directors of the parent company Sofinter S.p.A., will evaluate the possibility of having a full external audit of the sustainability performances in the Report.

Reporting Principles

This report has been drawn up by applying the reporting principles of the GRI (Global Reporting Initiative – January 2023 update) standards of:

- Accuracy – the data reported is extracted from the Sofinter Group’s Corporate Governance and Management Systems, from the Consolidated Financial Statements and reports audited by third-party bodies;
- Balance – the overall budget reports positive and negative performances, treated in a manner that harmonises all Sofinter Group sustainability issues;
- Clarity – the structure of the report allows for adequate reading and comprehension by the stakeholder, along with the final methodological notes in relation to the GRI;
- Comparability – KPIs and data are presented in such a way that they are comparable over time and with other sustainability checks;
- Comprehensiveness – all material topics of the Sofinter Group are covered, as are the topics foreseen by GRI standards, in the 2020–2022 reporting period;
- Context of sustainability – the report takes into account the broadest possible context of sustainable development, within the scope of reporting (Italian locations);
- Timeliness – the 2022 Sustainability Report is the first produced by the Sofinter Group and covers the 2020–2022 three-year period, it being expected that the next Reports will be produced on an annual basis, within the first quarter of the year following the last;
- Verifiability – data, indicators, documents and information sources have been presented and structured in such a way as to render verification by third parties as easy as possible.

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thanks

Corporate Management
Human Resources
Department Environment, Health and Safety
Department Legal
Department Engineering

Sofinter Group

Headquarter

Piazza F. Buffoni, 3
21013 Gallarate (VA) - IT
tel. 0331738111
email info@sofinter.it

