

2022

**Sustainability Report
Acciaierie d'Italia Group**



2022

Sustainability Report

Acciaierie d'Italia Group

Acciaierie d'Italia Holding SpA
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Letter to the Stakeholder

Dear all,

the last few years have been challenging. The commitment to implement the Environmental Plan, the arrival of pandemic and its extension, the judicial proceedings, the economic crisis made worse by inflation, the new corporate structure, the large geopolitical tension that is impacting the international context, the steep increase of energy and gas costs. The entire Organization has been put to the test, showing great resistance and resilience, allowing the Group to withstand the criticalities of the market, to face change constructively, adopting the best practices in the sector and developing new and appropriate strategies and techniques. All this would not have been possible without the seriousness, professionalism, commitment and passion of the people who work with us.

Our Group is investing, and will continue to do so, in technology and innovation, planning and developing a resilient and now irreversible transition of production processes capable of reconciling economic balance with environmental protection and social needs, and ensuring compliance with all stakeholders, inside and outside the Organization.

The Sustainability Report aims to witness our "Corporate social accountability" and communicate the sustainable development we are pursuing in this historical phase which shows a complex and constantly evolving economic world where, together with an absolute need for steel, attention grows towards the impacts generated by its production on the territory.

With this document drawn up on a voluntary basis, Acciaierie d'Italia Group wants to report in a transparent way its environmental, social, economic and governance performance, and provide a measuring system of the sustainability level we want to achieve, with a view to continuous improvement. The path taken is a path of transparency and communication open to everyone, employees and collaborators, customers and suppliers, institutions and local communities, the scientific and university world. We have decided to share the actions of our engagement, showing our principles and the way these actions support the social task of generating and distributing value. These actions translate into concrete projects that have a deep effect both on the Organization and on the context where we operate: decarbonization, energy transition and digitalization are processes which impact the operations of the entire Group and generate positive effects on the environment where we operate.

The achievement of these objectives requires inclusiveness: for this reason, we have created a network made up of companies and knowledge, creating strategic collaborations with international partners, Universities and Research Centres, and we have set up a new Research and Development Centre, right in Taranto. We have created a Sustainability Department to guide the Company towards change, to coordinate activities for sustainable development in a synergistic and interdisciplinary way, and we are investing in human capital through new training courses and the inclusion of young local talents.

Growth in the role of leader in the European and national steel scene will take place by coordinating business needs with the social expectations of our stakeholders.

Lucia Morselli
Chief Executive Officer



1 | Methodological note

1 | Methodological note

Acciaierie d'Italia Holding S.p.A., hereinafter “**ADIH**” or “**Group**”, has decided to continue the process started in terms of reporting of its non-financial performance.

Differently from the previous financial year, for which a sustainability report was only issued for the production site of Taranto, for the year 2022 the Group has decided to extend the reporting scope, with the strong will to continue the path of transparency undertaken, including reporting of sustainability performance of both the Holding and its subsidiaries within one **Sustainability Report**.

This document lays the foundations for an annual reporting process with the aim of communicating the most significant economic, environmental, social and governance performances for the Group and its stakeholders.

The data and information contained in this document refer to both Acciaierie d'Italia Holding S.p.A., with registered office in Milan, viale Certosa 239, and the companies indicated below, operating mainly in Italy, with the exception of a production site in France, which are 100% controlled by the Group in terms of management and coordination and are included in the financial reporting of the Group:

- Acciaierie d'Italia S.p.A. (hereinafter also ADI S.p.A.);
- ADI Energia S.r.l. (hereinafter also ADIE);
- ADI Servizi Marittimi S.r.l. (hereinafter also ADISM);
- ADI Tubiforma S.r.l.;
- ADI Socova S.a.s.

The Group subsidiaries operate in the following detail sectors:

- Steelmaking – production of iron, steel and ferro-alloys by ADI;
- Production of electric power by ADIE;
- General mechanical works by ADI Tubiforma and ADI Socova;
- Maritime and coastal transport of goods by ADISM.

Any exceptions to the reporting period and scope indicated above are explained within this document.

The **Sustainability Report** (hereinafter “**Report**”) was issued on the assumption of business continuity, having assessed the absence of sales, acquisitions, or other significant changes in the company assets for the year 2022.

The only event worthy of mention is the liquidation in February 2021 of the subsidiary ArcelorMittal Italy Service S.r.l. whose steel product distribution activities are carried out directly by ADI S.p.A.

For certain information and data, some focus will be shown relating to the Taranto plant which represents 90% of the entire Group in terms of environmental, employment, economic and production impact. More generally, insights will be proposed where the relevance and significance of the indicator reported make it worthy of mention.

ADIH has provided the information in this Report for the period from 1st January 2022 to 31st December 2022. Where available, the data for the previous two years (2020 and 2021) have also been included in order to ensure the principle of comparability.

The process of collecting, processing, drafting and validating the data included in this document was coordinated and managed by a Working Group specifically set up in the Quality, Research & Sustainable Development Department, which already drafted the sustainability report for the Taranto plant in 2021. The Working Group was engaged in the transversal involvement of all the company's strategic Functions and Departments, located in the various sites of the industrial organization.

The activities carried out for the preparation of the 2022 Sustainability Report were as follows:

- identification of the perimeter subject to reporting;
- identification of stakeholders and their engagement through an engagement phase;
- identification of relevant topics and definition of material topics and non-financial indicators to be reported following the materiality analysis;
- identification and involvement of data owners in the collection, processing and aggregation of qualitative and quantitative data to be included in the Report;
- drafting of the document, its validation and optimization of the graphic project;
- information, awareness-raising and dissemination activities dedicated to the community, with the aim of making the information in the document accessible to a vast and diverse public and, at the same time, promoting awareness on the sustainability issues, with respect to the social and environmental dimensions and economic aspects of the industrial process of Acciaierie d'Italia Group.

The first Sustainability Report of Acciaierie d'Italia Group was not audited by an independent third-party company.

Accountability Principles



This document was issued in line with the principles defined by the "Sustainability Reporting Standards" of the Global Reporting Initiative published in 2021 (hereinafter GRI Standards), according to the reporting method "**with reference to**".

In particular, ADIH chose to use a selected set of GRI indicators, to report information identified as relevant. References to the GRI Standards are given in the "**GRI Content Index**" in the appendix of this document.

The definition process of the contents of this Report was based on the following principles, in compliance with the requirements of GRI Standards: accuracy; balance; clarity; comparability; completeness; sustainability context; timeliness and reliability.

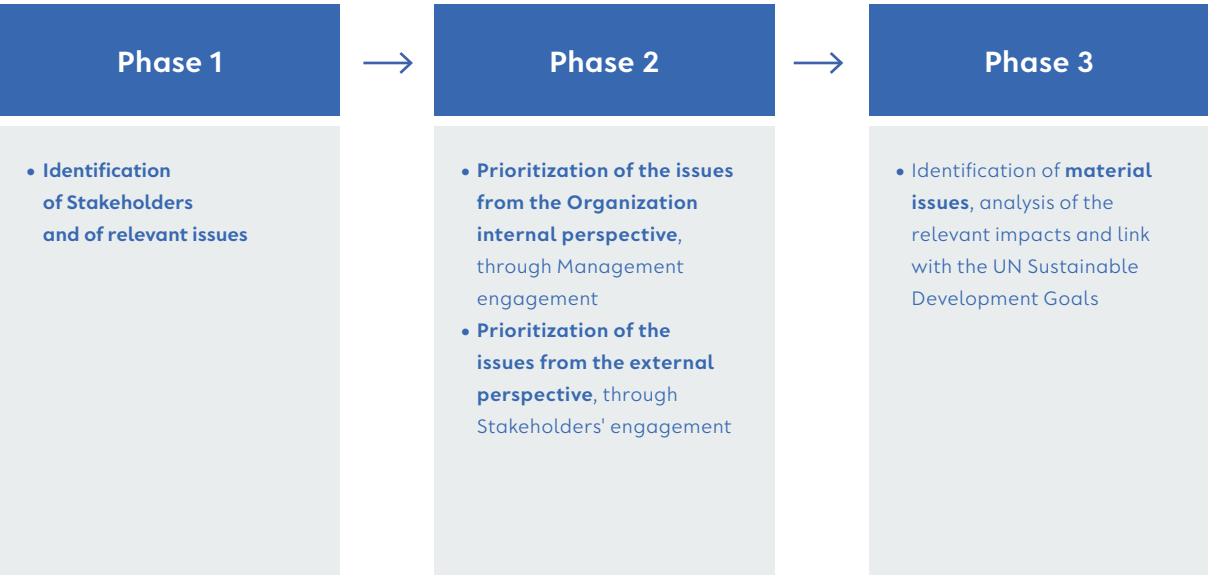
Materiality Analysis

The materiality analysis, and the consequent processing of the materiality matrix, are two key factors of a virtuous corporate reporting. The materiality analysis is the starting point with which the Company aims to understand the expectations of its stakeholders, identifying the most relevant sustainability issues, through a process of investigation and processing.

The Company has launched a gradual process focused on the analysis of the context and the evaluation of the interested parties in order to identify the **material issues**, i.e. those aspects which on the one hand are perceived as relevant by the stakeholders, as they could significantly impact their expectations, decisions and actions, and on the other hand can generate significant economic, social and environmental impacts on the Company's activities.

The term materiality underlines the importance, concreteness and measurability of all the elements that show and demonstrate ADIH's commitment to being sustainable.

The process was structured in three phases:



Phase 1: Identification of Stakeholders and of relevant issues

Stakeholders are individuals or groups of individuals who impact or are impacted by an organization and its activities.

The identification of the stakeholder categories represented the first step in defining the fundamental topics to be reported within the document.

Starting from what is reported in the Group Code of Conduct, the Organization's stakeholders were identified. Subsequently, this identification activity was integrated following the results obtained from the analysis carried out on the context in which the Group operates and on the main companies operating in the sector, as well as following the involvement of the company Management.

The identification of the stakeholders was carried out taking into consideration the following variables:

- the (financial, legal, etc.) **responsibility** that the Group has or may have in the future towards stakeholders;
- the **impact** that the stakeholder exercises or may exercise in the future on the Group's ability to achieve its objectives;
- the **proximity** between the Group and the stakeholder;
- the Group's **dependence** on certain categories of stakeholders.

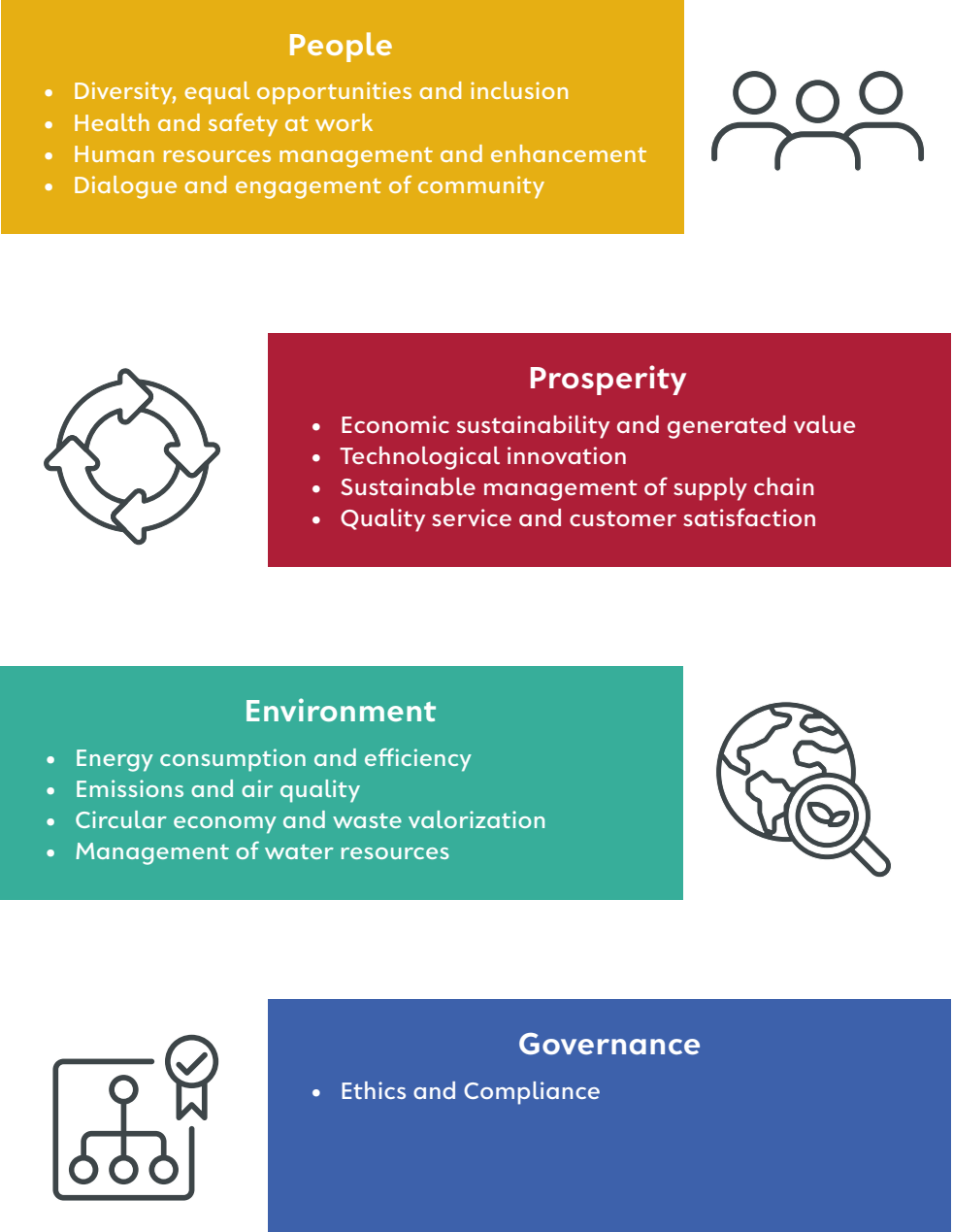
Below is a representation of the Group's key stakeholders and the main dialogue and engagement methods with them.

Stakeholder

- Trade unions and associations
- Customers
- Professional Categories
- Employees
- Public Institutions and Authorities
- Suppliers and sub-suppliers
- Certification bodies
- Local communities
- Business partners
- Universities and research centres

Stakeholder category	Dialogue and engagement methods
Trade unions and associations	Regular face-to-face meetings with local representatives
Professional Categories	Face-to-face discussions for the presentation of the Sustainability Report and guided visits to the plants
Public Institutions and Authorities	(Expected benefit) Face-to-face discussions with local representatives
Certification bodies	Specific meetings aimed at issuing certifications
Business Partners	Collaboration with important industrial and infrastructural companies for the implementation of projects aimed at the decarbonisation of the production cycle and the ecological and energy transition
Customers	Regular meetings, customer satisfaction and claim analysis through technical visits and various contacts
Suppliers and sub-suppliers	Regular meetings and site visits, supplier portal, sharing of the Conduct and Anti-Corruption Code
Employees	Internal communication, performance evaluation process, training activities, sustainability performance communication initiatives
Local communities	Initiatives for the enhancement of local talents, school-work training projects, attendance to events for local development
Universities and research centres	Establishment of the Research Centre in Taranto, collaboration initiatives with Universities and Polytechnics, attendance to conferences and meetings

On the basis of the needs and requirements of the territory, and the potential impact on the SDGs targets, the **relevant issues** have been identified, associated with the following 4 macro-areas.



Engagement in figures

Almost **5,000** answers to the questionnaire

More than half from the employees of the entire group including the French plant of ADI Socova

70 Union representatives

Trade associations gave their contribution including: Ferdermanager Puglia, Federmanager Taranto, Confindustria Alessandria

Almost **100** answers from customers, business partners and suppliers

The local community of Racconigi and Novi Ligure territory

Certification bodies, professional categories, universities and research centres gave a valuable contribution to the activity

Phase 2: Stakeholder engagement

Stakeholder engagement is the process used by an organization to engage stakeholders with the aim of understanding their concerns and expectations regarding sustainability issues. It is of fundamental importance to manage relationships with stakeholders as they allow to increase competitiveness, contribute to innovation, improve corporate reputation and create a sustainable business model capable of generating value for all stakeholders in the long term.

The Group has set up a specific Quality, Research & Sustainable Development Department among its Corporate Functions which, in addition to coordinating and encouraging participation and collaboration in reporting on sustainability matters, proposes communication, listening and dialogue initiatives with the purpose of re-establishing transparency and continuity in relations with the Territories.

Since 2022, for the purposes of the materiality analysis, the Group has decided to involve a wide range of stakeholders and discuss with the local representatives where the Group operates, sometimes even opening different exchange channels than those of the previous year.

In particular, the adopted approach was the delivery of a questionnaire, on which anonymous answers were guaranteed. An exchange phase was then initiated during which these questionnaires were submitted to all the identified categories.

Considering ADIH's belief that all relevant issues are important and fundamental for a sustainable approach, the answers to the questionnaire returned a precise indication of the perceived priority of the same issues by the various categories of stakeholders involved. This stage is known as "prioritization" of material issues.

In addition to the prioritization of the issues, the opportunity was taken, considering the massive reach of the interlocutors, to ask them for suggestions for improvement and possible integrations to the single issues. Also in this case, anonymous answers were guaranteed and processed in aggregate form exclusively.

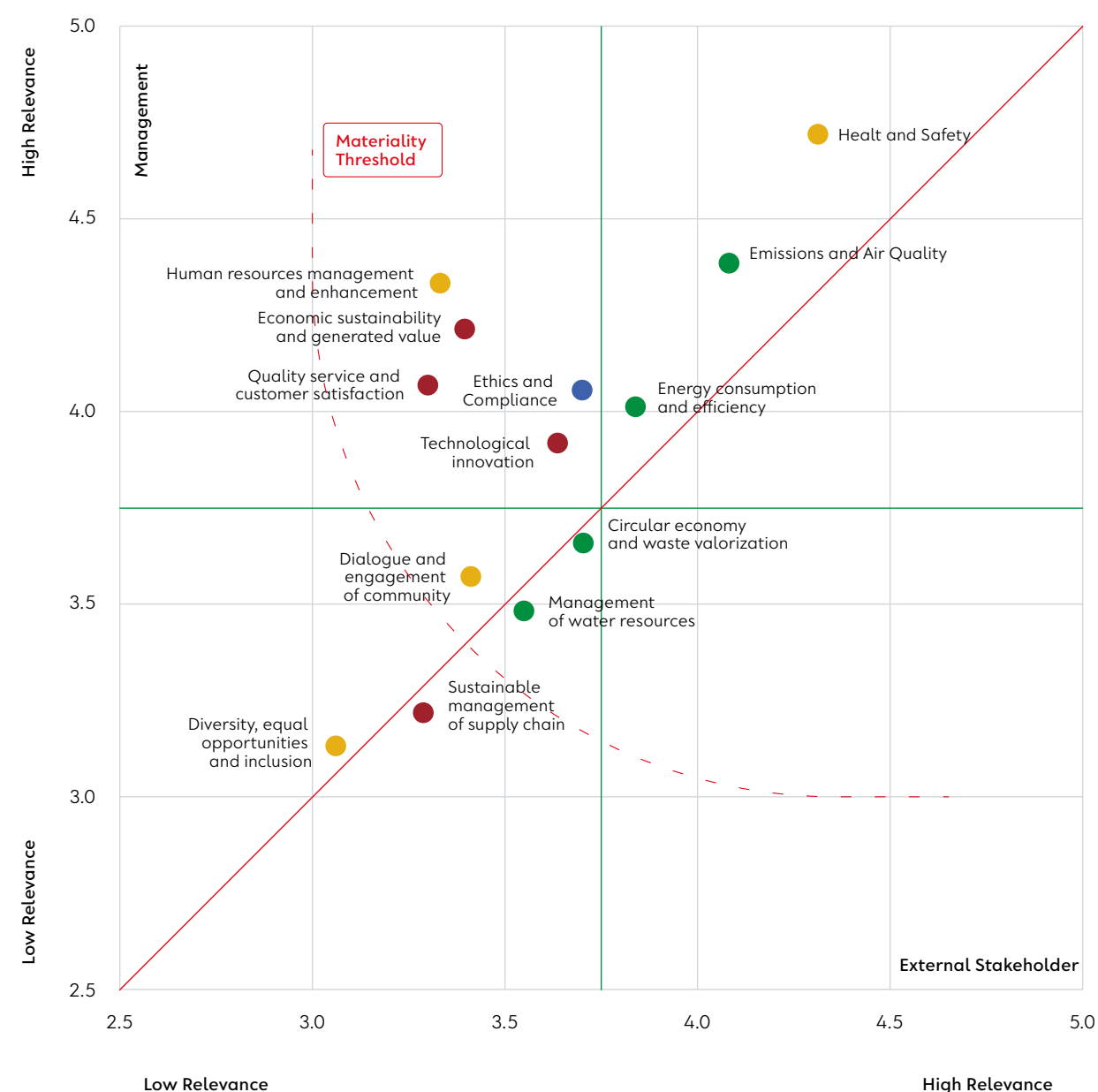
The contribution received in terms of opinions with respect to the perception of ADIH's work in the field of sustainability, as well as the relationship between the company and the involved stakeholder, was considerable. In addition, face-to-face meetings were also planned with local representatives at the Taranto, Racconigi and Novi Ligure plants, which encouraged direct dialogue on sustainability issues and an opportunity to discuss the Group's role within the local context where it operates.

Phase 3: Materiality Matrix

Following the analysis of the results obtained from the stakeholder engagement activity, the so-called "materiality matrix" was constructed, which graphically represents the relevance attributed to the various issues analyzed both by ADIH and by the relevant stakeholders.

The involvement took the form of a survey submitted to the categories of stakeholders where they were asked to score the single issues, in terms of perceived relevance, on a scale from 1 to 5.

The feedback returned by the survey was processed and formalized within a materiality matrix, where abscissa axis reports the average result of the assessments given by the stakeholders and employees to the single issues, and the ordinate axis reports the average of the assessments given by the company management.



The "**Materiality Threshold**" represents the sensitivity limit in terms of importance attributed to the **relevant** issue, beyond which the same issue is considered as "**material**". The material issues represent the subject of reporting at the basis of the Report. However, for the principle of completeness, the issues not found to be material are also addressed within the document.

From a first graphical analysis, it is possible to state with a reasonable degree of certainty that the perception of relevance is the same for the two types of stakeholders. The concentration of most issues in proximity of the plane bisector, in fact, is representative of the degree of perception similarity. The most relevant issues are perceived as such both by management and by external stakeholders, same as for the least relevant ones, the low value of which is shared by both the categories.

The high number of the reference sample and the reduced dispersion of the data support the feeling that a common improvement goal is shared both internally and externally to the Organization.

The convergence is clear on critical as well as actual issues considering the historical period and the context where the Company operates; first of all, the issues of **Health and Safety** and **Emissions and Air Quality** are priorities for both stakeholders and the Company. This result confirms total alignment between the commitments and expectations of the Company's work on the aforementioned issues, regardless of the result obtained on them through stakeholder engagement.

In line with internal expectations, the issues of "Technological innovation", "Economic sustainability and generated value" and "Quality service and customer satisfaction" are of greater importance for the Management than for external stakeholders, as these issues are more related to business development and business continuity aspects.

The feedback on **Human Resources management and enhancement** issue is significant, as it is perceived as more important by the Management than by external stakeholders. This result confirms the Company's conviction on the line to follow with regard to investment in human capital, which represents the beating heart and thinking mind of our business. Indeed, although ADIH operates in a sector with a high content of technology and automation, the Management places high consideration on human capital as a fundamental part of the process. The identified issues represent the guide according to which this document was drafted. Each of them is exhaustively treated within the chapters in which they have been grouped through the reporting of both qualitative and quantitative information.

For an **analysis of the impacts** relating to material issues and the **link with SDGs** (United Nations Sustainable Development Goals), please see the Appendix.

Acciaierie d'Italia Group and 2030 Agenda

In 2015, the United Nations approved the Global Agenda for Sustainable Development and the related 17 **Sustainable Development Goals** (SDGs) to be achieved by 2030, split down into 169 targets associated with 240 indicators.

For the implementation of the Agenda, a strong involvement is required from all components of society, from companies to the public sector, from civil society to philanthropic institutions, from universities to research centres, information and culture operators. For this reason, the Group decided to analyze the 17 goals and identify those where it can contribute most with its business activity, as part of its sustainability process.



Hot dip galvanizing line
in Taranto plant



2 | Acciaierie d'Italia Group

ADI Holding 2022

18,200,000 m²
Surface

10,544
Employees

29.62 TJ/kton*
Energy intensity

2,587 tonCO_{2eq}/kton*
Carbon intensity

781 kW_p
Photovoltaic plant
Installed power

* tonnes of produced slabs

The company Acciaierie d'Italia Holding S.p.A. (formerly AM InvestCo Italy S.p.A. and hereinafter also "Acciaierie d'Italia Holding") was established on 17th May 2016 in order to participate in the procedure for the purchase of corporate complexes belonging to the Ilva Group and controlled by ArcelorMittal Italy Holding S.r.l. for 62% and by the National Agency for the attraction of investments and business development S.p.A. - Invitalia - for the remaining 38% (since 14th April 2021).

The Company holds 100% of the share capital of the companies mentioned above and shown in the diagram below, identified as "Subsidiaries".

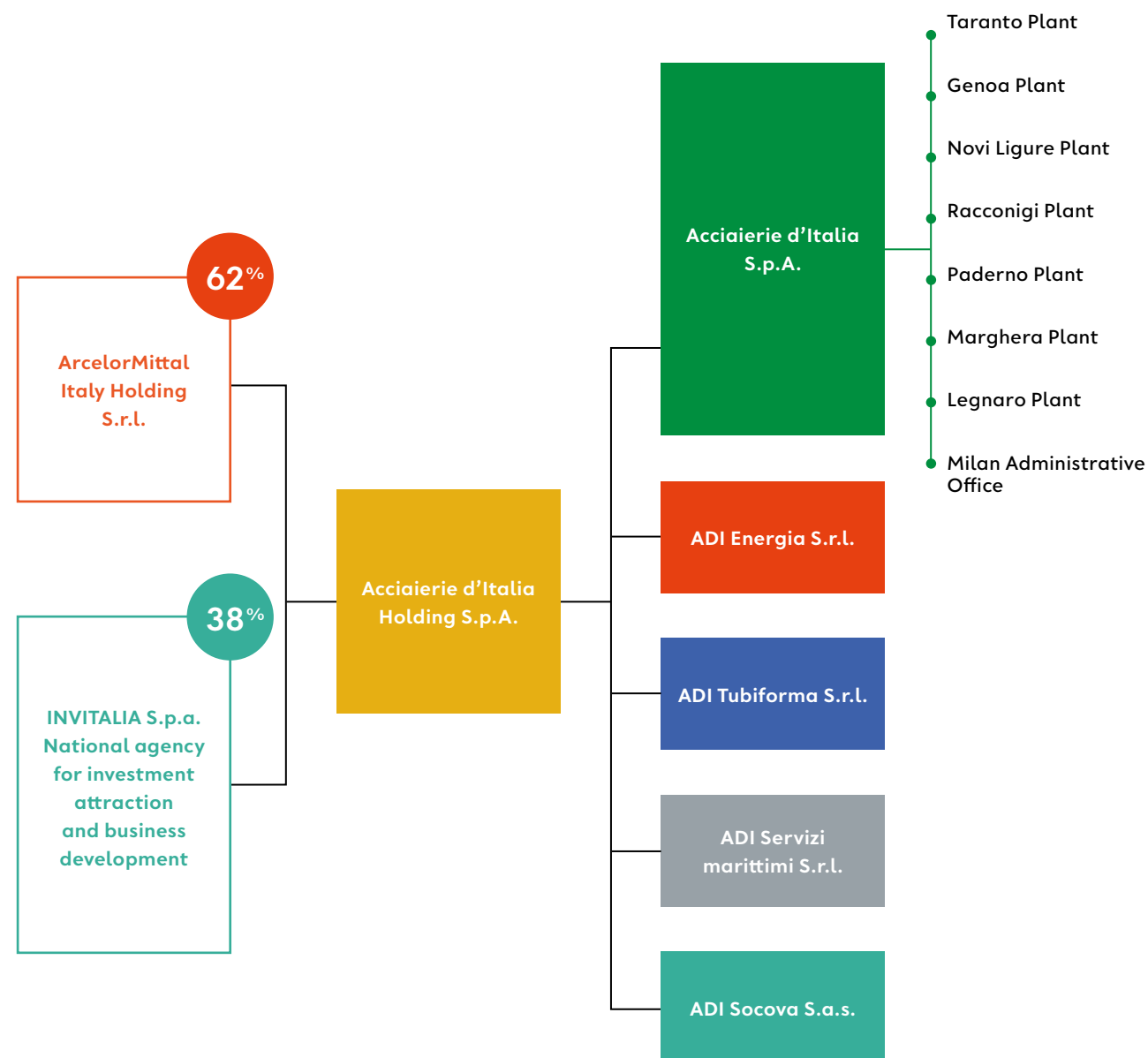
In 2018, the Group took over the management, under business lease, of the companies Ilva S.p.A. in A.S., Taranto Energia S.r.l. in A.S., Ilvaform S.p.A. in A.S., Ilva Servizi Marittimi S.p.A. in A.S., SOCOVA S.a.s. in A.S., all part of the Ilva Group under Extraordinary Administration.

Operating in a sector in the middle of major environmental and social challenges, it is of fundamental importance for the Group to adopt a responsible approach by integrating ESG (Environmental, Social and Governance) aspects into its medium and long-term strategy.

ADIH is working to make sustainability an essential component of its corporate identity to create an increasingly technological and sustainable future, focusing on innovation and respect for people, territories and the environment.

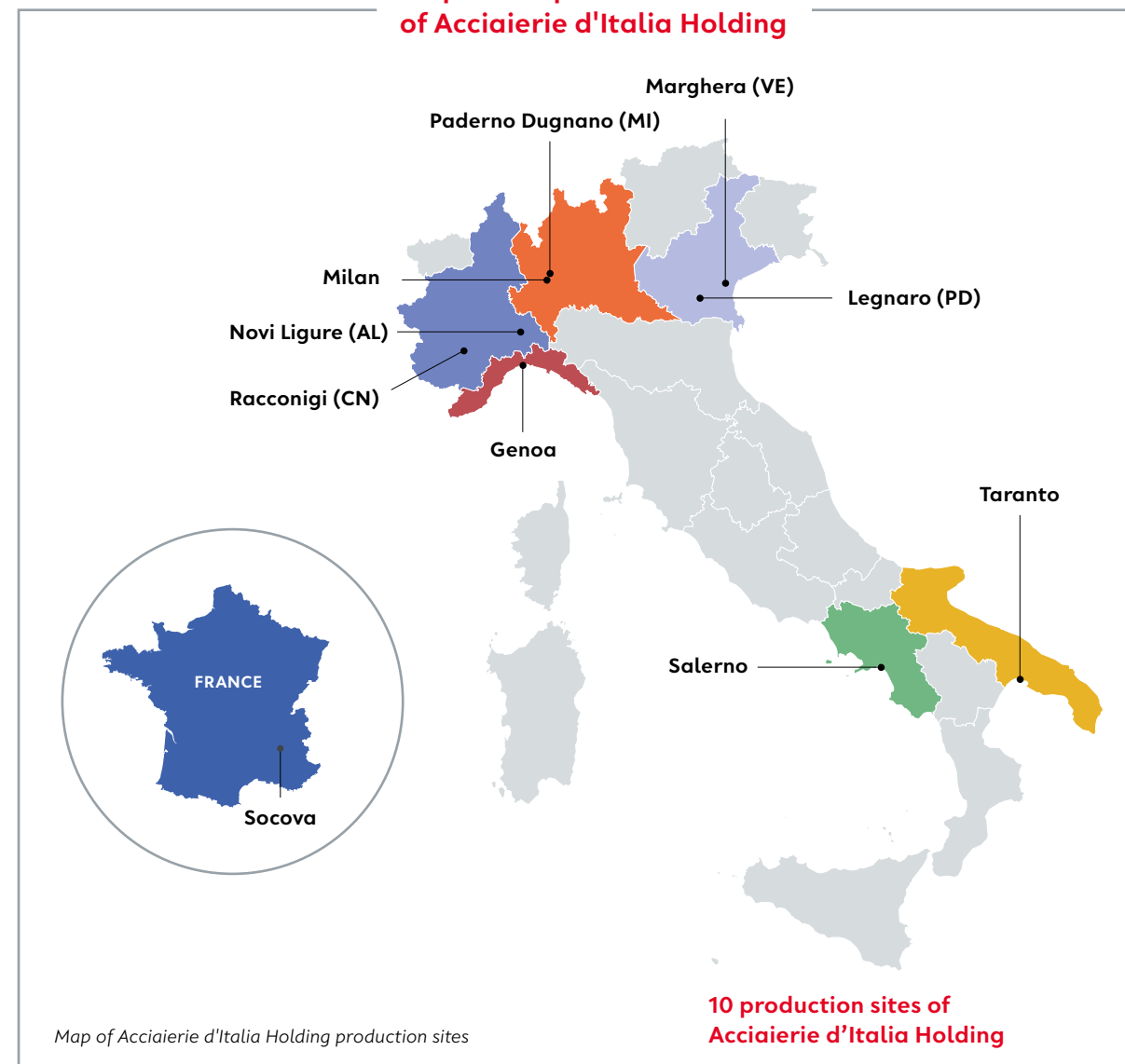
ADIH wants to implement appropriate measures and internal policies able to meet principles of **social** and **environmental accountability**, aimed at ensuring that the strategies, processes, products and all activities involved in the life of the company comply with the principles of **Sustainable Development**, while generating a positive impact on the environment and on society and, at the same time, being a tool for growth and profit for the company. For this reason, it has launched an irreversible process of deep transformation through **ecological** and **energy transition**, decarbonization, process and product innovation, in order to improve the environmental impact as well as strengthen its competitive advantage.

Below is a brief description of the companies of Acciaierie d'Italia Holding S.p.A.



Group chart of Acciaierie d'Italia Holding S.p.A.

Map of the production sites of Acciaierie d'Italia Holding



ADI S.p.A.

ADI (Acciaierie d'Italia S.p.A.) is one of the companies controlled by Adl Holding, and is the first Italian steel group in terms of covered surface and production capacity.

Its 3 main production sites (**Taranto, Genoa and Novi Ligure**) occupy a total area of more than 17 million m², of which 15 million m² at the Taranto plant, and employ more than 10,000 people.

ADI operates in **steelmaking, rolling, processing and trade of iron and steel products** necessary

for the leading sectors of Italian and European industry: from automotive to construction, from manufacturing to the food sector. The company ranks among the most important steel producers in Europe and is the only operator in Italy with an integrated cycle from the processing and transformation of coal and iron ore into products such as black, cold-rolled or galvanized coils, and pipes. The plants managed by ADI are those of Taranto, Genoa, Novi Ligure, Racconigi, Marghera, Paderno Dugnano and Legnaro, as further described below.

The **bridge of San Francesco di Paola** in Taranto, better known as the "**revolving bridge**" due to the possibility of being open at the passing-by of ships, is the structure that connects the island of Borgo Antico (Old Town) with the peninsula of Borgo Nuovo (New Town). Inaugurated on 22nd May 1887 by Admiral Ferdinando Acton, **the bridge stands over a navigable canal 375 meters long, 73 meters wide and 12 meters deep along its axis, which joins the Mar Grande ("Big Sea") to the Mar Piccolo ("Small Sea").**



Taranto Plant 2022

15,000,000 m²
Surface

8,178
Employees

22.63 TJ/kton*
Energy intensity

1,621 tonCO_{2eq}/kton*
Carbon intensity

160 kW_p
**Photovoltaic system
Installed power**

* tonnes of produced slabs

The Taranto plant

The Taranto steel plant is where the first transformation of iron ores into primary products takes place (primary area). The slabs produced here then feed all downstream facilities in the same Taranto plant (finishing area) and the other plants of Acciaierie d'Italia S.p.A.

In addition to supplying finished products for the domestic and foreign markets, the plant feeds large sectors of national industry, also through the plants of Genoa and Novi Ligure. Besides the primary area, the Taranto site has high-performance processing installations, including two hot rolling mills with the related finishing mills, a rolling mill for the production of plates, two galvanizing lines and 3 pipe mills for the production of medium and large diameter welded pipes.

The plant is provided with 4 piers for the handling of raw materials and the shipment of finished products and is equipped with 200 km of railway tracks, 50 km of roads and 90 km of conveyor belts. Its coastal position has also allowed the development of advanced industrial and logistic structures for the reception of raw materials and the shipment of products. The plant is equipped with numerous cutting-edge technologies. The management building is equipped with a rooftop photovoltaic system with a nominal power of 160 kW.

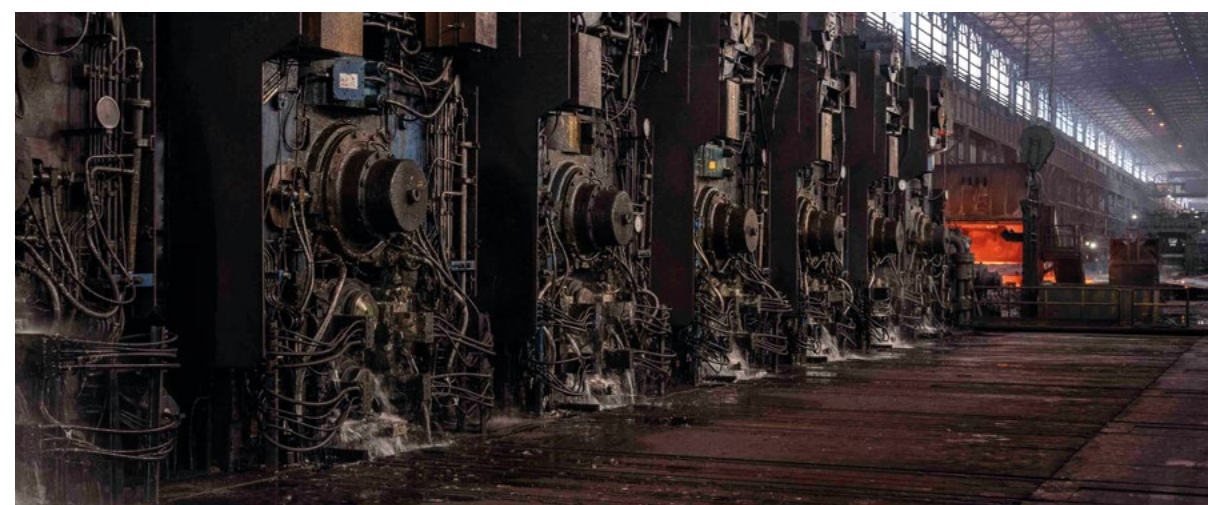


The iron and steel cycle is fully carried out in the Taranto plant where the physical transformation of raw materials into liquid iron takes place. This phase represents the first phase of the iron and steel cycle itself and precedes that of steelmaking. In this second phase the liquid iron is treated and refined in the oxygen converters of the two steel mills of the Apulian site which transform the liquid iron into steel. After the production of steel in the shape of slabs (solid steel ingots in the shape of a parallelepiped), there are several phases dedicated to the production of the finished product. In particular, the slabs are rolled into coils or heavy plates. Finally, the coils can be coated on the surface with a zinc layer or used to make pipes. The same goes for heavy plates which can be coated by a primer layer or sent to longitudinal pipe mills for the production of large diameter pipes for oil & gas applications. The following phases can be coating of the rolled products or production of other pipes.

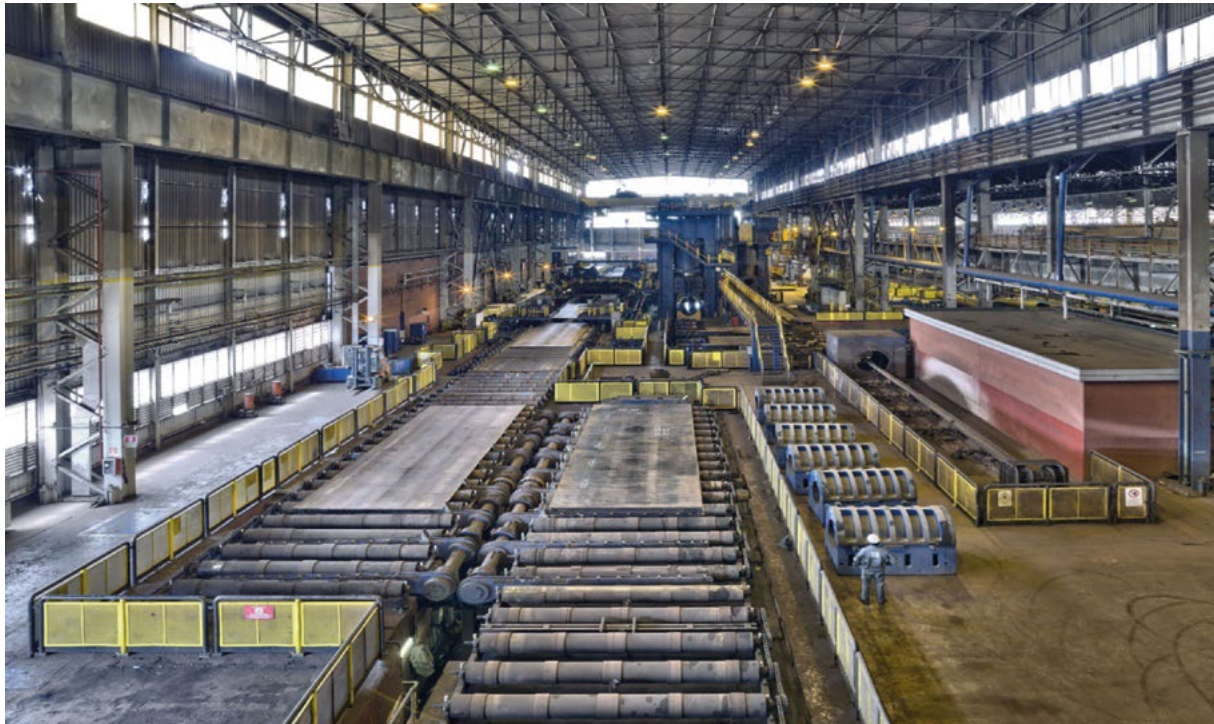


Panoramic view of the Taranto iron and steel plant

The plant covers an area of about 15 million m² and it is the biggest industrial complex for steel processing in Italy and Europe, not only in terms of size, but also in terms of complexity of the processes and technologies adopted. Taranto is of extreme strategic importance, and for this reason most efforts and investments are focused on Taranto with benefits in terms of process innovation, product innovation, reduction of environmental impact and increased safety at work.



Hot rolling mill for coils



Pipe mill no.2 – Taranto



G2 landfill inside the Taranto plant



Steel shop converter – Taranto



Covered raw materials stockyards

On 3 August 2020 the new Genova San Giorgio bridge was inaugurated. An **impressive, modern** and **sustainable infrastructure** completed in record time thanks to a construction site that never stopped and is always active. The new bridge is a majestic work with an **innovative design** inspired by **criteria of sustainability and engineering excellence**, perfectly integrated with the surrounding area: the bridge recalls the bow of a ship in harmony with the Polcevera Hill.

Credits by Fincantieri



Genoa Plant
2022

1,160,000 m²
Surface

980
Employees

3.38 TJ/kton*
Energy intensity

203 tonCO_{2eq}/kton*
Carbon intensity

25 kW_p
Photovoltaic system
Installed power

* tonnes of pickled coils

The Genoa plant

Designed at the end of the Second World War, the Genoa Cornigliano plant covers an area of 1,162,000 m² of which approximately 350,000 are roofed. It started integrated production in 1953.

It is the only site in Italy capable of producing tinplate and electrolytic chrome-plate, widely used in the food and packaging industries. The industrial complex located in Genoa has the function of both a logistic hub and a transformation centre. The finished and semi-finished products are received at the port docks managed by the Company.

Thanks to its strategic position, this site constitutes the natural link with the plants in Novi Ligure, Racconigi and Paderno Dugnano and, in general, with the markets of Northern Italy and Europe. The Genoa site has plants dedicated to various products, including a pickling line, two hot-dip galvanizing lines, and various finishing, inspection and cutting lines.



View of the Genoa plant



Genoa plant

Palazzo Dellepiane in Novi Ligure. The main core of the building **dates back to the 1730s** when the Genoese nobleman Giuseppe Maria Brignole-Sale (1703-1769) assigned its construction to the Imperia architect Gio. Antonio Ricca junior and Pietro Cantoni from Ticino.

The dimensions of the current building, almost double compared to the original ones, are instead due to the Negrotto Cambiaso, owners of the building from the end of the eighteenth century to the mid-nineteenth century, when it was sold to Mariano Dellepiane, an important textile industrialist and philanthropist from Novi to whom the surrounding square is dedicated. The visit to the main floor of the building is an opportunity to know the adventurous story of the beautiful Maria Caterina - daughter of Giuseppe Maria Brignole-Sale and Anna Balbi - who married Onorato III Prince of Monaco in 1757. An inventory of 1772 describes thoroughly the furnishings of the noble floor, the bedroom and the alcove where the princess stayed during the short holiday periods spent in Novi.



Novi Ligure Plant 2022

1,130,000 m²
Surface

625
Employees

3.42 TJ/kton*
Energy intensity

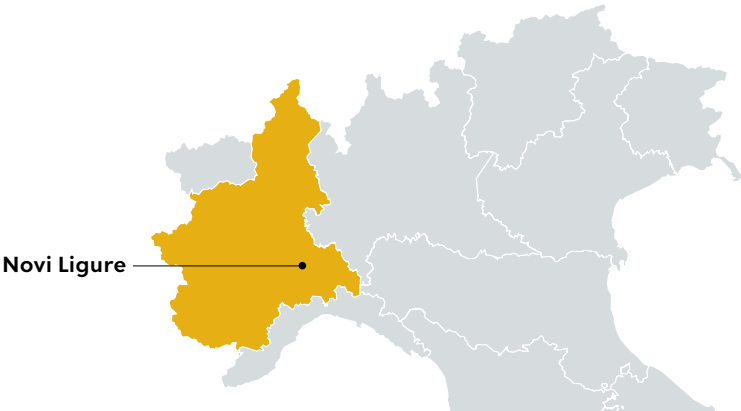
204 tonCO_{2eq}/kton*
Carbon intensity

* tonnes of pickled coils

The Novi Ligure plant

The plant in Novi Ligure was inaugurated in 1962 and, in the early 1990s, it was modernized and expanded to produce 2 million tonnes of cold-rolled and galvanized products per year. The surface area occupied by the plant is 1,129,886 m² (roofed area 203,930 m², waterproofed outdoor area 252,080 m²). It receives the semi-finished products (hot rolled coils) from the Taranto plant delivered through Genoa, both by rail and road transport.

The coils produced in this plant are used to make drums, components for household appliances, furniture pipes, enamelled sanitary equipment. Located in a strategic position near the most industrialized areas of the country, it also produces very high quality components for the automotive sector.



View of the Novi Ligure plant



CAPL – continuous annealing plant

The site has installations with large production capacity and efficiency, including: a pickling and cold rolling tandem mill for the production of cold rolled coils, both static and continuous annealing lines, hot-dip galvanizing, aluminizing and electro-galvanizing lines.



Finished products warehouse

The royal castle of Racconigi is located in Racconigi, in the province of Cuneo not far from Turin. During its almost thousand-year history it has undergone numerous changes and become the property of the Savoy since the second half of the fourteenth century. It was later the official residence of the Savoy-Carignano family and then elected location of the «Royal Holidays» of the royal family of the kings of Sardinia (and then of Italy) in the summer and autumn months. Having become a highly busy cultural centre and museum, the castle is part of the circuit of Savoy residences in Piedmont and since 1997 it has been part of the serial Savoy residences included in the list of UNESCO World Heritage Sites.



Racconigi Plant 2022

348,000 m²
Surface

101
Employees

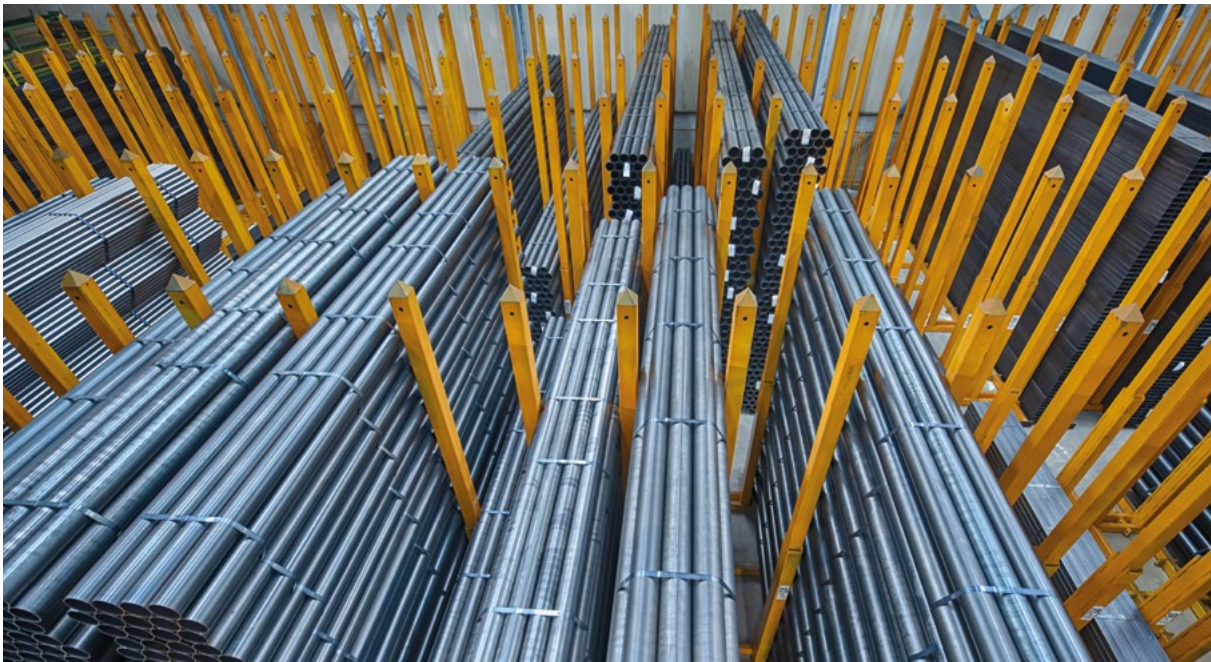
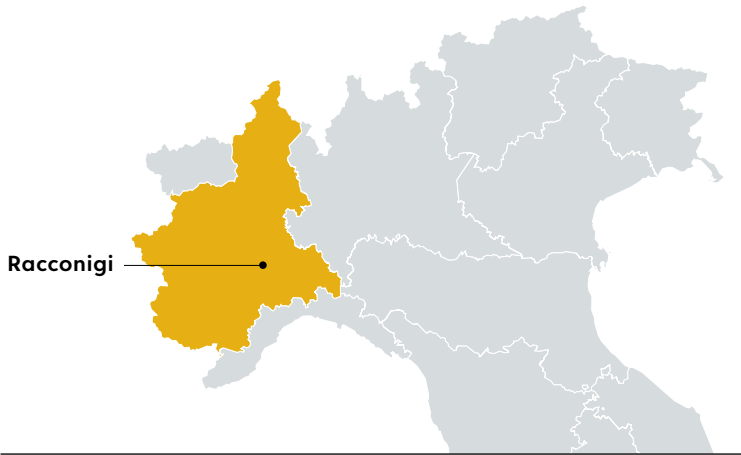
0.88 TJ/kton*
Energy intensity

55 tonCO_{2eq}/kton*
Carbon intensity

* tonnes of produced pipes

The Racconigi plant

The plant in Racconigi, Cuneo province, inaugurated in 1967, is historically one of the main players on the Italian market for steel profiles and hollow sections. The site has a surface of 347,970 m² of which 77,230 m² are buildings, with 101 employees in 2022. The plant is specialized in the production of cold-formed electro-welded hollow sections of different sizes, with a diameter from 20 to 219 mm, thickness from 1.5 to 8 mm, with circular, square, rectangular shape and special profiles. The main uses of hollow sections are in the metallic structure sector (windows and doors), in agriculture for the construction of greenhouses and in the construction sector. There are 7 profiling lines and 3 cutting lines.



Finished products warehouse

The process is carried out by transforming the low-alloy carbon steel coils through profiling. The coils with a black surface are supplied by the Taranto plant, while the galvanized and pickled coils are supplied by the Novi and Genoa plants (and a little quantity also from Taranto).



Finished product packaging station



HF ERW welding machine

Legnaro Plant 2022

10,000 m²
Surface

24
Employees

0.14 TJ/kton*
Energy intensity

8 tonCO_{2eq}/kton*
Carbon intensity

* tonnes of production

The Legnaro plant

The service centre of Legnaro (PD) was founded in the mid-1970s for the processing of steel plates and strips under the name S.I.L.C.A. (Italian Company for Coils and Steel Processing). In 2000 the Silca company became Ilva Spa Service Centre of Legnaro keeping the production unchanged. In recent years, the Legnaro site stands out both for its qualitative and operational capacity, according to both customers and owners, for efficiency and productivity, working in the household appliance, air conditioning, heating, small trading, automotive sector, etc. The Acciaierie d'Italia service centre in Legnaro is today a plant with a single shed of about 10,000 m² used for the transformation of flat, cold-rolled, pickled and coated steel products, and a building used for offices of about 900 m². Inside the shed there are four systems for cutting coils: three slitters and one leveler, one station for the production of wooden pallets for packing strips and sheets, and there is a weighing system at the entrance for vehicles with a capacity of 150 tonnes. There is also a laboratory for the necessary mechanical tests of the prepared material. The material is supplied by the Acciaierie d'Italia plants in Taranto, Novi Ligure and Genoa by truck, except for pickled coils which are transported by ship from Taranto to the Acciaierie d'Italia Port in Marghera, from which they reach the production units by truck.



Legnaro production line

Paderno Plant 2022

74,000 m²
Surface

32
Employees

0.20 TJ/kton*
Energy intensity

11 tonCO_{2eq}/kton*
Carbon intensity

596 kW_p
**Photovoltaic system
Installed power**

* tonnes of production

The Paderno Dugnano plant

The Paderno Dugnano (MI) plant located in the productive heart of Lombardy is a Service Centre inaugurated at the end of the 1960s, specialized in cutting to size of metal sheets and strips ready for final use. The Service Centre reached a production up to 200,000 tonnes per year of material for various market segments. The total area available is approximately 74,000 m², of which 36,000 m² are covered. The coils arrive at the plant by road transport from the company plants (Taranto, Novi Ligure and Genoa) and are transformed by the Service Centre into metal sheets and narrow strips, operating exclusively on the geometry of the shape, through longitudinal cutting (Slitter) and transversal cutting (Leveler) operations. The production essentially consists in pickled, cold and coated (galvanized and electrogalvanized) products. The thickness range that can be processed on the longitudinal cutting line (Slitter) is between 0.40 mm and 3 mm, while on the transversal cutting lines (Levelers) the thickness ranges between 0.50 and 12 mm. There is also a building used as company dormitory, for off-site staff. The Service Centre has a **photovoltaic system with a power of about 596 kW** which gives energy autonomy for about 50%.



Paderno production line



Plant building and photovoltaic system of 596 kW on the roof

Marghera Plant
2022

204,000 m²
Surface

51
Employees

0.02 TJ/kton*
Energy intensity

2 tonCO_{2eq}/kton*
Carbon intensity

* tonnes of production

The Marghera plant

The plant, located in Marghera (VE), was founded in 1920 on the initiative of Giuseppe Volpi and gave rise to one of the first production sites in Porto Marghera. The settlement was initially intended for the construction of ships and the production of steel castings, the processing of metal sheets and profiles, with slipways and mechanical workshops. After various corporate changes over the decades, since 1995 the Marghera site has essentially been used for the following activities: unloading from ship and storage, unloading from trucks and/or railway wagons and storage, loading on ship and shipping, loading onto trucks and/or o railway wagons and shipping; exceptionally, when necessary, activities are carried out to restore the packaging of the products passing by the warehouses.

Today Marghera is a strategic Logistic Hub located in the first industrial area of Marghera (VE) and covers a total area of 203,960 m² of which 55,309 m² roofed. For maritime activities a pier 456 meters long is used located in the North Canal of Porto Marghera where the ships dock and carry out the loading/unloading activities of the products/materials.

Among the equipment for loading/unloading products/materials on the pier, there are 4 retractable cranes in operation; 3 with hook capacity of 32 tonnes and 1 of 45/50 tonnes. Among the equipment for handling products/materials in the storage areas and warehouses, there are two 32 tonnes overhead cranes equipped with grippers and two 25 tonnes overhead cranes equipped with magnets and four 15 tonnes overhead cranes equipped with magnets.



Storage quay



Plates warehouse



Dock crane

Salerno is an Italian city of 127,320 inhabitants, one of the provinces of **Campania** and the second largest municipality in the region by number of inhabitants.

During the Middle Ages, under the Longobard domination, the city experienced one of its most important historical phases as the capital of the Principality of Salerno, an entity which gradually came to include a large part of southern Italy mainland. Salerno was also home to the Salerno Medical School, which was the first and most important medical institution in Europe at the beginning of the Middle Ages, and as such is considered a forerunner of modern universities. Since 1968 the city has been home to the University of Salerno, located since 1988 as a campus in the nearby municipalities of Fisciano and Baronissi. From February to August 1944 Salerno was the seat of the Italian government, hosting the executives Badoglio I, Badoglio II and Bonomi II, who resided in the Salone Dei Marmi and led to the "Salerno breakthrough" event as well as the subsequent reconquest of the Italian peninsula by the allies.



**ADI Tubiforma
2022**

73,000 m²
Surface

39
Employees

0.40 TJ/kton*
Energy intensity

28 tonCO_{2eq}/kton*
Carbon intensity

* tonnes of produced pipes

ADI Tubiforma S.r.l.

The company ADI Tubiforma S.r.l. has a plant in Salerno, like the Racconigi plant, specialized in the production of steel profiles and hollow sections. The site, with an area of 72,866 m² of which warehouses cover about 34,000 m², is a production and shipping centre for hollow steel sections of various sizes, with a diameter ranging from 20 mm to 152 mm, thickness from 1.2 mm to 5 mm, with square, round and rectangular profiles as well as special sections. The main uses are related to steel structures, agriculture (greenhouses), construction (temporary structures).



Salerno plant

**ADI Socova
2022**

90,000 m²
Surface

39
Employees

0.38 TJ/kton*
Energy intensity

6 tonCO_{2eq}/kton*
Carbon intensity

* tonnes of produced pipes

ADI Socova S.a.s.

The company ADI Socova S.a.s. has a plant in Sénas (France), like the factory in Racconigi and Salerno, specialized in the production of steel profiles and hollow sections. It serves as a production and shipping centre for steel products such as hollow steel sections of various sizes. The area of the production unit has a surface of approximately 90,000 m². The plant has a maximum production capacity of 100,000 tonnes/year of hollow steel profiles (tubular) with a diameter ranging from 25 to 152 mm. The main uses are related to steel structures, agriculture (greenhouses, stables) and construction (temporary structures).



Forming line



View of the plant

ADI Servizi
Marittimi 2022

13
Ships

221
Employees
(12 administrative staff
+ 209 maritime staff)

2.15 TJ/kmiles*Mton*
Energy intensity

157 tonCO_{2eq}/kmiles*Mton*
Carbon intensity

* tonnes of transported product

ADI Servizi Marittimi S.r.l.

The company ADI Servizi Marittimi S.r.l. (ADISM), with headquarters in Milan, deals with maritime transport within the Group and is completely integrated into the production cycle of the corporate plants. Leaving from the Taranto site, over the Tyrrhenian Sea, ADISM carries out the transport of semi-finished products or finished products for customers to the Genoa site, from which they then arrive at the Novi, Paderno and Racconigi sites by truck and train. Again, leaving from Taranto, but over the Adriatic Sea, ADISM transports the products to the ports of Ravenna, Marghera and from the latter, by road transport, the products reach the Legnaro site, mainly to supply final customers. Its fleet consists of 13 ships, including pushers, barges and one cargo vessel, called GEMMA, for the transport of iron ores.

Name	Type	Tonnage
GEMMA	Ore Carrier	151,915
URSA MAJOR	Pusher	1,855
URSA MINOR	Pusher	1,855
CORONA AUSTRALE	Pusher	1,573
CORONA BOREALE	Pusher	1,573
MEGREZ	Barge	18,136
MERAK	Barge	18,136
KOCHAB	Barge	18,136
POLARIS	Barge	18,136
VEGA I	Barge	9,573
SIRIO I	Barge	9,573
TAURI	Barge	9,573
CETI	Barge	9,573



MEGREZ barge

ADI Energia
2022

105,000 m²
Surface

96
Employees

1.52 MWh_{in}/MWh_{out}*
Energy intensity

1.1 tonCO_{2eq}/MWh_{out}*
Carbon intensity

* energy produced

ADI Energia S.r.l.

The ADI Energia S.r.l. (ADIE) power plant consists of the plants called CET 2 and CET 3, located within the plant of Acciaierie d'Italia company in Taranto, with an area of 105,341 m². The primary function of the plant is to use the iron and steel gases made available by the nearby plant and produce steam and electricity for the same iron and steel plant.

The supervision and management of the power plant is carried out from three control rooms, two for the CET2 plant and one for the CET3 plant, manned continuously. The CET2 plant has been in operation since 1973 while the CET3 plant has been in operation since 1996, with a total electrical power of 480 MW and 564 MW respectively.

The two electric power production plants located at the Taranto site, powered by the gases produced by the iron and steel making processes, represent a fundamental asset for the Group and provide almost all of the energy needed by the plant. In case of overproduction, the excess energy is fed into the national grid.

From a strategic point of view, they are of fundamental importance, both to guarantee the necessary energy and steam supply without interruptions, and to ensure a competitive cost of these energies.



CET2 thermoelectric power plant, CET3 behind

Production Process and main supplied sectors

There are essentially two processes to make steel: by the integrated cycle with the blast furnace (primary steel), and by the electric furnace. In the first case, where up to 30% of steel scrap can be used, the raw material is iron ore extracted from mines.

From steel made in this way, "flat" semi-finished products are mainly obtained: rolled products in the shape of coils for the construction of trains, vehicles, ships, household appliances, packaging and pipes. In the second case, instead, the raw material is 100% scrap and mainly "flat and long" semi-finished products are obtained such as rails, pipes, beams and rods for the building industry.

World steel production in 2022 was 1.8 billion tonnes (data source World Steel Association) of which 1.4 billion tonnes produced by Asia and

Oceania. After reaching the highest peak of world steel production in 2021 with over 1.9 billion tonnes, in 2022 there was a global recession by 4.3%. In particular, Europe had a recession by 10.5% compared to 2021, with a production of around 140 million tonnes¹.

Specifically, national steel production in 2022 was 21.6 million tonnes, down by 11.5% compared to 2021. The gap compared to the production volume of 2021 became wider from the half of 2022, due to lower demand and the sudden rise in energy costs. (Data source Federacciai). Taking product categories into consideration, in 2022 about 12 million tonnes of long steel were produced in Italy, down by 12% compared to the previous year, and 9.5 million tonnes of flat steel, down by 13.8%².

[Mton]	2020	2021	2022	Variation % (2020-2022)	Variation % (2021-2022)
Steel production in Italy	20,378	24,412	21,617	-6.1%	-11.5%

Table 1: steel production in Italy in million tonnes – data source Federacciai



MEROS® filters, a best available technology for Italian steel industry

1 Data source: World Steel Association.
2 Data source: Federacciai.

Acciaierie d'Italia Holding Group is one of the largest Italian industrial groups and one of the most important integrated-cycle steel producers at European level. The only integrated-cycle Italian plant that produces primary steel (directly from iron ore) is the Taranto production site.

The 2022 production figures for the various plants/production sites are shown below.

3,390,000 ton
2022 hot metal
production

545,000 ton
2022 production

590,000 ton
Processed in 2022

77,800 ton
Produced in Paderno
and Legnaro plant in 2022

nearly 120,000 ton
Hollow steel sections
shipped in 2022

Taranto Plant

The production of hot metal in 2022 amounted to 3.39 million tonnes. The production of raw slabs in 2022 was about 3.47 million tonnes. The production of hot rolled strips in 2022 was 2.83 million tonnes. The production of the plate mill in 2022 was about 261 thousand tonnes.

Genoa Plant

The production of the Genoa plant was of about 545 thousand tonnes produced by the pickling and cold rolling tandem mill, of which about 145 thousand tonnes pickled (for tinplate and direct use) and 400 thousand tonnes cold rolled, used to feed the two hot-dip galvanizing lines, for a production of 395 thousand tonnes of hot-dip galvanized products, and a total production of about 110 thousand tonnes between tinplate and chrome plate.

Novi Ligure Plant

The production of the Novi plant stands at a total level of about 590 thousand tonnes processed by the pickling and cold rolling tandem mill of which about 240 thousand tonnes rolled for uncoated (cold) products, and the remaining part sent to the coating lines for products divided into: about 280 thousand tonnes hot-dip galvanized, about 43 thousand tonnes aluminized and about 30 thousand tonnes of electro-galvanized material.

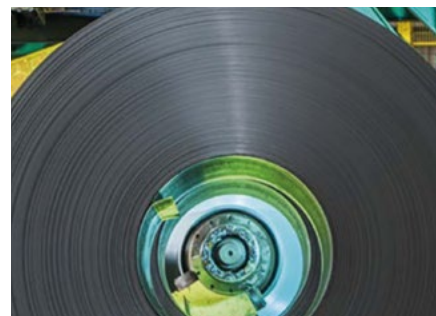
Service Centres

In 2022, from the Service Centres, 77,800 tonnes were produced, of which 55.2 thousand tonnes in Paderno (subdivided into 46.8% pickled, 19.2% cold rolled, 31.4% galvanized and 2.6% electrogalvanized products), and 22.6 thousand tonnes in Legnaro (subdivided into 52.5% galvanized, 24.5% pickled and 23% cold rolled products).

Pipe Mills

In 2022, 113 thousand tonnes of hollow steel sections of various sizes and shapes were shipped to customers and 6.8 thousand tonnes were delivered to other plants of the Group.

Here below is an overview of the Group main products with their related uses and destination sectors.



Black and pickled hot rolled coils

To meet the typical requirements of the applications for which they are intended, the black coils are made of carbon-manganese (alloyed and unalloyed) steel, whereas, for the most critical uses, micro-alloyed steels (HSLA) are used. Black coils can undergo a chemical removal process of iron oxide from the surface using hydrochloric acid (pickling) and be marketed as "pickled" with resistance ranges similar to those of black coils. Acciaierie d'Italia produces black hot-rolled coils in two production lines at the Taranto plant.

Main supplied sectors: Construction – Energy – Transport



Black non coated cold rolled coils

Hot-rolled coils not intended for sale are sent to cold processing plants where they are pickled, reduced in thickness by re-rolling and, subsequently, annealed and skinpassed to get the correct mechanical properties. Annealing can be either continuous or static, depending on the quality required. The steel grade to make cold rolled coils is also carbon-manganese (alloyed and unalloyed) steel. Cold rolled coils and strips are produced both in Novi Ligure and in Taranto.

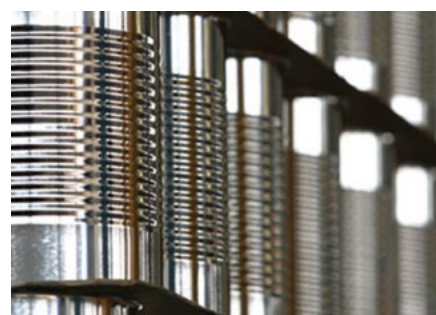
Main supplied sectors: Automotive – Household appliances



Hot dip galvanized and aluminized coils and strips

Generally, cold rolled coils, but also pickled ones, are sent to the hot coating lines to be first annealed and then coated, after a careful preparation of the surface. The coating, obtained continuously by hot immersion in a zinc bath or molten aluminum-silicon alloy, guarantees long-lasting protection, making the product usable in a very vast field of applications. Acciaierie d'Italia manages five production lines of hot-dip galvanized coils and strips. The Genoa plant specializes in the processing of thin thicknesses, whereas Novi Ligure in the automotive sector.

Main supplied sectors: Automotive – Household appliances – Construction

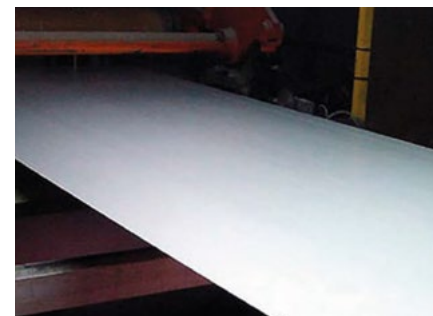


Tinsplate and chrome plated products

Tinsplate is the most common material for the manufacture of steel-based metallic containers used in the packaging and food industries. It consists of a thin layer of "mild" steel (with a low carbon content < 0.12%), called base steel, electrolytically coated with a thin layer of tin and preserved from atmospheric oxidation by a passivation treatment and a film of natural oil.

The chrome plate, on the other hand, is made up of a thin layer of low carbon steel, but electrolytically coated with chromium and chromium oxide.

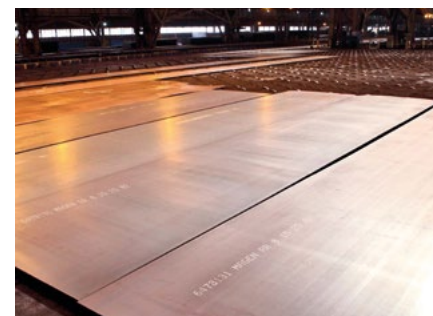
Main supplied sectors: Food – Packaging



Electrogalvanized coils and strips

Electrogalvanized coils are coated with zinc by electrochemical deposition on both surfaces of the coils, or on only one of them. The possibility of being able to coat only one face and to deposit lower coating thicknesses characterizes this product. The electro-galvanizing process allows to obtain a coating characterized by a great chemical purity and a perfect control of the zinc thickness.

Main supplied sectors: Automotive – Household appliances



Quarto heavy plates

Quarto heavy plates are made of carbon-manganese (unalloyed or low alloy) steel having a flat shape with a thickness much lower than the other two dimensions.

The thickness produced ranges from 8 mm to 150 mm; rolled slabs with thicknesses between 150 mm and 225 mm are also produced. The width ranges from 1000 mm to 4500 mm, whereas the length ranges from 4000 mm to 25000 mm. Smaller width or length can also be made by cutting.

Main supplied sectors: Energy – Construction – Transport



Large diameter welded pipes

Welded pipes are products made of carbon-manganese (unalloyed or low alloy) steel having a tubular shape, obtained by forming in the width direction of a flat product (plate or strip) and subsequent welding in the longitudinal direction.

Welding can take place with the submerged arc electric welding process (SAW), with filler material, or with the high frequency electric resistance welding process (HFW-ERW), without filler material.

Main supplied sectors: Construction – Energy – Transport



Cold formed steel hollow sections

The hollow sections made of unalloyed or low-alloy steel are produced from hot-rolled black coil, pickled coil or coated coil from Sendzimir hot-dip galvanizing, with re-metallization of the welding.

The hollow sections are available in the various classic shapes with a circular section (also grooved or "cloverleaf"), square section (also with rounded edges), rectangular and special sections (oval, semi-oval, elliptical). Acciaierie d'Italia also offers a very wide range of special section profiles for handrails, doors and windows for the national and international market.

Main supplied sectors: Steel structure – Construction – Agriculture



3 | Governance

3 | Governance

Acciaierie d'Italia Holding Group aims to improve its economic, social and environmental performance while creating value for its stakeholders, in compliance with the law, regulations and its own values.

To achieve these objectives, the Group is constantly committed to:

- carry out an approach based, within a context analysis, on the assessment of risks and opportunities at different levels of the organization;
- ensure and strengthen ethical behaviour in the workplace through the promotion and dissemination of the Code of Corporate Conduct to Company personnel and collaborators;
- disseminate the objectives contained in the Company Policy and the related implementation and improvement programs within the Company;
- ensure that personnel are informed of all commitments and are consciously and actively involved in the pursuit of objectives.

In order to protect its reputation and its know-how, guarantee compliance with the law, correct functioning and reliability of the company, Acciaierie d'Italia Holding S.p.A. has voluntarily adopted an ORGANIZATIONAL, MANAGEMENT AND CONTROL MODEL to prevent the crimes included in the Italian Legislative Decree 231/2001 (the so-called "Model 231"), with the aim of establishing the rules of

conduct for all employees as well as processes, areas, "sensitive" activities and related controls. Furthermore, to monitor the correct functioning and compliance with Model 231, Acciaierie d'Italia Holding S.p.A. has set up a Supervisory Body.

The following aspects are reported within Model 231:

- the description of the Company and its Internal Control and Risk Management System;
- the recipients, purposes and process for preparing and updating the document;
- the categories of crime applicable to the Company;
- the operating principles of the Supervisory Body;
- the obligations of communication and dissemination of the Model and training on it;
- "sensitive" activities for each category of crime envisaged by Legislative Decree no. 231/2001, or the activities which, following the Risk Self-Assessment activities carried out, were considered by the Company as potentially exposed to the risk of committing a crime;
- the general principles of behaviour and the essential control measures adopted for the purpose of preventing and/or mitigating the offences.

The Code of Conduct, which defines the values, expectations and mission of Acciaierie d'Italia Holding, is an integral and substantial part of the Model.

The governance and control bodies

The main governance and control bodies of the company are:

- the **Shareholders' Meeting**: it is in charge of passing resolutions, in ordinary and extraordinary session, on matters reserved to it by the Law or by the Articles of Association;
- the **Board of Directors (B.o.D.)**: it is the body that administers the Company and is vested with the broadest powers for its ordinary and extraordinary management.

The shareholders' meeting appoints the members of the Board of Directors designated by the shareholders according to the following criteria:

- two directors nominated by ArcelorMittal Italy Holding S.r.l.;
- two directors nominated by Invitalia;
- one director, who will act as Chief Executive Officer (once elected to this office by the B.o.D.) nominated by ArcelorMittal Italy

Holding S.r.l. provided that this nomination is approved by Invitalia;

- one director, who will act as Chairman of the B.o.D. (once elected to this office by the B.o.D.) nominated by Invitalia provided that this nomination is approved by ArcelorMittal Italy Holding S.r.l.

The Board of Directors, unless otherwise decided by the Shareholders' Meeting at the time of appointment, remains in office for three financial years and the members can be re-elected.

The B.o.D. elects the Chairman from among its members, unless the Shareholders' Meeting has already done so. The Chairman of the B.o.D. may designate a secretary, who may or may not be a member of the B.o.D., for appointment by the latter by majority of its members. The B.o.D. elects from among its members a Chief Executive Officer to whom it delegates powers for the management of the Company, within the limits permitted by law. The general representation of the Company, also in court, lies with the Chairman of the Board of Directors and, separately, with the Chief Executive Officer within the limits of the powers attributed to the latter.

The **Board of Directors** of Acciaierie d'Italia Holding S.p.A. it is made up of 6 members.

- the **Board of Statutory Auditors:** made up of standing auditors and alternate auditors. The shareholders' meeting appoints the members of the Board of Statutory Auditors according to the following criteria:
 - two standing auditors and one alternate auditor are nominated by ArcelorMittal Italy Holding S.r.l.;
 - a standing auditor (who will take on the charge of chairman) and an alternate auditor are nominated by Invitalia.

The chairman of the Board of Statutory Auditors is appointed by the Ordinary Shareholders' Meeting at the time of appointment of the Board itself. The statutory auditors remain in office for three financial years and can be re-elected.

- the **firm in charge of the accounting audit:** the accounting audit of the Company is executed by an auditing firm registered in the Register of Auditors at the Ministry of Economy and Finance. The auditing firm verifies that the financial statements are drawn up with clarity and that they truthfully and correctly represent the equity and financial situation.

Company's Supervisory Body, including support in overseeing the updating and adaptation of the Model and monitoring any corrective actions that may derive from it;

- supporting the Company's Supervisory Body in carrying out the audits planned or requested by it;
- providing support and advice on privacy to the Data Controller, Data Processors and Persons in Charge of processing, supervising the application of regulations and internal policies and procedures, as well as assisting data subjects and collaborating with the Guarantor for the protection of personal data and/or with the other authorities.

Internal Audit Department, directly reporting to the B.o.D., with the main following duties:

- checking corporate processes with particular regard to risk assessment and related control tools;
- evaluating the effectiveness and efficiency of the Internal Control and Risk Management System, also carrying out periodic or specific checks on the correct functioning of the Model and control protocols;
- carrying out internal investigation activities in case of any violations of the Model and of the Code of Conduct;
- performing an advisory and support role in internal controls for the benefit of the various organizational units also with regard to the corrective actions necessary for the removal of the anomalies found.

The Functions that play a significant role in the corporate governance of the Holding are:

- **Operations Management** of the Taranto Plant (COO);
- **Coordinator of the plants in Northern Italy** (Genoa, Novi, the Service Centres and Hollow Section Units), of the Salerno ADI Tubiforma plant and of the French Socova Hollow Section plant;
- **ADI Energia Company Management;**
- **Environment and Safety Department:** made up of experts in the field of major accident risks, occupational health and safety, and the environment. The Company has assigned specific powers on them aimed at ensuring compliance with the obligations and

requirements by the regulations depending on the reference matter.

- **Operations Support General Department**, whose main tasks are to coordinate procurement, investments, maintenance, industrial services, refractory materials and spare parts for all Group companies; coordinate the integrated management of the Supply Chain which includes production scheduling, shipment planning, the management of an integrated control tower and the management of logistics clusters (road, rail, sea); coordinate the Customer Service including activities from the entry of orders to the delivery of goods to our customers worldwide; coordinate the Marghera logistics site; coordinate the supervision activities of ADI Servizi Marittimi.
- **Human Resources Department (HR)**, whose main tasks are to: ensure support to Management in "personnel management"; ensure activities of selection, training and development of resources; coordinate the management of employee salaries and related obligations, as well as the preparation of the human resources budget; supervise the processes and activities related to the management of industrial relations; supervise the activities related to labor disputes; coordinate the activities for the development of organizational structures and internal procedures.
- **Group Quality, Research & Sustainable Development Department**, whose main tasks are to: direct and coordinate the Quality activities for all the Plants, in order to guarantee an integrated vision of the Quality of processes and products, from the arrival of raw materials to the shipment of finished products to customers; direct and coordinate the Research and Development activities of processes and products, direct the activities of the Taranto Research Centre and collaborate with Universities, external Research Centres and technical schools in the area; guide the company towards change, directing and coordinating reporting activities in a systemic, synergistic and interdisciplinary way with a view to sustainable development (e.g. preparation of sustainability reports, management of the web page and social channels dedicated to sustainability, definition of stakeholder engagement policies).

The organization structure and top management

In addition to the members of the governance and control bodies mentioned above, the Company has intercompany agreements with the competent structures of Acciaierie d'Italia S.p.A. for carrying out specific activities.

Compliance & Risk Management Department, with the following main duties:

- operating as a point of reference in non-compliance risk prevention programmes, supporting the Management in designing an adequate Internal Control and Risk Management System, expressing opinions and providing remarks and recommendations aimed at strengthening the Internal Control and Risk Management System and spreading a

culture of Compliance and Risk Management;

- ensuring knowledge, implementation and monitoring of the relevant regulations for the Company in collaboration with the competent corporate functions to which it provides assistance and support;
- providing, in collaboration with the competent functions, for the adoption, revision and updating of the protocols of the internal regulatory system necessary for the prevention of illegal or unfair corporate behaviours;
- supervising the reporting of critical issues and violations, in terms of Compliance, acting as a coordination point in the application of the Model, the Code of Conduct and internal protocols;
- carrying out activities in support of the

Acciaierie d'Italia S.p.A. provides services to Acciaierie d'Italia Holding S.p.A. in the following fields of activity:

- Administration, Finance and Control;
- Communication (through an external company);
- Legal and Corporate Affairs;
- Information Technology;
- Institutional relations and extraordinary transactions;
- Security;
- Relations with the Public Authorities.

The first-level organization chart of the Group functions is shown below:

Chief Executive Officer
Environment, Health and Safety Department
Operations Support General Department
COO Taranto
Northern Area Production Coordinator
Compliance Department
HR Department
Quality, Research & Sustainable Development Department
IT Department
Rentals and Raw Materials Purchasing Department
Legal Affairs Department
Energy Department
Sales Department
Administration and Finance Department
Strategy and Business development

Ethics and Compliance system: Group policies, codes and procedures

Acciaierie d'Italia Holding S.p.A. has always been committed to ensuring conditions of fairness and transparency in the conduct of corporate activities, promoting the adoption of high standards of compliance with laws and regulations.

The Company has an **Internal Control and Risk Management System** which involves each company subject for their own competences. The System is to be understood as the set of rules, procedures, organizational structures and tools aimed at allowing the identification, measurement,

management and monitoring of the main risks, as well as directing, managing and verifying the overall activities carried out, with the aim to:

- contribute to conducting business activities in line with the corporate objectives defined by the Board of Directors, encouraging to take informed decisions;
- ensure the safeguarding of corporate property, protecting corporate assets, personnel and the environment;
- contribute to ensuring the efficiency and

- effectiveness of corporate processes and the reliability of information provided to corporate bodies and the market;
- ensure compliance with laws and regulations and corporate procedures;
- manage the activities carried out at all levels in a sustainable, optimal and efficient way.

As regards the various governance tools in detail, the following should be noted.

The **Organization, Management and Control Model pursuant to Legislative Decree 8 June 2001 no. 231**, updated and approved in July 2022, was adopted by the Company with the aim of establishing, together with the other Policies of the Compliance System of Acciaierie d'Italia Holding, an integrated set of internal regulations which jointly pursue the objective of disseminating a corporate culture based on ethics, honesty, integrity and transparency.

Model 231, approved by the Board of Directors of the Company, dictates a set of rules of conduct that bind the subjects operating within the entity, who are required to respect a conduct based on the transparency of procedures and legality. Model 231 identifies the procedures, IT devices, forms, organizational system, etc. necessary to prevent the commission of those crimes specified in the aforementioned Decree 231 by the employees or officials of the legal person and to avoid that the latter is held to account together with the allegedly guilty natural person. The structure of the Model, from the point of view of the contents, adapts to the characteristics of the Company and to the production contexts in which it operates.

In compliance with the provisions of the law and the Model 231, a **Supervisory Body (SB)** was also appointed, made up of three members and appointed by the Board of Directors, with the task of monitoring, collecting and reporting to the Board of Directors any irregularity or violation of the Organizational Model 231 as well as violations of the Code of Business Conduct. The **Internal Audit Department** supports the SB in carrying out the planned and requested audit plan, and also carries out internal investigations in the event of violations of the Model 231 or the Code of Conduct.

Procedure for managing **Whistleblowing** reports, communicated to all employees. This procedure invites employees who are aware of potential or actual situations of violation to immediately report them - even anonymously - to the Company, through the various channels made available with the guarantee of being absolutely protected by maximum confidentiality and not to suffer retaliation of any kind. Personal data contained in reports are processed in accordance with applicable data protection laws, including the European General Data Protection Regulation ("GDPR").

Integral and essential parts of Model 231 are the Code of Business Conduct, the Anti-Corruption Code, the Antitrust Code, the Personal Data Protection Code and the procedure for managing conflicts of interest.

The **Code of Business Conduct**, updated and approved in July 2022, establishes the fundamental values and principles which must inspire the behaviour of its stakeholders, considering the observance and full respect of these values and principles as primary conditions for the achievement of corporate objectives. These fundamental values and principles are: Legality and Compliance with the Rules; Integrity; Professionalism; Non-discrimination; Fight against corruption; Corporate accountability; Occupational health and safety; Environmental Protection. Directors, executives, employees and in general all those who work in Italy and abroad on behalf of or in favour of the Company, or who maintain business relations with it ("Recipients"), each within the scope of their duties and responsibilities, are required to comply with the principles and provisions contained in the Code of Business Conduct.

Within the Code of Business Conduct there is a section concerning the **Management of Conflicts of Interest**. Acciaierie d'Italia Holding recognizes and respects the Recipients' right to participate in investments, deals or other activities different from those carried out in the interest of the Company, provided that these are activities permitted by law, compatible and in any case not in conflict with the obligations towards Acciaierie d'Italia Holding. In any case, the Recipients always protect and promote the interests of the Company by making decisions objectively and avoiding, as far

as possible, situations in which a conflict of interest may arise.

A conflict of interest occurs in all situations which could give rise to conduct or decisions, within the scope of one's work activity, capable of generating an immediate or deferred advantage, even of a non-economic kind, for a Recipient of the Code, for their family members or for other people with whom they have close personal or business relationships. Therefore, situations of conflict of interest, even potential, are those in which interests of a personal nature:

- may interfere with the person's ability to make decisions and/or carry out impartial assessments in the interest of Acciaierie d'Italia Holding;
- may be favoured by virtue of their position in the company, also considering the information to which they have access.

The **Anti-Corruption Code**, updated and approved in July 2022, provides an overview of the principles of conduct to prevent and fight the risk of corruption in the performance of normal activities. It is intended for all employees of the Company and for all those who work on behalf of and in the interest of the Company, including consultants, suppliers, subcontractors, partners and external distributors. In addition to receiving communication of these procedures, 100% of the workforce also receives training on anti-corruption. In the reporting period, no cases of corruption were found, confirming the full effectiveness of the adopted code and of the Model 231.

In the reporting period (three-year period 2020, 2021, 2022), there were no cases of corruption within the scope of observation.

The **Antitrust Code**, updated and approved in July 2022, illustrates behaviours that violate the principles of competition law, restating the importance, also from an ethical and social point of view, of conduct that complies with the rules of free competition and promoting fair competition, while respecting the interests of all stakeholders. The Company recognizes the importance of anti-corruption laws and repudiates all forms of corruption, undertaking to prevent any type of unlawful behaviour in carrying out its activities. In the reporting period, there were no cases of

anti-competitive behaviour, confirming the full effectiveness of the adopted code and the Model 231.

The **Code for the protection of personal data**, updated and approved in July 2022, is aimed at defining uniform, common and adequate standards and the technical, legal and organizational measures adopted by the Company to guarantee the protection of all Personal Data during their processing and managed under its own responsibility. Such Personal Data must be processed with caution, both when relating to directors, statutory auditors and attorneys and when relating to any other third party working on behalf of Acciaierie d'Italia Holding.

The **Conflict of Interest Management Procedure** defines the principles of conduct, roles and responsibilities in the management of situations of potential or actual conflict of interest. The term "conflict of interest" indicates a situation in which a secondary interest (of a family, economic or personal nature) interferes or could interfere with the ability of a Subject to make decisions in an impartial and objective way, or to fulfil their functions and responsibility (deriving from the law, from a contract or from rules of professional correctness), or in any case to act in compliance with the primary interest of the Company. The Procedure has the objective of defining a process for collecting reports of potential situations of conflict of interest and guaranteeing their management by adopting any preventive and/or mitigating measures for conflicts of interest declared in line with current legislation. Any conflict is promptly communicated to the interested parties according to the deadlines defined for each category to which they belong.

Energy Policy with which the Group declares its policy on energy issues by defining the commitments and objectives aimed at minimizing the energy impacts of company activities with a view to efficient and sustainable use of energy in all phases of the production cycle.

This objective cannot be achieved without the commitment of all the people, at all levels, who work in the Group, therefore Acciaierie d'Italia Holding undertakes to disseminate the principles and objectives of this policy, in a transparent, accurate and timely way in order to promote an energy culture within the company. Furthermore, ADI

has undertaken to adopt an Energy Management System (EMS) at the Taranto production site in line with the principles and requirements of the international standard ISO 50001:2018.

Health, Safety & Environment (HSE) policy with which the Group declares its policy on Environmental and Occupational Health and Safety issues by defining the objectives, guidelines and directives aimed at protecting the environment, preventing pollution and any form of crime on environmental matters, to protect the health and safety of workers and to prevent Major Accidents.

This policy aims to combine fundamental values such as the reduction of emission levels, the technical and technological updates of the systems, the search for more and more performing and sustainable materials, the reduction of accidents at work, the protection of the territory and people's health who live there with the primary objective of making all the Group's production sites increasingly sustainable and efficient from an environmental point of view and free from accidents and injuries at work. Furthermore, the Group has adopted **Environmental Management Systems** in line with the principles and requirements of the international standard ISO 14001:2015, **Occupational Health and Safety Management Systems** in compliance with the principles and requirements of the international standard ISO 45001:2018 as well as **Management Systems for the Prevention of Major Accidents** in compliance with the provisions of Legislative Decree 105/2015, where required.

Quality policy with which the Group defines, with reference to the context where it operates, the commitments and objectives to be pursued aimed at and focused on customer needs. This policy aims to:

- understand and meet customer needs and expectations by ensuring product compliance with technical specifications and quality requirements;
- ensure the involvement and commitment of the Company Management for the implementation of this policy and the effective application of the quality principles to obtain the expected results;
- establish precise performance indicators that must be analyzed to evaluate the obtained results and identify any causes of quantitative

non-compliance, ensuring a rapid and effective response;

- identify, evaluate and manage the risks that may have an impact on product conformity and service quality;
- measure the degree of customer satisfaction and act on the results emerging from the measurements.

These objectives cannot be achieved without the commitment and involvement of all the people, at all levels, who work within the Group. To achieve and maintain its objectives over time, the Group has adopted a **Quality Management System** at its production sites in line with the principles and requirements of the international standard ISO 9001:2015, developed to ensure an efficient commitment of resources and the maximum attention focused on customer needs.

The **Human Rights Policy** defines the Group's responsibility to respect and protect human rights by committing to take concrete actions to guarantee such respect, in line with applicable international standards, including:

- the Universal Declaration of Human Rights of the United Nations (UN) and two International Agreements which constitute the Charter of Human Rights;
- the Declaration of Fundamental Principles and Rights at Work of the International Labor Organization (ILO);
- the UN Global Compact Principles, the action programme promoted by the United Nations.

This policy is intended for all directors, executives, employees, consultants and all stakeholders who work for the Group.

The **Diversity and Inclusion Policy** defines the reference principles in order to guarantee respect for the values of diversity, inclusion and equal opportunities in the workplace through the adoption of an organization and corporate management aiming to guarantee protection of rights, freedom of persons and a work environment in which every single person can feel respected for their contribution and valued in their identity.

The Group operates in the belief that the diversity of its workforce is a wealth of perspectives and

points of view that favour the improvement of the Organization's performance, satisfying the needs and expectations of stakeholders with innovation and creativity. To this end, the Group aims to create an inclusive work environment, which recognizes the distinctive skills, experience, potential and perspectives of each employee, committing to attract and retain the best talents by supporting them in their participation in achieving corporate success.

The Group aims to guarantee the communication of policies and documents to employees through the

Communication Portal which, through a corporate intranet, allows the disclosure of corporate communications to all personnel. For the methods of communicating policies and documents to suppliers and customers, see the value chain chapter.

The Group is regularly subject to inspections by external monitoring bodies/authorities on various areas. By way of example, the data relating to the inspection reports received by the Taranto, Genoa and Novi Ligure plants from external **health and safety bodies** during the three-year period reported in this document is shown below.

	2020	2021	2022
Received reports	160	109	106
Requests of documents	131	89	74
Reports with prescriptions	21	15	17
Received prescriptions	45	34	20
Accomplished prescriptions	45	26	12
Open prescriptions	0	7	0
Non accomplished prescriptions	0	1*	0

Table 2: reports, document requests and prescriptions following inspections by external bodies/supervisory authorities on health and safety

(*) the resolution of the highlighted issue required longer time than that prescribed

Furthermore, in the three-year period 2020-2022, 13 **environmental** inspections³ were carried out at the Taranto plant by ISPRA and ARPA, 11 of which were ordinary and 2 of an extraordinary nature, relating to the 2020 financial year only.

Finally, the data relating to the inspections received on **HR issues** from the **National Labour Inspectorate** (INL) are reported below.

	2020	2021	2022
Number of investigations	5	6	3
Investigations with no outcomes	4	4	2
Provisions issued by INL	1	2	1

Table 3: inspections and provisions on HR issues received from INL

3 Inspections in 2020 were 5, whereas in 2021 and 2022 they were 4.

The inspections in 2022 also included the one by the National Labour Inspectorate relating to the Extraordinary Redundancy Fund (CIGS), which the Group resorted to in 2022, as reported in the paragraph "Human resources management and enhancement". As part of this investigation, the data, information, operating methods and procedures for the request/granting of holidays and

for the planning of work activities by the production departments were analyzed.

This investigation, which has not provided for any sanctions and/or measures, but only the request to adopt/formalize a procedure for requesting and granting holidays, is currently ongoing⁴.

The Management Systems

The possession and continuous updating of management system certifications in accordance with national and international regulations and standards is a guarantee for all stakeholders and demonstrates the commitment and technical and social accountability of Acciaierie d'Italia Holding in keeping improving its management systems and its production and control processes in compliance with mandatory or voluntary regulations.

All the production plants adopt a Quality Management System and a Workers' Health and Safety Management System in compliance with the requirements of the ISO 9001 (Quality) and ISO 45001 (Occupational Safety) standards respectively.

In addition, the Acciaierie d'Italia plants have further process and product certifications for specific sector and market needs and to meet the obligations required by standards and regulations, such as the CE marking of structural steel products, the approval for the production of steel grades for the manufacture of pressure vessels, the approval of structural steel grades for use in the shipbuilding sector in accordance with the regulations established by the main international naval registers.

In order for the adopted Management Systems to be and continue to be active and effective, the involvement of internal personnel at all levels is

essential. Indeed, the staff are properly informed and trained and have methods and systems at their disposal to be able to communicate and actively participate in continuous improvement.

The tools available to staff include:

- the Communication Portal which, via a corporate intranet, allows internal corporate communications to be disclosed to all personnel with regard to the environment, safety, training and the various management systems;
- departmental audits and safety meetings;
- the bulletin boards located in each department of the Plant;
- training and information activities, also addressed to contractors operating in the plant;
- the installation of televisions in strategic points of the plant (management entrance gates, conference room, employee canteens, training school, infirmary, etc.) continuously showing videos with general information on the company, and in particular on investments in the environment and safety, with the related results, in order to inform and raise awareness among personnel at all levels;
- discussion of environmental issues during the periodic meetings planned according to the Management Systems.

The Management Systems concern the Group or part of the Subsidiaries.

4 According to what was already reported in 2021 by the National Labor Inspectorate, through a specific note, the employer can autonomously transform the days of holidays requested by the workers, already scheduled and granted, into a CIG period, with the obligation to notify that to the workers. The omission of this prior communication is in any case not punishable as no sanction is foreseen on this regard by the legislation in force.

Certification SA 8000® – Corporate Social Accountability

On **23rd December 2022**, Acciaierie d'Italia obtained the certification of compliance with the SA 8000 Standard for the plants of Taranto, Genoa, Novi Ligure, Paderno Dugnano, Legnaro, Racconigi, Marghera and the Milan office.

The purpose of the SA8000 International Standard is to contribute to the respect of workers' human rights throughout the world by promoting ethical working conditions, labour rights, corporate social responsibility and social dialogue. The SA 8000 Certification is an accredited voluntary standard, which responds to the needs of organizations that are willing to stand out for their commitment to sustainable development, with particular attention to social issues.

The international standard SA8000:2014 provides transparent, measurable and verifiable requirements to implement and certify company performance in 9 essential areas.

The key elements of this Standard are based on national legislation, the Conventions of the International Labour Organization (ILO), the Universal Declaration of Human Rights and the UN Convention on the Rights of the Child. In general terms, it can be stated that the standard establishes the requirements for a management system to control social risks and health and safety aspects in the workplace, both in the organization and in its supply chain.

The objective of Acciaierie d'Italia is to supply products capable of satisfying the needs and expectations of Customers while respecting the environment, the rights of workers, including those of contractors, and of the communities hosting the production sites.

To this end, Acciaierie d'Italia pays the utmost attention not only to the variables that enhance the product made on a technical-quality and economic level, but also to the aspects of social impact of

the activities connected with the manufacture of the product itself and, in particular, to the workers' rights.

To give certainty and concreteness to the voluntary commitment undertaken by the Company and be able to disseminate with maximum transparency both the principles adopted and the results obtained to stakeholders, in order to start a new work culture, Acciaierie d'Italia deemed it necessary to obtain official recognition from the SAAS accredited RINA certification body which represents an international recognition of the commitment to manage the company in a socially responsible way.

The SA8000 certificate is **valid for three years**. Over the three-year period, RINA certification body will normally carry out six-monthly surveillance visits which aim to verify the progress of the system for maintaining compliance with the SA8000 standard.



In order to implement the principles set out in the Social Accountability Policy, Acciaierie d'Italia has implemented and maintains a Management System, compliant with the international standard SA8000, which consists of a set of activities and processes suitable for identifying and managing all critical issues in the field of corporate social accountability.

The pursuit and achievement of social accountability objectives are ensured through:

- the use of adequate resources to manage the development, maintenance and improvement of the Management System;
- the implementation of management procedures aimed at applying the CSAMS properly and favouring full compliance with the reference standard;
- the implementation of a monitoring system to keep the dangers and risks associated with the work activity under control, to guarantee compliance with the applicable legal provisions and the commitments undertaken for the continuous improvement of performances;
- dissemination within the company of the Social Accountability Policy and its objectives;
- training of the personnel concerned;
- the implementation of management procedures relating to the selection and monitoring of suppliers based on their ability to meet the requirements of the reference standard;
- the periodic review of the Management System and the Social Accountability Policy.

For the implementation and application of the Corporate Social Accountability Management System in compliance with the requirements of the SA8000 standard, a specific Working Group (**SPT: Social Performance Team**) has been established, made up of representatives of the company management, (Human Resources, Health and Safety, Purchasing and Management System) and the representatives of the SA8000 workers belonging to the trade unions.

During the implementation and certification process of the SA8000 Management System, the Workers' Representatives as well as Trade Union Representatives actively participated in the meetings of the Social Performance Team and in all the meetings held during the performance of the certification audits. Furthermore, it can be stated that the outcome of the interviews conducted by the Auditors of RINA Certification Body during the audits of the Workers' Representatives was positive and showed how the project was favourably received also in relation to the opportunities to improve the communication process between the company and the workers. Among the tasks of the SPT is to regularly carry out an assessment of the risks of potential non-compliance with the SA8000 Standard in the ways indicated below.

For the purpose of training and informing:

- on the principles of the International Standard SA8000;
- on the contents and application of the Social Accountability Management System;
- on the importance of compliance of one's actions with the Social Accountability Policy and the requirements of the SA 8000 Management System;
- on the possible consequences due to a deviation from what is established in the field of Social Accountability;

an extensive training activity was planned and carried out, with the support of the Training Centre, which involved all the professional roles, including the CEO and first reports.

SA8000
1,957
Number of
participants

SA8000
2,375
Training hours

Professional roles	Type of training
Blue collars + equivalent levels	Information brochure on the principles of the SA8000 standard
White collars	Recorded webinar on the principles of the SA8000 standard and on the Social Accountability Management System
Senior/Middle Managers	Face-to-face/distance training on the principles of the SA8000 standard and on the Social Accountability Management System
CEO + First reports (Top Management)	Face-to-face/distance training on the principles of the SA8000 standard and on the Social Accountability Management System
Roles directly involved in the SA8000 Management System Manager, Support, Human Resources, Health and Safety, Purchasing and Workers' Representatives	Face-to-face/distance training with issue of an attendance certificate

System and product certifications

In 2022 the Taranto plant obtained two new compliance certifications:

- compliance with the ISO 29001:2020 standard "Petroleum, petrochemical and natural gas industries - Sector specific quality management system - Requirements for product and service supply organizations";
- compliance with the ISO 50001:2018 standard "Energy management systems".

Below is a summary of the certifications obtained by Acciaierie d'Italia Group.

		Taranto	Milan	Genoa	Novi Ligure	Racconigi	Paderno Dugnano	Legnaro	Marghera	ADI Energia	Tubiforma	ADI Socova	ADISM
Quality	ISO 9001 Quality management system certification	●	●	●	●	●	●	●	●	●	●	●	
	IATF 16949 Quality management system certification for automotive sector	●			●								
	API Q1 Quality management system certification for petroleum and natural gas industries	●											
	ISO 29001 Quality management system certification for petroleum and natural gas industries	●											
Environment	ISO 14001 Environmental management system certification	●		●	●								
Health and Safety	ISO 45001 Occupational Health and Safety management system certification	●		●	●	●	●	●	●	●	●		●
	SMS Management system certification for safety and environmental protection on naval fleets												●
Energy	ISO 50001 Energy management system certification	●											
Social Accountability	SA8000 Social accountability certification	●	●	●	●	●	●	●	●				
Laboratory	UNI CEI EN ISO/IEC 17025 Certification for the expertise of testing and calibration laboratories	●											
(revision of the applicable standard)													

Table 4: system certifications held or renewed in 2022

During 2022, Acciaierie d'Italia was also subjected to numerous inspections by accredited certification bodies for the renewal and/or holding of the product certifications in its possession as listed below:

		Taranto	Racconigi	Genoa	Novi Ligure
DNV	Rules for Classification of Ships DNV Offshore Standards	●			
	Offshore Standards	●			
DNV GL	Rules for Classification Ships	●			
Lloyd's Register	Rules for the Manufacture, Testing and Certification of Materials	●			
RINA	RINA Rules for Testing and Certification of Marine Materials and Equipment	●			
	RINA Rules for the Approval of Manufacturers of Materials	●			
Bureau Veritas	Bureau Veritas Marine & Offshore NR320	●			
	Bureau Veritas Rules on Materials and Welding for the Classification of Marine Units	●			
ABS	ABS Materials & Welding Rules Part 2	●			
IGQ	EN 10025-1:2004	●		●	
	BS EN 10025-1:2004	●		●	
	EN 10219-1:2006	●	●		
TUV NORD	Pressure Equipment Directive 2014/68/EU AD2000 – MERKBLATT W0	●			
API	API Spec 5L	●			
Superior Council for Public Works	D.M. 17.01.2018 Technical standards for the construction sector	●		●	●

Table 5: product certifications held or renewed in 2022

Furthermore, in 2022 the Taranto plant obtained a new certification, in compliance with the "UK Conformity Assessed (UKCA)" marking, related to the BS EN 10025-1:2004 standard. This certification for the English market is the equivalent of the CE marking for the EU market.





4 | People

Human resources management and enhancement

In everybody's mind, the human capital of the company is the main source of competitive advantage among the various companies on the market. Therefore, in the current economic and market scenario, characterized by strong uncertainty and competitiveness, it becomes essential for all companies to select, evaluate and manage resources more and more effectively. Acciaierie d'Italia Holding S.p.A. selects and manages personnel based on criteria of merit, expertise and assessment of individual skills.

The Group considers the skills of personnel at all levels as fundamental for operational excellence, by promoting an **intrinsic cooperation** originating among professionals who collaborate to achieve common and shared objectives, an **extended communication** to all stakeholders and **shared knowledge** of priorities and objectives in a context of mutual respect and trust.

ADIH recognizes the human and professional contribution of its resources which represent a fundamental requirement for the success of the company. For this reason it is committed to guarantee its resources suitable development and training projects for their enhancement, in the belief that the development and updating of individual and collective professional skills are crucial for the optimization and innovation of production activities, for the dissemination of ethical values and for the strengthening of a common corporate identity.

Human resources

In 2022, the employees of the Acciaierie d'Italia Group numbered 10,544, in line with the two previous years. Most of the workforce is made up of men; as a consequence of the reference sector, women are, in fact, approximately **1.51%** of the total workforce (an increase compared to the previous year).

Gender	2020	2021	2022
Female	153	148	159
Male	10,431	10,393	10,385
Holding total	10,584	10,541	10,544

Table 6: numerical breakdown and percentage of employees by gender – ADIH

The breakdown of the workforce by gender in relation to the company/production site highlights the concentration of the workforce at the plants in Genoa, Taranto and Novi Ligure, as shown in the following table.

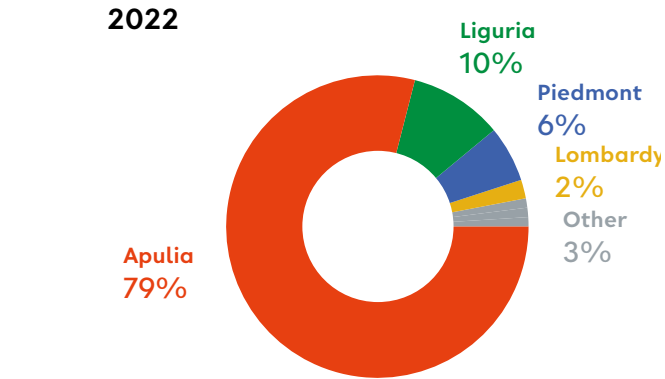
COMPANY	PRODUCTION SITE	GENDER	2020	2021	2022
ADI S.p.A.	ADI Genoa	Female	18	17	18
		Male	978	959	962
			996	976	980
	ADI Legnaro	Female	3	3	3
		Male	25	21	21
			28	24	24
	ADI Marghera	Female	0	0	0
		Male	52	51	51
			52	51	51
	ADI Milan	Female	59	61	60
		Male	74	86	98
			133	147	158
	ADI Novi Ligure	Female	12	12	14
		Male	643	628	611
			655	640	625
	ADI Paderno	Female	0	0	0
		Male	28	26	32
			28	26	32
	ADI Racconigi	Female	4	3	3
		Male	114	107	98
			118	110	101
	ADI Taranto	Female	47	43	52
		Male	8,132	8,122	8,126
			8,179	8,165	8,178
			10,189	10,139	10,149
ADI Servizi Marittimi S.r.l.		Female	4	3	1
		Male	216	227	220
			220	230	221
ADI Energia S.r.l.		Female	3	3	3
		Male	96	94	93
			99	97	96
ADI Socova S.a.s.		Female	3	3	5
		Male	36	35	34
			39	38	39
ADI Tubiforma S.r.l.		Female	0	0	0
		Male	37	37	39
			37	37	39
Holding total			10,584	10,541	10,544

Table 7: breakdown of employees by company/production site and gender – ADIH

As can be seen from the data shown in the table below, most of the employees are in the Apulia Region (about 80% of the company population). The remaining part is mainly divided between the Liguria Region (about 10%) and the Piedmont Region (6.5%).

REGION	2020	2021	2022
Apulia	8,320	8,314	8,328
Liguria	1,074	1,044	1,041
Piedmont	706	695	678
Lombardy	179	183	189
Veneto	82	78	78
Campania	66	67	64
Basilicata	40	39	39
Calabria	35	40	35
Sicily	14	11	16
Lazio	5	5	7
Sardinia	5	4	4
Tuscany	5	9	6
Emilia-Romagna	4	2	4
Umbria	3	4	7
Friuli-Venezia Giulia	2	2	2
Abruzzo	2	3	1
Marche	0	2	1
Molise	0	0	1
Abroad	42	39	43
Holding total	10,584	10,541	10,544

Table 8: breakdown of group employees by region of residence – ADIH



Graph 1: percentage breakdown of group employees by region in 2022 – ADIH

Based on the breakdown of employees by type of contract and by type of employment, it can be seen that **97.7%** of employees have a **permanent contract** with a **full-time** job, whereas the remaining fixed-term contracts are used for specific projects or for consultancy activities addressed to retired personnel with proven experience. Furthermore, all personnel hired by the Group are covered by a national collective labour agreement (CCNL).

The breakdown of employees by **type of contract/employment** and **gender** highlights that part-time work is used almost exclusively by the female gender for a percentage equal to 10% of employees.

CONTRACT	JOB	GENDER	2020	2021	2022
Fixed term	Full time	Female	1	0	5
		Male	184	213	214
			185	213	219
	Part time	Female	2	2	3
		Male	1	0	1
			3	2	4
		188	215	223	
Permanent term	Full time	Female	136	135	137
		Male	10,245	10,179	10,168
			10,381	10,314	10,305
	Part time	Female	14	11	14
		Male	1	1	2
			15	12	16
		10,396	10,326	10,321	
Holding total			10,584	10,541	10,544

Table 9: breakdown of the workforce by contract/type of job and gender – ADIH

Regardless of the type of contract, the female gender uses the form of part-time job more than men: 17 women out of 159 workers (10.7%) against 3 men out of 10,385 workers.

GENDER	JOB	WORKERS
Male	Full time	10,382 99.97%
	Part time	3 0.03%
Holding total		10,385

Table 10: 2022 - male workers by type of employment – ADIH

GENDER	JOB	WORKERS
Female	Full time	142 89.3%
	Part time	17 10.7%
Holding total		159

Table 11: 2022 - female workers by type of employment – ADIH

The breakdown by **company/production site** shows that, among personnel hired with **permanent contract**, part-time work is mainly used at the Milan and Taranto plants:

CONTRACT	COMPANY	PRODUCTION SITE	2020	2021	2022
Full time	ADI Energia S.r.l.		98	96	96
	ADI Servizi Marittimi S.r.l.		40	32	27
	ADI Socova S.a.s.		38	36	38
	ADI S.p.a.	ADI Genoa	992	973	970
		ADI Legnaro	28	24	24
		ADI Marghera	52	51	51
		ADI Milan	125	140	145
		ADI Novi Ligure	653	637	621
		ADI Paderno	28	26	30
		ADI Racconigi	118	109	100
		ADI Taranto	8,172	8,154	8,164
			10,168	10,114	10,105
	ADI Tubiforma S.r.l.		37	36	39
			10,381	10,314	10,305
Part time	ADI Energia S.r.l.		1	1	0
	ADI Servizi Marittimi S.r.l.		0	0	0
	ADI Socova S.a.s.		0	0	0
	ADI S.p.a.	ADI Genoa	3	3	2
		ADI Legnaro	0	0	0
		ADI Marghera	0	0	0
		ADI Milan	7	4	8
		ADI Novi Ligure	1	1	1
		ADI Paderno	0	0	0
		ADI Racconigi	0	0	0
		ADI Taranto	3	3	5
			14	11	16
	ADI Tubiforma S.r.l.		0	0	0
			15	12	16
Holding total		10,396	10,326	10,321	

Table 12: breakdown of permanent workers by contract type and company/production site - ADIH

The breakdown of the same information by **company/production site** in relation to employees hired with **fixed-term** contracts allows us to highlight the use of part-time work only at ADI Socova, Taranto and Milan:

CONTRACT	COMPANY	PRODUCTION SITE	2020	2021	2022
Full time	ADI Servizi Marittimi S.r.l.		180	198	194
	ADI Socova S.a.s.		0	1	0
	ADI S.p.a.	Taranto	3	7	7
		Racconigi	0	1	1
		Paderno	0	0	2
		Novi Ligure	1	2	3
		Milan	0	3	4
		Genoa	1	0	8
			5	13	25
	ADI Tubiforma S.r.l.		0	1	0
			185	213	219
Part time	ADI Socova S.a.s.		1	1	1
	ADI S.p.a.	Taranto	1	1	2
		Racconigi	0	0	0
		Paderno	0	0	0
		Novi Ligure	0	0	0
		Milan	1	0	1
		Genoa	0	0	0
			2	1	3
			3	2	4
	Holding total		188	215	223

Table 13: breakdown of fixed-term workers by type of contract and company/production site - ADIH

As regards people not subject to the types of contract considered so far, having atypical contracts and qualified as collaborators, temporary workers and interns, small numbers are reported for the entire Group during the observed period:

QUALIFICATION	2020	2021	2022
Collaborator	5	23	22
Temporary worker	2	16	12
Intern	0	2	0
Holding total	7	41	34

Table 14: breakdown of workers with atypical contracts - ADIH

Using **educational qualifications** and **gender** as selection criteria, with reference to a category of workers covered by the CCNL, it can be observed that as of 2022, 43% of women in the workforce hold a degree, whereas the male gender for which there is a percentage of graduates equal to 4%.

GENDER	QUALIFICATION	2020	2021	2022
Female	High school diploma	61	57	63
	Bachelor's degree	8	8	11
	Master's degree	69	69	69
	Primary School certificate ⁵	1	1	1
	Middle school certificate ⁶	10	9	10
	Professional qualification	4	4	5
		153	148	159
Male	High school diploma	4,909	4,877	4,845
	Bachelor's degree	64	66	65
	Master's degree	354	366	418
	Primary School certificate	156	155	150
	Middle school certificate	4,492	4,476	4,453
	Professional qualification	456	453	454
		10,431	10,393	10,385
Holding total		10,584	10,541	10,544

Table 15: breakdown of the workforce by gender and educational level - ADIH

Between 2022 and 2021 there was an increase of 12% in graduate personnel linked to Research and Development projects, the establishment of the Technical Academy and specific additions to the Operations sector, with a view to a more modern and functional organizational structure prepared for new transition policies.

Regarding the breakdown of workers by occupational category:

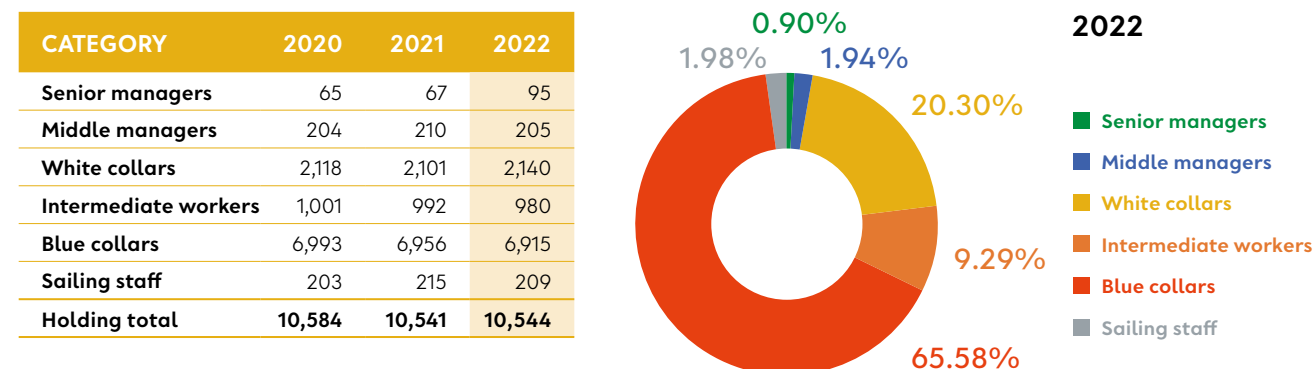


Table 16: number and percentage distribution of the professional categories - ADIH

In 2022, the blue-collars were **66%** of the workforce, similarly to the previous years. The trend in the occupational figures in the three-year period 2020-2022 does not show significant changes, with the exception of the managers' category which saw an increase by **42%** in 2022, confirming an organizational model undergoing strong change, characterized by generational turnover, selection, recruiting and development processes, to support a recovery process that requires a high professional level of management.

⁵ The primary school certificate was repealed by Legislative Decree no. 59/2004.

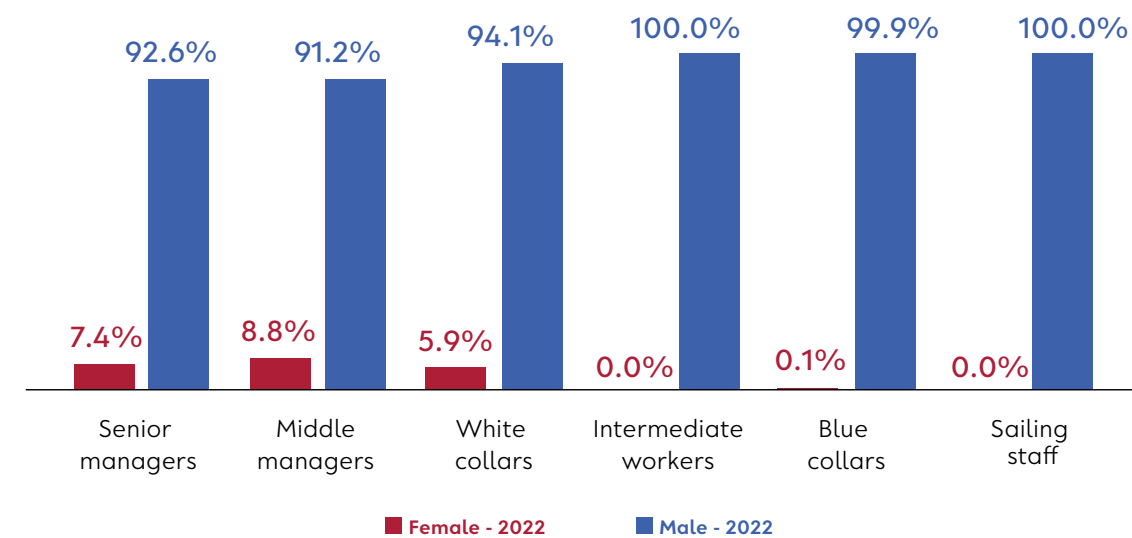
⁶ Final diploma from the first cycle of mandatory education (Lower Secondary School).

The breakdown by qualification and gender highlights that most of female employees work in the managing area.

GENDER	CATEGORY	2020	2021	2022
Female	Senior managers	7	3	7
	Middle managers	18	19	18
	White collars	120	119	127
	Intermediate workers	0	0	0
	Blue collars	7	7	7
	Sailing staff	1	0	0
		153	148	159
Male	Senior managers	58	64	88
	Middle managers	186	191	187
	White collars	1,998	1,982	2,013
	Intermediate workers	1,001	992	980
	Blue collars	6,986	6,949	6,908
	Sailing staff	202	215	209
		10,431	10,393	10,385
Holding total		10,584	10,541	10,544

Table 17: breakdown of the workforce by category and gender – ADIH

The breakdown by gender within the occupational category shows a male prevalence.

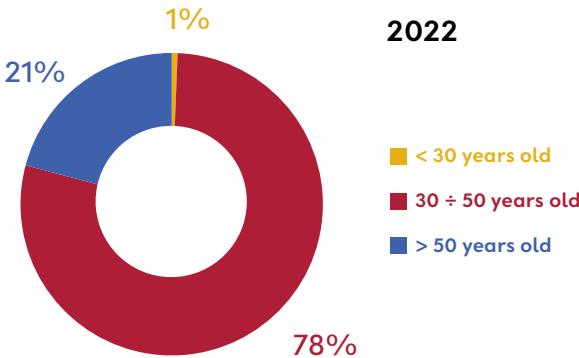


Graph 2: percentage by gender within the occupational category – ADIH

By identifying three age groups, with 30 and 50 years old as limit values, during the reporting period we can see a decrease by 6% in the middle group (30 ÷ 50 years old) and an increase over 50 years old, from 15% to 21%.

AGE	2020	2021	2022
< 30 years old	1%	1%	1%
30 ÷ 50 years old	84%	81%	78%
> 50 years old	15%	18%	21%

Table 18: breakdown of the workforce by age – ADIH



With a focus of data within the occupational category we can see as follows:

CATEGORY	AGE	2020	2021	2022
Senior managers	< 30 years old	0%	0%	0%
	30 ÷ 50 years old	46%	40%	42%
	> 50 years old	54%	60%	58%
Middle managers	< 30 years old	0%	0%	0%
	30 ÷ 50 years old	56%	55%	54%
	> 50 years old	44%	45%	46%
White collars	< 30 years of age	1%	2%	3%
	30 ÷ 50 years old	79%	76%	72%
	> 50 years old	20%	22%	25%
Intermediate workers	< 30 years old	0%	0%	0%
	30 ÷ 50 years old	84%	80%	75%
	> 50 years old	16%	20%	25%
Blue collars	< 30 years old	0%	0%	0%
	30 ÷ 50 years old	88%	86%	82%
	> 50 years old	12%	14%	18%
Sailing staff	< 30 years old	14%	13%	14%
	30 ÷ 50 years old	42%	44%	44%
	> 50 years old	44%	43%	42%

Table 19: breakdown of occupational categories by age – ADIH

Significant variations can be noted for the categories of white collars, intermediate workers and blue collars, where the number of 30 ÷ 50 years old employees has decreased, whereas that of workers over 50 years old has increased. This aspect has mainly affected the male gender, while the female one has a constant value in the reporting period, with the sole exception of the group 30 ÷ 50 years old relating to the middle managers, which shows a growth.

Professional seniority, required by the specific type of functions, increases as the professional category increases. The managerial class tends to be characterized by a distribution that sees the age group over 50 as the most numerous. The middle managers are mainly concentrated in the age group 30 ÷ 50.

Considering the breakdown by gender, the following distribution in numbers is obtained:

CATEGORY	GENDER	AGE	2020	2021	2022
Senior managers	Female	< 30 years of age	0	0	0
		30 ÷ 50 years of age	4	1	4
		> 50 years of age	3	2	3
			7	3	7
	Male	< 30 years of age	0	0	0
		30 ÷ 50 years of age	26	26	36
		> 50 years of age	32	38	52
			58	64	88
		65	67	95	
Middle managers	Female	< 30 years of age	0	0	0
		30 ÷ 50 years of age	10	11	12
		> 50 years of age	8	8	6
			18	19	18
	Male	< 30 years of age	0	0	0
		30 ÷ 50 years of age	104	105	99
		> 50 years of age	82	86	88
			186	191	187
		204	210	205	
White collars	Female	< 30 years of age	13	14	15
		30 ÷ 50 years of age	71	73	78
		> 50 years of age	36	32	34
			120	119	127
	Male	< 30 years of age	15	21	45
		30 ÷ 50 years of age	1,597	1,533	1,466
		> 50 years of age	386	428	502
			1,998	1,982	2,013
		2,118	2,101	2,140	
Intermediate collars	Female	< 30 years of age	0	0	0
		30 ÷ 50 years of age	0	0	0
		> 50 years of age	0	0	0
			0	0	0
	Male	< 30 years of age	0	0	0
		30 ÷ 50 years of age	836	791	736
		> 50 years of age	165	201	244
			1,001	992	980
		1,001	992	980	
Blue collars	Female	< 30 years of age	0	0	0
		30 ÷ 50 years of age	3	3	3
		> 50 years of age	4	4	4
			7	7	7
	Male	< 30 years of age	24	8	5
		30 ÷ 50 years of age	6,134	5,950	5,682
		> 50 years of age	828	991	1,221
			6,986	6,949	6,908
		6,993	6,956	6,915	
Sailing staff	Female	< 30 years of age	1	0	0
		30 ÷ 50 years of age	0	0	0
		> 50 years of age	0	0	0
			1	0	0
	Male	< 30 years of age	28	29	29
		30 ÷ 50 years of age	85	94	92
		> 50 years of age	89	92	88
			202	215	209
		203	215	209	
Holding total		10,584	10,541	10,544	

Table 20: breakdown of the workforce by age, gender and professional category – ADIH

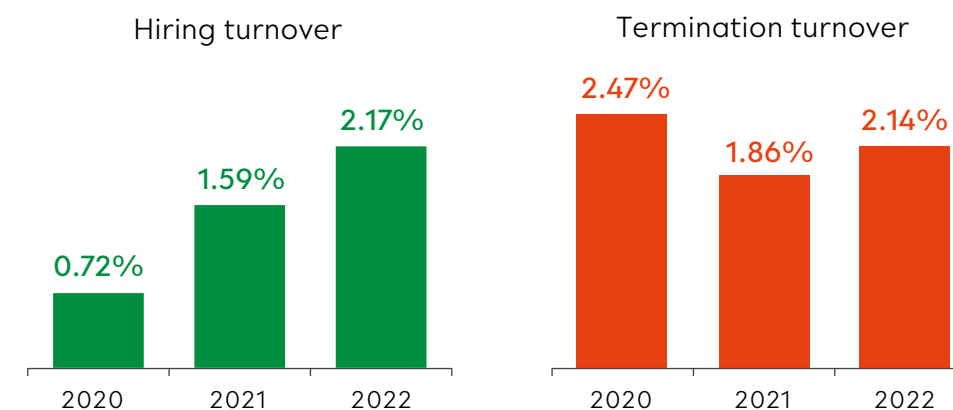
Turnover

The term **turnover** or “personnel turnover” means the direct or indirect flow of personnel coming into or going out of the company. For the incoming one, the **hiring turnover** rate is reported, i.e. the number of people hired in the current year compared to the value of the workforce of the previous year. For the outgoing one, the **termination turnover** rate is considered, i.e. the number of terminations in the current year compared to the value of the workforce in the previous year.

With regard to the entire group, in the reporting period, there is an increase in the hiring rate which goes from 0.72% in 2020 to 2.17% in 2022. Details by gender are as follows:

HIRING TURNOVER				TERMINATION TURNOVER			
	Gender	Female	Male	tot	Female	Male	tot
2020	< 30 years old	1	6	7	8	19	27
	30 ÷ 50 years old	7	34	41	22	122	144
	> 50 years old	3	27	30	13	82	95
	tot	11	67	78	43	223	266
	workforce on 31/12/2019	184	10,592	10,776	184	10,592	10,776
	Holding turnover rate	5.98%	0.63%	0.72%	23.37%	2.11%	2.47%
2021	< 30 years old	9	23	32	1	7	8
	30 ÷ 50 years old	18	73	91	16	90	106
	> 50 years old	1	44	45	8	75	83
	tot	28	140	168	25	172	197
	workforce on 31/12/2020	153	10,431	10,584	153	10,431	10,584
	Holding turnover rate	18.30%	1.34%	1.59%	16.34%	1.65%	1.86%
2022	< 30 years old	11	41	52	8	14	22
	30 ÷ 50 years old	25	93	118	15	99	114
	> 50 years old	7	52	59	8	82	90
	tot	43	186	229	31	195	226
	workforce on 31/12/2021	148	10,393	10,541	148	10,393	10,541
	Holding turnover rate	29.05%	1.79%	2.17%	20.95%	1.88%	2.14%

Table 21: hiring and termination turnover – ADIH



Graph 3: hiring turnover and termination turnover rates – ADIH

The breakdown by company of the information relating to turnover, both in hiring and in termination, is as follows:

	HIRING TURNOVER	ADI	ADI Energia	ADI Tubiforma	ADI Socova	ADI Servizi Marittimi
2020	< 30 years old	3	0	0	0	4
	30 ÷ 50 years old	26	0	0	0	15
	> 50 years old	23	0	0	1	6
	tot	52	0	0	1	25
	workforce on 31/12/2019	10,378	100	40	38	220
	hiring turnover	0.50%	0.00%	0.00%	2.63%	11.36%
2021	< 30 years old	23	0	0	0	9
	30 ÷ 50 years old	68	0	1	1	21
	> 50 years old	28	0	0	1	16
	tot	119	0	1	2	46
	workforce on 31/12/2020	10,189	99	37	39	220
	hiring turnover	1.17%	0.00%	2.70%	5.13%	20.91%
2022	< 30 years old	45	1	0	0	6
	30 ÷ 50 years old	96	0	3	1	18
	> 50 years old	45	0	0	2	12
	tot	186	1	3	3	36
	workforce on 31/12/2021	10,139	97	37	38	230
	hiring turnover	1.83%	1.03%	8.11%	7.89%	15.65%

Table 22: hiring turnover in the reporting period – ADIH

	TERMINATION TURNOVER	ADI	ADI Energia	ADI Tubiforma	ADI Socova	ADI Servizi Marittimi
2020	< 30 years old	24	0	0	0	3
	30 ÷ 50 years old	134	1	3	0	6
	> 50 years old	82	0	0	0	13
	tot	240	1	3	0	22
	workforce on 31/12/2019	10,378	100	40	38	220
	termination turnover	2.31%	1.00%	7.50%	0.00%	10.00%
2021	< 30 years old	4	0	0	0	4
	30 ÷ 50 years old	91	0	1	0	14
	> 50 years old	55	2	0	3	23
	tot	150	2	1	3	41
	workforce on 31/12/2020	10,189	99	37	39	220
	termination turnover	1.47%	2.02%	2.70%	7.69%	18.64%
2022	< 30 years old	13	1	0	1	7
	30 ÷ 50 years old	93	1	0	0	20
	> 50 years old	69	0	1	2	18
	tot	175	2	1	3	45
	workforce on 31/12/2021	10,139	97	37	38	230
	termination turnover	1.73%	2.06%	2.70%	7.89%	19.57%

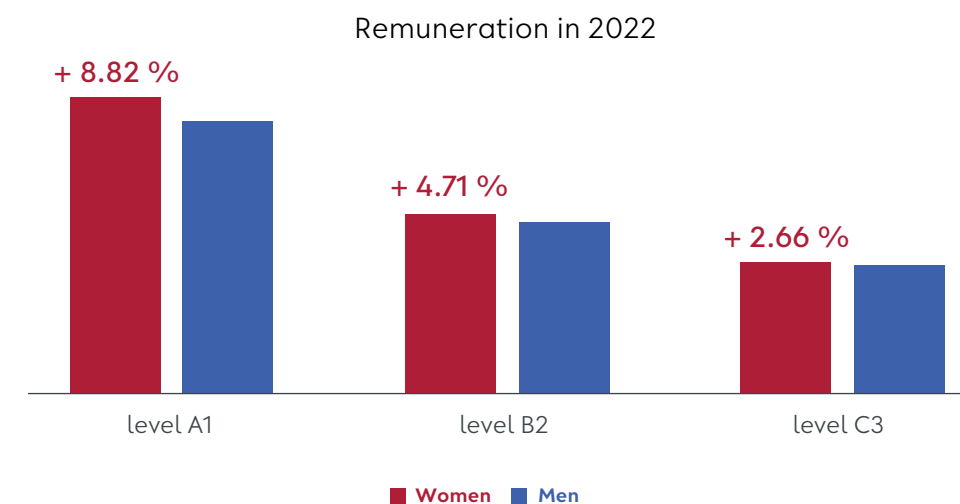
Table 23: termination turnover in the reporting period – ADIH

Remuneration

Acciaierie d'Italia Holding considers plurality and diversity as sources of enrichment and development of an inclusive work environment that respects everyone's dignity by recognizing the value of differences. For this reason, the Company does not tolerate any form of discrimination and harassment and, in particular, those based on sex, race, ethnic or social origin, citizenship, language, religion, political opinions, age, sexual orientation. Acciaierie d'Italia Holding promotes the establishment and maintenance of a work environment free from any form of discrimination or harassment, based on decent working conditions, open dialogue and the enhancement of diversity. The goal is to work as a team, to add value to the result of individual work and increase the sense of belonging, creating a professional, social, cultural and intellectual common ground.

The economic context in which ADIH operates is inevitably affected by the economic repercussions deriving from the production activities located throughout the national territory. The entire workforce operating in the Italian production plants is subject to the Metalworking National Collective Labour Agreement: the Group guarantees equal pay for its people.

The graph shows the percentage difference between **women's and men's remuneration** for some of the positions in the CCNL, such as C3 (5th cat.), B2 (6th cat.) and A1 (executive function). This comparison shows that the female gender is positively valued, as can be seen for example from the value **+8.82%** of the A1 level, in contrast with sector studies⁷ which show a difference on gender pay (Gender Pay Gap) in favor of male gender by 6.2% (latest data available from 2018).



Graph 4: percentage difference between women's/men's remuneration by CCNL category with reference to ADIH

⁷ Data source: ISTAT Report "The structure of salaries in Italy-2018" of 18 March 2021 and Report "Remuneration Survey - 2022 Edition" by Industrial Union of Turin.

Use of redundancy funds

In the three-year period 2020-2022, both due to the emergency situation, caused by the pandemic, and due to the contingent moment related to the market situation, the Group used redundancy funds.

The first quarter of 2022 saw the conclusion of the use of the specific Ordinary redundancy fund with related COVID 19 reasons, introduced and financed by the Government during 2020, in particular for Companies of national strategic importance with at least one industrial site with more than 1,000 employees.

The Group made use of this tool within the limits of the allocated funds and until 27th March 2022. Subsequently, starting from 28th March 2022, an Extraordinary Redundancy Fund (CIGS) procedure was activated for restructuring deriving from the need to restart the Taranto Blast Furnace 5 - inactive since 2015 - making use of the best available technologies to increase the production of the installations in the hot area of the Taranto plant and, at the same time, promote investments aimed at redesigning the production units in terms of future environmental, productive and financial sustainability. In this context, the Group also aims to work for the start-up of installations using alternative technologies to the integrated cycle, such as electric furnaces. Until the completion of this redesigning, the reduced production of the Taranto site is going to have a decisive impact on the downstream plants too, which have also been subject to plant investments.

In 2022, with the latest renewal of the CIGS linked to the industrial restructuring, the Company was authorized to involve a maximum number of 3,000 people, of which 2,500 in Taranto alone, for the duration of one year. In accordance with a weighted policy of non-discrimination and internal solidarity, rotation criteria were adopted on 7,000 employees at the Taranto site alone, to mitigate the economic impact of CIGS on families.

However, the procedures for the use of redundancy funds did not affect the possibility for workers to use the holidays accrued in 2022 and those residual from previous years (the percentage of use of the holidays accrued was 100% in 2020, 90% for holidays accrued in 2021 and 66% for holidays accrued in 2022). Some absences were accounted for as CIGS in compliance with the management and organizational programs and rules adopted by the Company in order to legitimately adjust the use of manpower with production volumes.



Control pulpit of Blast Furnance process

The Organization aims to undertake a path towards the completion of the AIA works and investment in BATs for the production of steel with low environmental impact, with the target of increasing production levels and, consequently, reducing the use of CIGS.

	2020		2021		2022	
Production site	[hours]	FTE ^a	[hours]	FTE	[hours]	FTE
Taranto	5,079,005	2,442	4,441,592	2,135	4,287,499	2,061
Racconigi	128,857	62	17,296	8	23,984	12
Legnaro	32,232	15	16,808	8	11,488	6
Novi	390,740	188	108,324	52	199,167	96
Marghera	35,536	17	26,160	13	18,585	9
Genoa	408,263	196	205,645	99	229,444	110
Milan	22,379	11	3,859	2	7,592	4
Paderno	29,858	14	1,296	1	5,784	3
ADI Tubiforma	38,144	18	4,136	2	0	0
ADI Energia	16,888	8	13,192	6	3,984	2
Holding total	6,181,902	2,972	4,838,308	2,326	4,787,527	2,303

Table 24: use of CIGS hours and FTE – ADIH



Enclosure of ore blend stockyard

8 FTE, acronym of Full Time Equivalent, expresses the number of full-time resources, or available people in the company, to carry out a specific activity, in relation to the total number of workers, calculating the equivalent of hours even in case of part-time and other contractual forms with less hours per day compared to Full Time. The FTE value is used to find out the equivalent of the full-time people in the company, even when having other types of contracts, part-time, consultants, etc. All the hours considered are taken and divided by 8 (i.e. full time).

Training

Training is one of the central activities of the Group, together with production. ADIH continues to invest in the growth of human resources to be better prepared for the evolution phase that the sector - like the whole industry - is going through. For ADIH, internal skills are essential for the optimization and innovation of production activities.

Nowadays, workers are required to have intellectual and cultural knowledge and skills, ability to make the most of their knowledge and experience, availability to change and take on responsibility, strong autonomy to manage innovative processes, readiness to quickly identify problems and consistent solutions, and finally ability to manage unexpected events and make decisions according to the continuous needs of the companies.

Therefore, a training activity capable of responding to those needs becomes a truly strategic tool available to companies to create, adapt, maintain and develop over time the skills and professional roles of their personnel, in order to be constantly in line with the qualitative requirements and demands imposed today and, consequently, to increase the overall value, largely made up of Human Resources.

The commitment of Acciaierie d'Italia Group towards its employees is aimed at offering everyone opportunities for professional improvement, to allow them to fully realize their growth potential and offer their contribution to the achievement of corporate objectives from the point of view of production, efficiency and sustainability. To do this, the Group's training plan for its resources is defined annually, taking into consideration the assessments made by the managers of each plant regarding the needs and shortcomings to be filled with reference to the resources managed directly on site.

In this way, the setting given by the Group is adjusted and integrated with the specific needs of each plant.

CRISALIDE

The Project, called Crisalide, is the latest born in the field of Training and Innovation and is a human capital development project aimed at stimulating a cultural and managerial change for the specific professional figures of Shift Leaders in the plant, in particular those of operations. The project aims to re-motivate the collaborators involved and provide them with a clear strategic vision of what their way of working will be in the future for a more managerial vision of the role itself. The reasons that led to the design of the training project are both the re-evaluation of human capital and an increasingly emerging need to prepare the workers for the new production scenarios imposed by the technological development.

The Crisalide project is addressed to a workforce of about 300 shift leaders (including operations and staff/service departments), and the reason is the peculiarity of this role: the operations shift leader, in particular, must possess specific leadership and decision making skills. In the hours they work alone on shifts and on holidays, they represent the company and manage the production process. Motivation and basic managerial tools are necessary for them to carry out the job. The awareness of being important and protagonists must go together with their development and with the company's recognition of their role.

The Crisalide project will not be a single training course, but a development path of at least one year with regular tests, also to adjust, and if needed change the training and development path. It will be a motivational, technical and managerial training course to achieve a cultural change, with a view of continuous development. Objectives and results to be achieved (project KPIs) have been defined for the project. The project, conceived and structured in the fourth quarter of 2022, will be launched in 2023. The Taranto experience will then be extended to the other plants of the Group.

In particular, specific in-depth analysis must be dedicated to the **Taranto plant**, where the new 2,500 square meter Training Centre is being set up which will house classrooms and laboratories.



New building for staff training

The Training Centre has obtained from IGQ the conformity of its Quality Management System for the activities of "Planning and provision of professional, continuous and permanent training, in the workplace, and in the professional, school and university fields".

Inside the centre, the employees will receive training in collaboration with external bodies, requiring dedicated spaces. Part of the training, specific to the task, is given on site by the plant departments.

TRAINING IN 2022 [hours]	
General training	43,712.4
Training towards external people (interns, contractors, etc.)	8,871.6
Training on Safety (Leg. Decree 81/2008)	32,256.0
Training on Safety towards external people (interns, contractors, etc.)	4,167.0
Safety meetings	77,045.3
Training on Environment	611.0
Meetings on Environment	3,760.3
Meetings on energy management system	2,760.2
Regular meetings and monitoring of HR KPIs	5.0
Total training hours	173,188.8

Table 25: breakdown of training hours by topic – ADIH

Training: qualification, specialization, updating courses carried out during working hours and with systems that use classroom and/or remote methodologies, with internal or external teachers, and carried out at the Training Centre or at external entities.

Meeting: meeting organized and held within the department during working hours, generally coordinated by the department manager or other technicians with specific skills and aimed at transferring information to workers or providing them with training on various topics.

The breakdown by gender of training hours given to ADIH employees shows a strong growth in average hours relating to women with an increase by 89% between 2021 and 2022⁹.

		2020	2021	2022
Men	No. of employees	10,431	10,393	10,385
	Training hours	137,871	133,929	157,691
	Average training hours	13.22	12.89	15.18
Women	No. of employees	153	148	159
	Training hours	352	1,209	2,459
	Average training hours	2.30	8.17	15.47

Table 26: breakdown by gender of training hours by employee – ADIH

On the other hand, with a breakdown by occupational category, a significant increase can be noted in the average training hours dedicated to ADIH group’s managers and white collars.

		2020	2021	2022
Senior managers	No. of employees	65	67	95
	Training hours	179	1,287	1,495
	Average training hours	2.75	19.21	15.74
White collars ¹⁰	No. of employees	2,411	2,409	2,440
	Training hours	31,693	37,988	51,417
	Average training hours	13.15	15.78	21.07
Intermediate workers	No. of employees	1,001	992	980
	Training hours	18,650	16,763	16,707
	Average training hours	18.63	16.90	17.05
Blue collars	No. of employees	7,107	7,073	7,029
	Training hours	87,702	79,100	90,531
	Average training hours	12.34	11.18	12.88

Table 27: breakdown by occupational category of training hours by employee – ADIH

As evidence of the attention paid by ADIH to the issue of skills, in 2022 the Taranto plant hosted the **twenty-fifth edition of Steelmaster**, the advanced training course dedicated to the steel world, from industrial to technological aspects, organized by RINA.

The aim of the course was to provide participants with the tools and methodologies to outline a complete picture of the steel industry at a national, European and global level. The initiative took on particular importance in a context in which the steel ecosystem is facing the challenge of a digital and environmental transition, where the circular economy – an economic model to which steel has always been totally consistent – represents a important evolution of the linear economy model. The 2022 edition provided for an in-depth study of topics such as production cycles and technologies, structure of the iron and steel industry, steel market, research and innovation, product application, occupational safety, environmental aspects, budget analysis, logistics and other organizational and managerial aspects. Acciaierie d'Italia

⁹ With reference to reporting in terms of training provided, the maritime staff has been equated to the typical qualifications of the Metalworking National Collective Labour Agreement (CCNL).

¹⁰ In the “white collars” category the middle managers category was included.

hosted the course with a significant number of participants including newly hired engineers, department heads and technicians from Taranto and the Genoa and Novi plants.

Furthermore, in 2022 ADIH hosted, at the Taranto plant, the discussion of the theses written by the participants of the twenty-fourth edition of Steelmaster. Through its Training Centre, Acciaierie d'Italia invested on 18 company managers to further contribute to the training of its resources. At the end of the course, each participant chose a topic covered by the course to explore topical issues for the iron and steel sector such as digitalisation, automation and robotisation of the steelmaking cycle in the transition towards an increasingly marked decarbonisation (use of DRI and electric furnaces), the application of Industry 4.0 principles and the management control system of slab reheating furnaces in the production of plates.

Also in 2022, the **Technical Academy of Taranto** was established. With this initiative, Acciaierie d'Italia wants to focus on the development of talents and fundamental strategic skills to face the challenges of the industrial transition underway, to lead the technological revolution in a highly innovative and future-oriented context. In addition to classroom training activities, field activities (on the plants) are also planned in coordination with the managers of the production units. The presence on site will always be supervised by tutors. The first course of the Technical Academy started on 7th November 2022.



Building of the Technical Academy

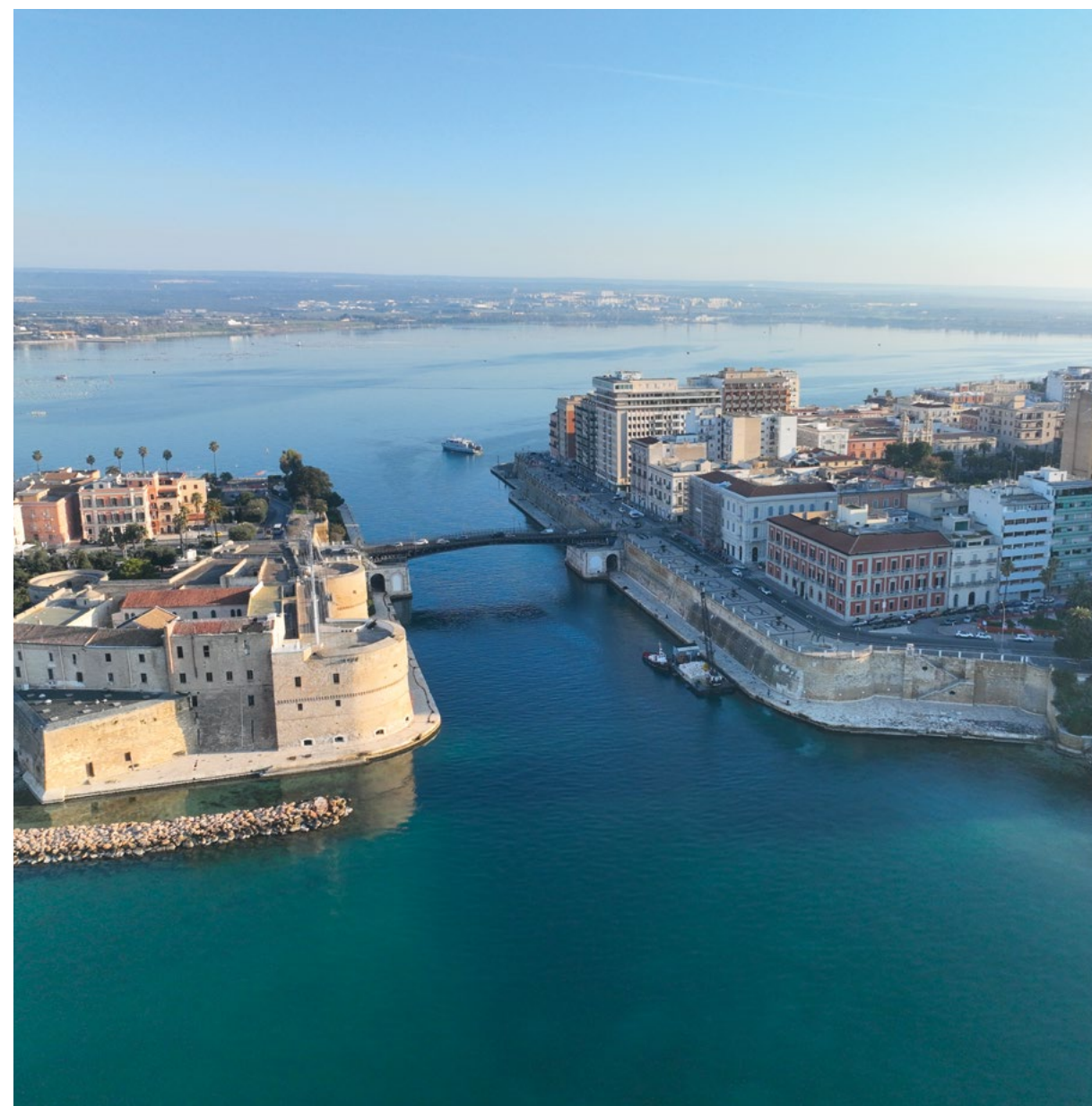
The training activities, lasting 18 months, are carried out by teachers of proven and recognized scientific preparation, by managers of national and international companies and by university professors. The Technical Academy is addressed to 30 young graduates with high potential, specialized in different technical and scientific disciplines, specifically hired by Acciaierie d'Italia from the reference territory (Apulia Region); among the new resources there are graduates in materials science, chemistry, physics,

and engineering on different fields: aerospace, civil, management, mechanics, materials, environment and territory.

Upon completion of the Technical Academy course, the young employees will be included in the Group's workforce, having acquired fundamental skills and experience to perform their task in the best possible way.

The training activities of the Technical Academy course concern the following macro-areas:

- iron and steel making technics;
- customers' related processes;
- supply chain;
- production process and operations.



Air view of "Ponte Girevole – Taranto"

Dialogue with social parties

The Group considers the involvement of trade union stakeholders to be strategic and of fundamental importance in an industrial relations system that is increasingly functional to the pursuit of common objectives, based on constant and constructive dialogue.

In the management of industrial relations, the Group takes into account the provisions of Law 300/70 "Workers' Statute", from which derive the provisions of the Law, and of national and second-level contracts, considered as reference documents in all trade union negotiations, recognizing in the Unions and related territorial representatives the "natural" interlocutors in all confrontations and negotiations.

Within the HR Department, Acciaierie d'Italia has a dedicated Function, "Industrial Relations", in charge of managing relations with the Trade Union Organizations. A total of five trade union organizations are present at the various Group sites, which are entrusted with the role of representing workers in the protection of their rights within the workplace and in relations with the Company.

The union relations system

ADIH has signed three agreements which constitute the "**trade union relations system**" which regulates the relations between ADIH and the Trade Union Organizations in the sites where there are the highest number of workers.

For the **Taranto site**, the agreement was signed on 23rd September 2019. It regulates the representation between the various components of the RSU (Unitary Union Representative) and, given the size of the Taranto site, defines the districts in which the workers' union representatives are divided into the various departments of which the plant is made up. Given the high number of representatives (in 2022 they were 63) the agreement also provides for the establishment of an Executive committee of 7 members to facilitate representation and therefore relations with the Company: in fact, the members are endowed with particular rights and union permits. The number of RLS (Workers' Safety Representative) has also increased, going from the 7 representatives required by law to 13, with a package of additional permits to be able to better carry out their function on the basis of article 50, Consolidated Text 81/2008 and subsequent amendments. The agreement also establishes rules for "cooling off the conflict" in order to open discussions with the union representatives in case of reports on issues involving employees, including the need for minimum notice in the event of strike and specific modalities for the exercise of the various trade union rights.

For the **Genoa site**, the agreement was signed on 9th October 2019. As for Taranto, an Executive Committee of three members appointed within the RSU has been set up, provided with particular trade union permits and, again with a view of greater possibility to carry out their function, the RLS have been given a higher number of permit hours to carry out their mandate as required by the Comprehensive Law no. 81/2008.

For the **Novi Ligure site**, the agreement was signed on 30th September 2019. It reflects the agreements already described above, of course re-proportioning the trade union permits for RSU and RLS representatives in a proper number considering the limited number of workers in this site. Also here, an additional number of hours of union permits is attributed to facilitate the relationship with the company.

Furthermore, the company and the trade union organizations FIM, FIOM and UILM signed an agreement at national level with the aim of recognizing the so-called "secretarial permits" which are assigned by the national secretariats to the various Group sites for use by the delegates of the several plants.

The structure of trade union organizations

The trade union organizations present in the ADIH industrial structure differ in political extraction and their representatives are divided into RSU, RLS and Executives. The recognized and operating confederations have a variable number of representatives according to the number of employees, as shown in the following breakdown:

SITE	CONFEDERATION	NO. OF RSU	NO. OF EXECUTIVES	NO. OF RLS
Genoa	FIM/CISL	4	1	1
	FIOM/CGIL	5	1	1
	UILM/UIL	1	0	0
	USB	2	1	1
		12	3	3
Legnaro	FIOM/CGIL	2	0	1
Marghera	FIM/CISL	2	0	1
	FIOM/CGIL	1	0	0
		3	0	1
Milan	FIM/CISL	1	0	1
Novi Ligure	FIM/CISL	3	1	1
	FIOM/CGIL	3	1	1
	UILM/UIL	1	1	1
		7	3	3
Paderno Dugnano	FIOM/ CGIL	1	0	1
Racconigi	FIOM/CGIL	3	0	1
Taranto	FIM/CISL	19	2	5
	FIOM/CGIL	10	1	2
	UILM/UIL	24	3	4
	USB	9	1	2
	UGLM/UGL	1	0	0
		63	7	13
Global Total		92	13	24

Table 28: trade union organizations and representatives by production site – ADIH

Dialogue with trade union organizations in 2022

Even in a context of significant use of redundancy funds in the various Group sites, with consequent social tension due to the reduction of the personnel employed, relations with the Unions are based on correctness and continuous dialogue between the parties. Indeed, during 2022 agreements were signed for personnel training through access to Fondimpresa funds, agreements for the improvement of production efficiency such as the one for overhead crane operators in the Taranto steel shop and the one for work organizing at the IMA (sea shipping) department in Genoa.

Another important initiative involving the RSUs on the corporate side saw the appointment of a representative for each of the Taranto, Genoa, Novi and Milan sites as workers' representatives in the SPT (Social Performance Team), a body set up in the field of ethical certification SA8000. The effective collaboration of the delegates chosen directly by FIM, FIOM, UILM is contributing to the management of the committee and of the cases reported by the employees from time to time.

Health and safety of workers

The protection of health and safety in the workplace, is not only an ethical value, but also a fundamental principle for the Group. In all Group plants, production must take place in conditions of safety for the protection and health of workers.

The constant commitment, the integration of safety in processes and training, reporting and analysis of near misses, inspections of contractors, continuous quality controls, sharing of experiences are the founding elements of the culture of safety.

Indeed, since the beginning of Covid emergency, the Group has reacted very promptly in order to protect the health and well-being of its employees by putting in place targeted actions and dedicated protocols.

The HSE Policy, on Occupational Health and Safety and the Prevention of Major Accidents are all documents which highlight the Group's commitment on occupational health and safety. Furthermore, the adoption of the Occupational Health and Safety Management System, compliant with ISO 45001, shows the Group's commitment to comply with all relevant rules and regulations and adopt all the available best practices. For more details, see the paragraph "**Management Systems**".

In May 2022, Acciaierie d'Italia and INAIL Puglia Regional Directorate signed two collaboration agreements to develop training and information initiatives on occupational health and safety.

The first agreement provides for the design and activation of training courses for personnel directly employed by Acciaierie d'Italia, as well as for the employees of contractors of the Taranto plant. The entire training course will extend over a twelve-month period and will involve technical employees and company managers.

The second agreement provides for the creation of an information campaign to be carried out through the use of interactive technological supports located at the main access gates of the Taranto production site and intended for all those who access it.

The training project is divided into seven different types of course, with a particular focus on issues related to plant engineering and worker safety. This project also includes ad hoc interventions for managers and is addressed to both internal and contractors' employees, the latter being considered as a fundamental and integral part of the industrial ecosystem of Acciaierie d'Italia.

All direct and indirect collaborators of the Group must cooperate in the success of company policies in compliance with all relevant procedures. In this regard, the Group uses tools to guarantee information and to improve communication and employee involvement. These tools are safety meetings, inspections, simulations, regular maintenance and monitoring, and staff education and training.

ADIH – 2022
21,511
safety meetings

Safety meetings represent an important place to review risk assessment, prevention and protection measures, employee training needs, and safety improvement activities in general. During the meetings, the DVR (Risk Assessment Document) and the trend of accidents and occupational diseases are examined, as well as the results of health monitoring, and all the measures to reduce the risks to which workers are exposed. In 2022, **21,511 safety meetings** were held, of which 20,975 in the Taranto plant alone.

ADIH – 2022
2,542
standard inspections

The **inspections**, systematically carried out by ADIH, are an important tool for verifying the correct application of the prevention measures for the health and safety of workers. In 2022, **2,542** inspections were carried out, without considering those related to Covid, and concerned the behavior of personnel with regard to compliance with work procedures, the use of protective devices, the correct use of equipment, as well as the maintenance of safety conditions of the systems and infrastructures, the maintenance conditions of the pressure vessels, the lifting systems and ropes, the electrical systems, the application of prevention measures for workers exposed to specific risks (e.g. dangerous substances, radiation, noise, vibration), and the performance of contractors.

ADIH – 2022
1,168
simulations

Another important tool consists of the **simulations** needed to prepare workers to deal with emergency situations (fire, flooding, spillage and leakage of liquids, flammable and/or harmful or dangerous gases and vapors) and verify the efficiency and suitability of the men/equipment system. In 2022, **1,168 simulations** were carried out.

In 2022
€ 119 million
for safety maintenance
in the Taranto Plant

Maintenance and periodic monitoring are essential components of the Safety Management System, necessary to guarantee safety and efficiency of machinery and work equipment over time. In 2022, the Group's maintenance expenditure, with reference to the Safety Management System, amounted to **119 million euros**.

About the activities for the **education and training of personnel** on workers' health and safety, lessons are held, during working hours, provided by qualified and certified personnel. In 2022, training in the field of safety at work concerned the main issues of operational safety: use of personal protective equipment, self-contained breathing apparatus and hearing protectors, fire prevention, emergency management, ATEX regulations for the management of systems in places with potentially explosive atmosphere, Machinery Directive for CE approval of machine equipment.

TRAINING COURSES ON SAFETY IN 2022 – ADIH [hrs]

Workers' safety	7,589
Emergency workers - medium and high risk (Qualification and Update)	7,400
Work equipment	4,815
Training on risks, technical standards and applicable legislation	4,651
Confined spaces (DPR 177)	4,239
PPE of third category	2,622
First aid	2,026
Managers' safety (INAIL teaching)	1,801
Pressure vessels (INAIL teaching)	844

Table 29: duration in hours of the Group's safety courses in 2022

Covid Emergency

In compliance with the Decrees issued by the Presidency of the Council of Ministers on Urgent Measures for the containment and management of the epidemiological emergency from COVID-19, Acciaierie d'Italia, during 2022, progressively updated and disclosed the internal document adopted in 2020 showing the operational measures in compliance with the provisions in force during the year, including:

- the confirmation of the COVID-19 Committee for the management of company management criticalities related to the actual situation;
- the confirmation of an operational Task Force for 24-hour medical and nursing support to be contacted even in the event of suspected contagion;
- the confirmation of the procedures for entering the company with body temperature control systems for employees;
- the adoption of regular and emergency sanitization procedures for workplaces;
- the adoption of specific personal protective equipment;
- changes to work organization for a better management of space and time with the aim of avoiding/reducing gatherings;
- holding meetings and training courses through the use of IT tools.

Until 31 March 2022, the Company, in compliance with the regulatory provisions introduced by the Government starting from 15 October 2021, adopted control procedures at the entrance of employees and workers who worked with external companies under a contract, aimed at assessment of validity of the so called "Green Pass".

The organization has implemented the hazard identification and risk assessment process in accordance with the provisions of the legislation on occupational health and safety (Legislative Decree 81/2008) and in line with the UNI ISO 45001 standard.

The risk assessment provides for a detailed

analysis of the entire process, in order to acquire the information necessary to identify the hazards, quantify the risk and identify the prevention and improvement measures.

Specifically for Taranto, given the particular complexity and variety of the processes, the **Risk Assessment Document** is organized in a general

Plant document (DVRG), illustrating the general provisions, the criteria to be adopted to assess the risks deriving from the work activities and the behaviours to be followed within the plants, and numerous area/department documents (DVR for the Area/Department) in which the risks for all professional roles are identified and assessed. The risk assessment defines both the risk prevention actions and the appropriate protective measures, the latter being detailed in the Standard Operating Practices.

The Risk Assessment Document (DVR), both in the general part (DVRG) and with reference to the individual Area documents, is a dynamic document, continuously updated, which absorbs and condenses the individual assessments on the various risks associated with health and safety of environments and work activities resulting from sampling, reports, technical-regulatory-procedural and organizational changes.

The Occupational Health and Safety Management System (SGSSL) acknowledges the need for and importance of the analysis of accidents and injuries. These events involving internal workers, but also those from third parties, are managed according to specific procedures.

The analysis methodology allows for a precise identification of the root causes that determined the event and of the technical, procedural and organizational countermeasures to be adopted to eliminate or reduce the probability of a new occurrence. The responsibility for the implementation of the identified countermeasures is identified within the company organization which also defines the implementation and control of effectiveness timing. The SGSSL is applicable and applied in each area of the Group's plants, on both operations and staff; therefore, 100% of the workers are involved in this system. Furthermore, 100% of non-employee workers or contractors are involved in the OHS management system.

Internal audit plans are foreseen in all the Group's plants to audit both the departments and the contractors operating in the Organization's workplaces.

A **PAI (Internal Audit Plan)** is drafted annually, containing the list of Areas to be audited and, for each of them, the points of the standard to be verified, and the identified audit team. The audits are conducted in compliance with the provisions of the UNI EN ISO 19011 standard, by employees working for the plant's Prevention and Protection Service Department. All auditors are qualified, have held an ASPP qualification (person in charge of safety, prevention and protection) for at least six months and have received initial mentoring, for at least two audits, from expert auditors.

Only for the Taranto plant, in view of its size, the internal audit plan does not cover 100% of the departments, but a representative sample of them. In 2022, 35 departments were audited, for a total of 1,874 workers, i.e. about 23% of the entire workforce but, if we consider the average number of presences in the month, the percentage was about 37%.

Likewise, contractors are subject to sample audits according to the plan foreseen by the SGSSL.

The same contractors are subject to constant monitoring on site. If clear critical issues are noticed during the inspections, contractors can be subject to a specific audit for a more accurate assessment of the application of the measures foreseen by the Organization's management system.

The contractors operating in the Organization's workplaces with direct contracts are subject, in advance, to a supplier qualification process.

The organization is also subjected to **external audits** every six months, conducted by the IGQ (Quality Assurance Institute) certification body.

Injury frequency rates

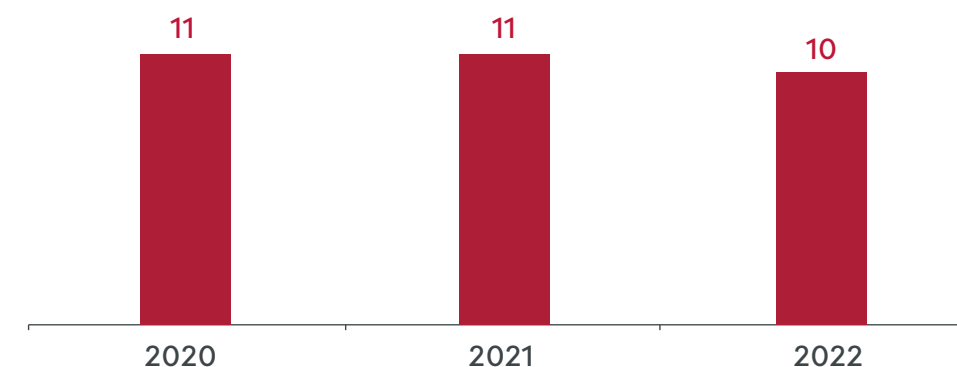
The Group has always been committed to promoting safety with particular attention to accident prevention. In the company organization, health and safety in the workplace are a priority and constant commitment of the Employer and his/her delegates and sub-delegates, on their turn supported by both the internal Prevention and Protection Service Department, for monitoring of SGSSL, and departmental operatives for the implementation of current legal provisions and procedures of the health and safety management system.

In 2022, a total of 144 accidents involving Group employees occurred in the plants (compared to 169 in 2021 and 148 in 2020), none of which classified as a fatality or accident with severe consequences (first medical prognosis 40 days off work). In the calculation of injuries, commuting accidents deriving from home-work-home travel were not considered.

	2020	2021	2022
No. of worked hours	12,744,781	14,363,351	14,181,909
Tot. no. of injuries	136	157	143
No. of injuries with first prognosis of 40 days off work	1	0	0
No. of fatalities	0	0	0

Table 30: worked hours and no. of injuries for internal employees – ADIH

The injury frequency rate in 2022 is equal to 10 (marking a decrease compared to previous years). The calculation method, given by the ratio between the number of injuries recorded and the worked hours multiplied by one million, is taken from the UNI 7249:1995 standard which defines the accident at work and indicates the significant parameters and indicators, useful for understanding the accident phenomenon.



Graph 5: injury frequency rate for internal employees – ADIH

The types of recurring injuries are due to falls, bumps, wrong movements. Below are the main types that occurred in the Taranto plant and the incidence on the total number of injuries:

TYPE	2020	2021	2022
Person falling on same level	28%	20%	8%
Wrong movements-slips-trips	27%	29%	30%
Muscle efforts	3%	4%	3%
Impacts	33%	36%	42%
Other	9%	11%	17%

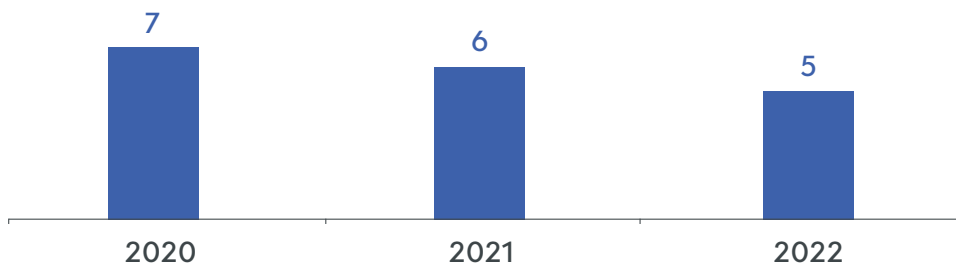
Table 31: types of injuries, for the Taranto plant, during the reporting period

The prevention and protection service department also records and analyses data on injuries involving contractors' employees. Furthermore, in collaboration with the other corporate bodies involved in the control and management of external companies, it defines the rules, codes of conduct and company procedures. Contractors and their employees must comply with the provisions of the above procedures. In the event of verified non-compliance with rules and regulations, verbal warnings or formal complaint letters are issued. In the most serious cases of non-compliance, the companies are expelled from the plants.

	2020	2021	2022
Tot. no. of injuries for external employees	42	52	35
No. of injuries with first prognosis of 40 days off work	0	1	0
No. of fatalities	0	0	0

Table 32: no. of injuries for external employees

In 2022, with reference to external personnel, neither fatal accidents nor accidents with severe consequences were recorded. The graph shows the injury frequency rate for the reporting period using the same calculation method used for the internal employees.



Graph 6: injury frequency rate for external employees

Using the number of worked hours, in addition to calculating the number and rate of injuries, it is also possible to estimate the number of workers who are not employees and whose activities are controlled by the Organization.

	2020		2021		2022	
	[hours]	FTE ¹¹	[hours]	FTE	[hours]	FTE
Holding	6,289,411.30	3,023.76	8,535,314.00	4,103.52	7,460,310.60	3,586.69

Table 33: estimate of the no. of external employees

11 FTE, acronym of Full Time Equivalent, expresses the number of full-time resources, or available people in the company, to carry out a specific activity, in relation to the total number of workers, calculating the equivalent of hours even in case of part-time and other contractual forms with less hours per day compared to Full Time. The FTE value is used to find out the equivalent of the full-time people in the company, even when having other types of contracts, part-time, consultants, etc. All the hours considered are taken and divided by 8 (i.e. full time).

Company first aid and occupational medicine health service

Occupational health services aim to protect the health of workers in relation to their working environment. The Group is committed to ensuring the quality of these services by adopting multiple procedures for the management of the health service integrated with the ISO 45001 certification for health and safety in the workplace.

The activities of the occupational health service are managed by the company doctor who defines the necessary visits for each employee on the basis of the duties and activities performed, as indicated in the health protocol.

Safety project 4.0

In 2020, Acciaierie d'Italia signed an agreement with "Safety 4.0", a start-up of the Sapienza University of Rome, to carry out an important project for the digitalization of occupational safety information and communications, health protection, emergencies and first aid. In 2021, the project, called Safety 4.0, was launched on an experimental basis in the coking plant of the Taranto site, with the aim of subsequently extending it to other areas of the site. In 2022, the project was positively consolidated in the coking plant area and was also launched for the continuous casters in the steel shop area.

- In particular, for this area:
- the supervisors were trained on the aims of the project and the use of the IT tool;
 - the check-list relating to steel casting activities was processed and uploaded on the computer system ("Security 4.0" platform);
 - field simulations were carried out using tablets/smartphones.
- In 2023 the project will be extended to all macro-areas of the plant. The project aims to manage the following activities:
- surveillance in the workplace, through the "Security 4.0" platform starting from the first level supervisors, up to the area management; the field monitoring of personnel behavior during the performance of work activities is managed via the platform;
 - basic information and training activities for employees with the "Audiosafety" platform;
 - monitoring of compliance and safety deadlines through the "Safetycontrol" platform.

The Taranto plant is provided with a Health Service which carries out the activities required by current legislation on occupational health and safety:

- First aid and medical emergency assistance;
- Health surveillance of workers.

The first aid activity is carried out for all the people who work inside the Plant, both for accidents at work and for malaise.

The first aid service is active 24 hours a day, every day of the year; here, 4 doctors, one nurse coordinator, 11 nurses and 9 rescuers-ambulance drivers, who are all employees of the Company, are operative on shifts. In emergency situations, the personnel of the Occupational Medicine sector can also get into action. The activity is coordinated by the Head of the Health Service.

The structure has two medical rooms, a room for quick observation, telephone and radio connections and also five ambulances, two for rescue and three for transport, authorized by ASL (Local Health Authority). All first aid staff have been specifically trained in cardiorespiratory resuscitation, early defibrillation and first aid for patients with multiple traumas, and receive an updated training every two years with instructors from the Italian Resuscitation Council.

The **health surveillance** activity on employees is carried out within the Company Health Service, in the Occupational Medicine centre, authorized by ASL. The facility is equipped with outpatient rooms for medical check-up, a blood analysis laboratory and outpatient rooms for spirometry, audiometry, electrocardiography and eye examinations. Company Doctors enrolled in the National Register, including one as coordinator, four health technicians (for analysis lab, radiology and audiometry) and two nurses, who are all Company employees, work in it. The structure also collaborates with external specialist doctors (Laboratory Analyst, Cardiologist, Ophthalmologist and Radiologist) and administrative employees. Preventive and periodic health checks are performed to verify the absence of contraindications to the job, following the health protocols established by the Company Doctors on the basis of risk assessment. Each Company Doctor is responsible for the health surveillance of several areas of the Plant.

Workers receive a personal invitation from the Occupational Medicine Service to go to medical check-up at the beginning of the work shift and can make use of an internal transport service to go to the medical centre and return to the workplace, when necessary for the relevant department.

On a regular basis, the Occupational Health Service carries out checks on the attendance of workers in each department for medical check-up and sends reports to managers to make them aware of the need of sending their staff to medical check-up.



Air view of Taranto old town

Engagement of local communities

Acciaierie d'Italia Group believes in the importance of establishing strong relationships and partnerships with the communities in which it operates in order to build shared and lasting value over time. In carrying out its activities, the Group always takes into account the environmental, social, health and safety aspects and respect for human rights by promoting continuous and transparent forms of consultation and dialogue, in order to inform the local communities and consider their expectations, in the belief that dialogue and interaction represent a fundamental value. The Group is committed to pay particular attention to the needs of the area served. This commitment translates into awareness-raising activities and initiatives of engagement and collaboration with stakeholders on environmental, social and governance aspects. Furthermore, initiatives have been launched aimed at enhancing new local talents through collaborations with higher education schools and universities. The main dialogue initiatives with local communities carried out by the Group in 2022 are described below.

Communication with the Taranto order of engineers

In 2022, the President and the Council of the Order of Engineers of Taranto, accepted the company's invitation and visited the Research, Development and Sustainability Centre of Acciaierie d'Italia, inside the iron and steel plant of Taranto, and areas dedicated to staff training and research on materials, currently involved in enlargement and technological innovation activities. The idea is to start a relationship of profitable and continuous collaboration between Acciaierie d'Italia and the Taranto Order of Engineers, a relationship aiming at the development of institutional, professional and technical relationships, as well as the exchange of knowledge and skills.

"GreenBlueDays"

The Research and Development (R&D) Centre of the Taranto plant participated in 2022 in the "GreenBlueDays", the first forum on systemic sustainability that looks at Southern Italy as a concentration of ideas for the new generations. The aim of the forum was to promote, develop and determine industrial production and social well-being of the territory through synergistic interaction, research, technological innovation, listening and sharing experiences and promoting solutions. The R&D Centre acted as evidence of the irreversible process of deep transformation undertaken by Acciaierie d'Italia Group, which focuses on the ecological and energy transition, decarbonization, technological innovation, development of innovative solutions and continuous improvement of processes and products, ensuring competitiveness and sustainability.

First school-work training project

Acciaierie d'Italia launched Projects for Transversal Skills and Orientation (PCTO), in agreement with the upper secondary schools of the Taranto city and province, in order to offer students a period of professional training in the company that favors integration with the labor market and the acquisition of practical skills. In 2022, the first work-training project, which involved secondary schools in the area, was between **Acciaierie d'Italia** and the upper secondary school **I.I.S.S. Pacinotti-Fermi** of Taranto. The school is in fact involved in the PCTOs launched by Acciaierie d'Italia. The course includes the alternation of classroom and laboratory moments in the various areas of the Taranto plant and the constant training support of company experts. In particular, 20 students from the fifth grade of Pacinotti-Fermi will be hosted at the Taranto plant for three weeks for a total of 72 hours per student.

During the first week there is a theoretical part in the classroom which includes the mandatory training on "Health and Safety in the workplace" pursuant to Legislative Decree n. 81/08, the teaching of the integrated steelmaking cycle directly from the witness of company managers - including a guided tour of the plant - and the processes that govern a complex company system. In the following two weeks, the practical part will start in which the students, based on their field of study will be assigned to the different areas and followed by company technicians as well as by their teachers.

Advanced mechatronics course for steel industry innovation

In 2022 **Acciaierie d'Italia** and the upper secondary school **ITS La Spezia Foundation** signed an agreement to launch an ITS course on “**Advanced mechatronics for innovation in the steel industry**”, attributable to the national professional job of “Higher Technician for automation and mechatronic systems”. Indeed, through mechatronics it is possible to make production in an efficient and flexible way, reduce the exposure of operators to dangerous processes and manage the environmental impact through the optimization and control of the single emission factors, all under integrated control using computerized systems and distributed sensors. The first two-year course was thus born, regulated by a specific call, which involves 25 students at the Training Centre within the Genoa plant where super technicians specialized in advanced automation will be trained in an innovative way. The training objectives of the course can be achieved thanks to the continuous relationship with a team of teachers, tutors, company technicians ready to transfer their know-how, and thanks to the structures made available by Acciaierie d'Italia, which will allow students to have a real experience “on the field”.

Course for higher technician diploma

Acciaierie d'Italia in collaboration with the upper secondary school **ITS Cuccovillo Bari** has organized a **Course for Higher Technician Diploma**. The agreement provides for a Multi-year Framework Agreement to organize a new Professionalizing Tertiary Education post-diploma course in Taranto. Super technicians specialized in advanced automation will be trained in an innovative way and following the dual methodology. The training objectives will be acquired thanks to the continuous relationship with a team of teachers, tutors, company technicians ready to transfer their know-how. The course will also make use of modern laboratories that Acciaierie d'Italia is setting up for this purpose, both for the “Cuccovillo” ITS and for other local entities. Over the two-year period, the 25 graduate students selected through a call will alternate the **1,350 hours of teaching** between classroom hours and highly specialized hours provided within the plant by company engineers and technicians who will transfer their technical skills and expertise by dipping into real business environments. The project also includes the fulfilment of **900 hours of internship** which will be carried out according to personalized projects able to address various issues within the company areas. The course will take place mainly at the Taranto plant of Acciaierie d'Italia, but also at the branch of the ITS Cuccovillo school in Taranto (work in progress) and in Bari (Acqui street Division) and at all the necessary and appropriate locations for training activities: companies, laboratories, etc. on the regional and national territory.

Liceo TRED, four-year high school of applied sciences for the ecological and digital transition

Promoted by the Elis Consortium, the TRED High School is a collaboration project among Schools, Universities and Companies for the construction of an experimental high school network to propose a totally new teaching method, with physical and virtual learning environments, suitably designed for it. The high school is linked with a network of twenty large groups and companies that belong to the Consel consortium. In Italy, 27 schools have joined the project, with 500 students, in 11 regions. In Taranto, the course was launched in 2022 at the prestigious Battaglini High School. Acciaierie d'Italia is a founding member of the TRED high school.

Innovation projects with Elis

In 2022, Acciaierie d'Italia launched a collaboration with the Elis Consortium for the development of innovation projects developed by young people on critical issues as they enter the labour market:

1. the improvement of process supervision and product quality throughout the production cycle to facilitate the transformation of the company from a “mass production oriented” to a “customer oriented” one;
2. the improvement of supervision of high-risk areas (gas networks) to further increase the plant safety level;
3. the use of large plant areas for the production of green electricity with the aim of improving the visual impact of the plants on the cities that host them.

The Genoa plant for the city

Following the collapse of the Morandi bridge (14 August 2018), the Genoa plant gave authorization for the construction of a road within its borders in order to facilitate the traffic of heavy vehicles heading to the commercial port, thus lightening the city traffic. This road is still in use by the city.

Also following the collapse of the Morandi bridge, the plant made available an area accessible from the “Polcevera” quay for the storage of the “concretes”, which arrived by sea, necessary for the construction of the new bridge (year 2019).

Following the worries expressed by the company Ansaldo Energia in being able to reach the commercial piers with their largest turbines (up to 700 tonnes in weight and 12 m in diameter, dimensions incompatible with the city routes they would have had to cross), meaning difficulties that would have forced AEN to abandon Genoa with negative repercussions on the city, the plant accepted their request, also supported by the city authorities, to give an area near the Polcevera quay where a new turbine assembly shed could be built, giving the possibility of using the quay for shipments (year 2016).

The Paderno plant and health emergency

The city of Paderno Dugnano, one of the most affected by the contagion in the first wave of the coronavirus emergency, opened its drive-through swab centre in the parking lot in front of the ADI plant in Paderno Dugnano, which made the parking available to house the tensile structure. Access to and use of the service was extended to all citizens, including non-residents in Paderno Dugnano. The Paderno swab testing hub added to those already operating in the area.

The free loan agreement for the use of the car park in front of the Racconigi plant, signed with the Municipality of Paderno Dugnano, was a source of great satisfaction for ADI. We immediately made ourselves available to respond to the need of the territory, having an appropriate and logistically suitable space to create a hub for carrying out molecular swabs in a critical emergency situation, such as the one caused by pandemic.



5 | Our commitment for the environment

5 | Our commitment for the environment

The Group tries to pursue its objectives through an adequate use of natural resources and in compliance with current regulations, in line with the EU objective of achieving climate neutrality by 2050. Acciaierie d'Italia Holding S.p.A. is providing itself with the technologies necessary to complete the environmental transition through strategic partnerships with some of the main technological and infrastructural companies active in our country and abroad. Based on the best practices adopted in terms of innovation, Acciaierie d'Italia Holding S.p.A. is already committed to further improving environmental performance in key areas such as air emissions and wastewater treatment. The environmental improvement program of Acciaierie d'Italia Holding S.p.A., currently underway, is part of the initiatives promoted starting from 2018 in its plants in Taranto, Genoa and Novi Ligure.

The Group has launched an irreversible process of deep transformation and has placed the **ecological transition**¹² at the centre of its actions and investments, including **energy transition**¹³ for the progressive decarbonization of the integrated cycle, research, process and product innovation, and competitiveness.

Taranto: 2022 Sustainable Development Plan

Today, Taranto is the only iron and steel plant in Italy with an integrated cycle, capable of producing steel starting from raw materials: iron ore and coal. The Taranto plant has a **strategic central role** both in the production cycle of Acciaierie d'Italia and in the Italian industrial system. It is strategic for the manufacturing industry because it feeds large primary sectors of the Italian and European metalworking industry: from automotive to infrastructure, from shipbuilding to the energy and food sectors.

From the point of view of energy transition, the **decarbonization** of the integrated cycle means reducing, up to eliminating, the CO₂ emissions generated in the combustion of coal. This is what the Group is implementing in the Taranto plant, in line with the new strategies of European steel producers, both in terms of objectives to be achieved and implementation time, which is above all technical time. Therefore, the Taranto plant has defined a **Sustainable Development Plan** for the decarbonization of the integrated cycle.

The Sustainable Development Plan considers the following factors as essential:

- **the environment**, with a gradual conversion of the production process to use hydrogen in the coming years and reduce emissions, and consequently the environmental impact also in the traditional production process, without discontinuity in production or loss of market shares;
- **employment**, ensuring employment continuity, and consequently the stability of production also in the transition period, also by retraining personnel on new technologies (industrial development of the territory);
- **economic sustainability**, by building a new technological structure with an economically and commercially competitive productivity, in terms of availability of new production factors, attention to the unit costs of gas, electricity and CO₂ in order to stay competitive;
- **growth**, hand in hand with investments, it is necessary to increase market shares and product quality levels.

¹² The definition of **ecological transition** outlines an economic and social model, developed to reformulate radically and more sustainably the way in which the planet's resources are exploited to live, produce and work.

¹³ **Energy transition** means the transition from an energy mix centered on fossil fuels to another one with low or zero carbon emissions, based on renewable sources.

The sustainable development plan for decarbonization is divided into **4 phases**, over a period of at least **10 years**, through:

New technologies

1. the optimization of environmental sustainability in the hot area and energy efficiency of the plants, first of all by completing the interventions foreseen by the Environmental Plan, then by adopting new technologies to reduce polluting emissions, introducing new technologies for energy recovery and efficiency by launching trials on CO₂ capture and starting trials on the use of hydrogen in iron and steel production processes;
2. the electrification of production processes in the hot area with the introduction of iron ore direct reduction technology known as **DRI**¹⁴ and the use of an electric furnace, including the experimental use of hydrogen as energy carrier;
3. the extension of the electrification in the hot area and the introduction of a second group of DRI + electric furnace;
4. finally, the completion of the electrification in the hot area and shutdown of all the blast furnaces, moving on to DRI direct reduction cycle, fuelled by gas and electric furnaces.

This path will allow to obtain a progressive reduction in CO₂ emissions, which will disappear when 100% transition towards green hydrogen is complete, and a gradual reduction in dust emissions (-97%), fine particles (-93 %) and PAHs - polycyclic aromatic hydrocarbons (- 90%) compared to the standard values of 2016, considered as a reference year.

Collaborations

The decarbonization plan of the Taranto plant is ambitious and can only be achieved through a systemic approach involving the entire supply chain: energy suppliers, engineering companies and manufacturers of innovative plants for the iron and steel sector, Universities, Polytechnics and Research Centres. For this reason, during 2022, Acciaierie d'Italia, consolidated strategic collaboration relationships for the decarbonization and innovation of processes with the main technological and infrastructural groups of our country.

In order to give methodological and scientific support to the issues of process innovation and ecological and energy transition, the Group has created a new **Research and Development Centre** in Taranto capable of operating in a European context and whose mission is above all that of expanding the scientific network to build an Italian industrial excellence network, develop an independent planning capacity able to suggest technological innovation and digitalization initiatives, and act as a driving force for the birth of the hydrogen steel industry.

The new research centre Excellence hub

Therefore, the **Research and Development Centre** aims to become in Italy, and in particular in Southern Italy, an **excellence hub** for decarbonization and for the development of hydrogen technology in the iron and steel industry.

As foreseen in the implementation phases of the sustainable development plan, also in line with the programs defined by the PNRR (national plan of resistance and resilience), the Group, in collaboration with the CSM-RINA, wishes to carry out a project, called **Hydra**, a pilot-scale of **DRI** process with an electric furnace, fuelled by green hydrogen produced through an electrolyser. This experience will make it possible to acquire the technological know-how for the construction of an industrial plant with a production capacity of 2 to 2.5 million tonnes of DRI which will feed an electric furnace for the production of hot metal and/or steel.

Hydrogen as energy carrier

Today the technology of DRI feeding by methane gas is known, but the use of hydrogen as a partial or total replacer of methane which, although to a lesser extent, makes production by burning CO₂, is still in the initial phase of experimentation. In the future, the DRI plant will be able to be powered by green hydrogen produced using renewable energy sources, thus allowing to achieve the target of producing **green steel**.

The Environmental Plan

With reference to the Taranto plant, the **Environmental Plan** represents the set of interventions undertaken to comply with the provisions of the AIA decree (Integrated Environmental Authorization) of 2011, reviewed in the subsequent AIA review of 2012 and in the subsequent DPCMs of 2014¹⁵ and 2017¹⁶. Current and planned investments for the Taranto site amount to a total of approximately 1.88 billion euros, a higher value than that reported in the 2021 report (1.77 billion euros) due to unforeseen project modifications.

The **Environmental Plan** is one of a kind, contemplating some of the most ambitious goals ever set, worldwide, for a steel plant.

The Group is committed to further improving environmental performance in key areas such as air emissions and wastewater treatment, adopting the "best practices" in terms of innovation and respecting all the emission parameters established by the AIA authorization.

Among the most important interventions and investments made in 2022 the following can be mentioned:

- the coverage completion of the primary (iron ore yard in 2019 – coal yard in 2021) and secondary raw material stockyards and of conveyor belts (in 2021) to reduce dust emissions;
- the installation of three MEROS® filters to reduce dust and dioxin emissions on the two lines of the sinter plant;
- improvement of the wastewater and rainwater treatment system.

¹⁴ **DRI** (Direct reduction of iron) identifies a technological process that allows to obtain metallic iron directly, starting from iron ore, without using coal of a fossil origin.

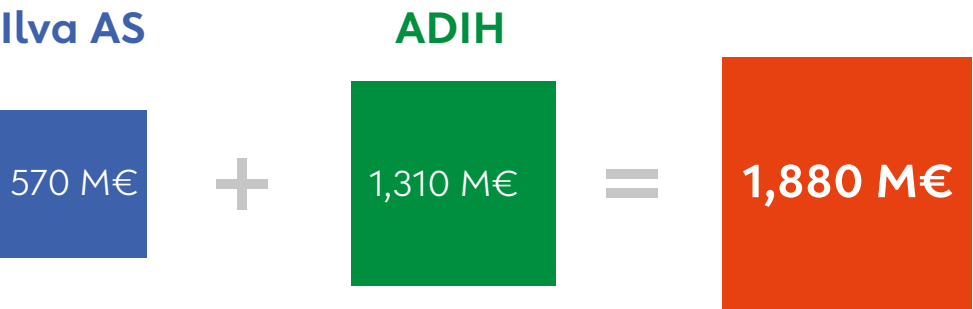
¹⁵ Prime Minister Decree (DPCM) of 14 March 2014 (Official Journal no. 105 of 8/5/2014): Plan of measures and activities for environmental and health protection (so-called Environmental Plan) integrates and amends the provisions of AIA 2011 and 2012 and contains further provisions for compliance with regulations on major accidents and worker safety.

¹⁶ Prime Minister Decree (DPCM) of 29 September 2017 "Approval of the amendments to the Plan of measures and activities for environmental and health protection pursuant to Prime Minister Decree of 14 March 2014, pursuant to article 1, paragraph 8.1., of the decree-law 4 December 2015, no. 191, converted, with amendments, by law 1 February 2016, no. 13".

CATEGORY	ENVIRONMENTAL PLAN PRESCRIPTIONS	INVESTMENT (M€)
1	Sinter Plant	123
2	Coke oven batteries	234
3	Noise monitoring	2
4	Covers and barriers	467
5	CPI (fire prevention certificate)	195
6	Demolitions	24
7	Denitrification (de-NO _x) system at ADI Energia ¹⁷	148
8	Soil and groundwater measures	9
9	Rolling mills comprehensive improvement plan	11
10	Waste plan	178
11	Asbestos removal	87
12	Stacker/Reclaimers (unloading/loading machines at the primary stockyards) ¹⁸	25
13	Steel shop	51
14	Industrial water treatment	16
15	Rainwater treatment	168
16	Blast Furnace	84
17	Monitoring and control plan	28
18	Others	34
TOTAL INVESTMENTS		1,880

Table 34: expenditure commitment for the investments of the Environmental Plan


The expenditure for the implementation of the Environmental Plan, as required by the 2017 DPCM, is the sum of the contribution by ILVA in Extraordinary Administration, until October 2018, for an amount of approximately €570 million, and the subsequent one of Acciaierie d'Italia Holding for an amount of approximately €1,310 million. Therefore, the total budget available in 2022 was €1,880 million.





Budget of the projects related to the Environmental Plan

The following table shows the main projects, with the objectives to be achieved and the expected improvements. For further details and for the description of the projects, see the appendix.

¹⁷ The interventions of ADI Energia are not part of the environmental plan of ADI S.p.A. but are related to the AIA review of ADIE.
¹⁸ The replacement of the stacker/reclaimer machines has become necessary following the AIA prescription relating to the coverage of the coal stockyard.

PROJECTS		
1: Sinter Plant		
MEROS® Filters	Objective: Reduction of dust and dioxin emissions on the two lines of Sinter Plant. Expected benefits: Reduction of dioxin and dust emissions to comply with new and much stricter limits.	
2: Coke oven batteries		
SOPRECO System Batteries #7-8-9-12	Objective: Possibility of adjusting the pressure of each coke oven to a predefined value according to the gas produced. Expected benefits: Reduction in fugitive emissions during distillation, reduction of BaP and other polycyclic aromatic hydrocarbons.	
Quenching towers #5-4bis- 6	Objective: Reduction of dust content in the steam from wet quenching of coke. Expected benefits: Reduction of dust content to comply with new and stricter limit.	
Suction and dedusting system at pushing phase Batteries #7-8-9-10-12	Objective: Improve the collection and filtration system at coke pushing phase on coke side of Batteries #7-8-9-10 and 12. Expected benefits: Reduction of fugitive emissions during the coke pushing phase.	
Dedusting systems at coke oven stacks E424 (Bat 7-8), E425 (Bat 9-10), E428 (Bat 12)	Objective: Installation of new filters for dedusting of combustion fumes at coke oven batteries. Expected benefits: Reduction of emissions from combustion fumes to comply with the new and stricter limit.	
Construction of a new coke oven gas desulphurization line	Objective: Construction of a new coke oven gas desulphurization line (Claus plant) and construction of a new cooling system called "chilling water". Expected benefits: keeping H ₂ S value below AIA limits even during maintenance stops of the existing line.	

PROJECTS		
4: Covers and barriers		
Windbreak barrier at BF slag yard and GRF area (ferrous scrap recovery yard)	Objective: Construction of perimeter barriers and wetting systems at the BF slag storage yard and the ferrous scrap recovery yard. Expected benefits: Reduction of possible diffuse emissions due to the erosive action of wind on the BF slag stockpiles and ferrous slag recovery yard respectively.	
Enclosing of conveyor belts (prescription no. 6 of DPCM 2017)	Objective: Reduction of possible dust emission points due to the transport and transfer of raw materials and by-products. Expected benefits: Elimination of dust emissions due to wind and material handling.	
Coverage of stockyards (AIA prescription no. 1)	Objective: Installation of 2 megastructures covering the iron ore and coal stockyards, each measuring 476x254x77 meters. Expected benefits: Eliminate the action of wind erosion on raw materials stockpiles, also avoiding raising of dust during stacking and reclaiming operations.	
Enclosure of secondary stockyards (AIA prescription no. 4)	Objective: Erection of vaulted and/or pyramidal coverage systems with metallic bearing structures resting on reinforced concrete walls, and corrugated sheet roofing alternating with polycarbonate sheets. Expected benefits: Eliminate the action of wind erosion on raw materials stockpiles, also avoiding raising of dust during stacking and reclaiming operations. <i>Note: from top to bottom, iron ore blend yard coverage and limestone yard coverage.</i>	 
6: Demolitions		
Prescription no. 18 Demolition of BF 3	Objective: Demolition of Blast Furnace no. 3. Expected benefits: Reduction of environmental impact risk and clean-up of the area.	

PROJECTS		
Prescriptions no. 16.e) 42-49 of DPCM 14/03/2014 – Demolition of coke batteries #5-6	Objective: Demolition of batteries #5-6 and subsequent clean-up. Expected benefits: Reduction of environmental impact risk and clean-up on the areas.	
7: De-NO _x ADI Energia		
Gas treatment system at the thermoelectric power plant CET2	Objective: Installation of a gas treatment system for each of the three units at the power plant CET2 of ADI Energia plant. Expected benefits: Reduction of NO _x , SO _x and dust from boiler exhaust gases.	
9: Comprehensive Plan		
Comprehensive proposal for environmental improvement of installations downstream the steel shop	Objective: Various environmental improvement activities, spread over several operational areas of the plant. Expected benefits: Reduction of emissions into the atmosphere, better efficiency of wastewater treatment.	
10: Waste plan		
G2 landfill	Objective: Restoration of the original hill/quarry profile and monitoring of environmental conditions. Expected benefits: Environmental recovery of the original place profile.	
Prescription UP3 of ILVA waste and by-product plan	Objective: Removal of an old pile of blast furnace sludge and dust made in the quarry area. Expected benefits: Recovery and/or disposal of blast furnace sludge at external plants authorized for such activities.	
Prescription UP2 of ILVA waste and by-product plan	Objective: Removal of an old pile of dust from cleaning activities made in the primary stockyard area. Expected benefits: Disposal of this material at external plants authorized for such activities.	

PROJECTS	
11: Asbestos removal	
Comprehensive asbestos removal plan	Objective: Removal of existing asbestos from some installations. Expected benefits: Reduction of the existing quantity of asbestos in the plant.
12: Stacker Reclaimer (unloading/loading system at the primary stockyards)	
Replacement of the stacker/reclaimers	Objective: Replacement of the existing stacker/reclaimer system with a new one compliant to ATEX directive. Expected benefits: Together with stockyard coverage, reduction of dust emissions and of ATEX risk in a closed environment such as the coal stockyard.
13: Steel shop	
Steel shop no. 1 converters suction and secondary dedusting system	Objective: Improved suction of fumes during converter process phases (charge, blowing, tapping, deslagging). Expected benefits: Reduction of fumes coming out of the steel shop building and compliance of filter with emission limits at stack.
14: Process water treatment	
Construction of a plant for the removal of selenium from the wastewater of the coke plant	Objective: Modification of the process flow by placing a stripping plant upstream of the biological purification system and building of a new biological nitro-denitro system, and installation of a section dedicated to selenium removal. Expected benefits: Reduction of BOD5 and selenium mass flows from coke oven wastewater.
Water treatment plant for the blast furnaces	Objective: Installation of a BF gas scrubbing water treatment plant. Expected benefits: Reduction of the content of suspended solids, iron, lead and zinc and of free cyanides. The intervention minimizes the concentrations of pollutants discharged into the sea.
15: Rainwater treatment	
Management, collection and treatment of rainwater from hot area	Objective: Collecting and purifying rainwater falling in the hot areas and on the enclosures of the primary and secondary stockyards through dedicated plants. Expected benefits: The environmental benefits connected to this intervention are protection of soil and reduction of pollutants (suspended solids, hydrocarbons and metals) sent to the final treatment systems at the discharge channels.

Energy management

Acciaierie d'Italia Holding Group is constantly engaged in the search for solutions capable of reducing the use of energy in its production process, in line with the commitment of the company to make its production processes more and more sustainable. The iron and steel business, in fact, is one of the industrial activities that most need energy for production.

In this regard, in 2022 the Taranto plant adopted an Energy Management System (EMS), a voluntary tool that covers all the important factors in terms of energy demand and that can affect the energy performance of any organization. The EMS complies with the requirements of ISO 50001 standard.

UNI CEI EN ISO 50001 Standard



ISO 50001 was designed to allow any organization to pursue the continuous improvement of its energy performance, following a systematic approach, including:

- Improvement of the energy uses of the organization's assets;
- Energy efficiency;
- Reduction of energy costs.

The ISO 50001 standard is applicable to any organization, it defines and addresses the most important requirements regarding energy consumption, including measurement, procurement, documentation, design, equipment, processes and personnel. All of these factors can affect the energy performance of an organization.

ISO 50001 standard is structured according to the general approach Plan-Do-Check-Act

- **Plan:** establish the organization's energy baselines, as well as define the objectives, targets and action plans necessary to improve energy performance;
- **Do:** implement an effective energy management action plan;
- **Check:** provide a methodological and operational approach for monitoring and analyzing the energy performance of company assets;
- **Act:** continuously improve the energy performance of the company assets with the aim that the EMS does not become just a niche tool, but rather an integral part of the organization’s energy policy and an integral part of the daily operations related to energy management.

Energy consumption

The Organization's Energy Balance, shown in the following table, takes into account the input energy carriers necessary for the production cycle (e.g. electricity, fossil fuels, hydrocarbons, etc.) as well as contemplating the portion of excess energy reintroduced into the grid. The data shows a decrease of about 9% due to the reduction in the consumption of natural gas and purchased coke. This decrease is partly explained by the decrease in production, as well as an orientation towards self-production of coke using coal instead of its purchase.

VALUES IN TJ		2020	2021	2022
INPUT	Electricity from the network	1,725.75	2,217.82	2,242.41
	Electricity from photovoltaic system	2.20	2.20	2.59
	Natural Gas	25,729.75	29,736.94	26,667.30
	Coal	56,253.35	60,674.98	62,683.76
	Anthracite	15.69	16.99	18.48
	Purchased coke	12,295.74	19,870.66	9,898.42
	Petrol	10.89	11.28	11.00
	Diesel for locomotives	62.47	69.67	65.07
	Diesel for automotive	126.88	150.24	134.01
	Marine diesel	136.67	122.67	111.53
	Thick marine oil	713.99	745.74	1,050.29
	Total Energy input	97,073.37	113,619.18	102,884.85
OUTPUT	Electricity sent to the grid (*)	725.25	902.77	390.18
	Electricity deriving from photovoltaics, sent to the grid (**)	0.89	0.83	1.14
	Tar	1,383.00	1,374.20	1,505.67
	Total Energy output	2,109.14	2,277.80	1,896.98
	Energy consumption	94,964.24	111,341.38	100,987.87

Table 35: energy consumption within Acciaierie d'Italia Holding

(*) electricity deriving from the production of ADI Energia thermoelectric plant
(**) energy produced by the photovoltaic system installed in the Paderno plant

The total energy consumption was calculated by adding the energy input and subtracting the energy output.

For the Taranto plant, in terms of energy efficiency, the recovery of energy from the following has a high impact:

- internal **reuse of iron and steel gases** (blast furnace gas or BFG, coke oven gas or COG and BOF gas from steelmaking) for the internal production of electricity and steam through their combustion in the ADI Energia thermoelectric plant;
- generation of electricity by means of **TRT turboexpanders** (Top gas pressure Recovery Turbine) installed on top of the blast furnaces;
- recovery of heat energy with the **HRS system** (Heat Recovery System) on BF 1 and BF4 blast furnaces, by means of which the heat in the exhaust gas is transferred to the BF gas and to the combustion air entering the blast furnaces, allowing for saving of natural gas;
- recovery of heat energy with **GVR system** (Steam Recovery Generators) installed in the steel shop for the production of technological steam. This system allows the production of steam without any use of fuel (natural gas);
- recovery of heat energy with **GVR system** (Steam Recovery Generators) installed in the coke plant by-products area for the generation of process steam via a recovery boiler. This system allows the production of steam without any use of fuel (natural gas).

Since 2022, the Novi Ligure plant has been equipped with a system for recovering heat energy from the coil annealing line (continuous annealing plant – CAPL).

The table of energy carriers that allow energy recovery is as follows:

ENERGY PRODUCED INTERNALLY [TJ]		2020	2021	2022
PRODUCED INTERNALLY	BF Gas	7,962.12	11,800.48	9,296.70
	Reuse of iron and steel gases			
	COK Gas	5,656.26	5,131.38	4,496.07
	BOF Gas	1,362.41	1,499.86	1,314.36
	Electricity from TRT turboexpanders	132.07	83.89	86.82
	Heat energy recovered in Cowpers (hot stoves) with HRS system	457.28	297.55	360.39
	Heat energy recovered with GVR system	502.03	562.61	489.89
	Heat energy recovered in the CAPL plant (Novi Ligure)	0.00	0.00	59.77
	Total Energy produced internally/recovered	16,072.16	19,375.78	16,104.00
	Reduction of energy demand	14.20 %	14.57 %	13.53 %

Table 36: energy produced internally and recovered through iron and steel gas combustion recovery operations or heat recovery for the entire Holding

It is worth noticing the **Reduction of energy demand**, i.e. the percentage ratio between internally produced/recovered energy and energy demand (sum between internally produced/recovered energy and energy input to the Organization).

From the table shown above it can be seen that the reduction in energy demand is approximately **14%**: in other words, in 2022, in the absence of recovery technologies, the Organization would have had to procure a quantity of energy increased by 16,104 TJ equal to **13.53%** considering the actual demand during the year.

The Table 37 aim is to make a comparison of the consumption by the single plants, where possible, aggregated by type of business or finished product. In this case, the Taranto plant is not comparable to any of the other sites since all the typical operations of the integrated **steelmaking cycle** are performed there; steelmaking is delegated to Taranto, with reprocessing in the following phases both within the site and in the other plants or service centres.

The ADI Energia thermoelectric plant fulfils the function of **energy production** necessary for steelmaking. The plants in Novi Ligure and Genoa are classified among the **cold rolling mills**, which are in charge of reprocessing the coils coming from Taranto. The **service centres** of Paderno and Legnaro are comparable due to their reprocessing operations (generally levelling and longitudinal cutting) of the coils. The three plants in Racconigi, Salerno and Socova are dedicated to the **production of pipes** of various sections. The Marghera **logistic hub** is a distribution centre of finished materials in Northern Italy. Finally, **transport by sea** is carried out by the internal fleet of ADI Servizi Marittimi.

ENERGY CONSUMPTION [TJ]				
Category	Site	2020	2021	2022
Steelmaking cycle	Taranto	72,469.24	84,818.19	77,146.07
Power plant	ADI Energia	17,994.36	20,695.08	18,720.85
Cold rolling mills	Novi Ligure	1,891.73	2,795.93	2,018.10
	Genoa	1,661.64	2,037.95	1,845.59
Service centres	Paderno	15.43	19.12	11.24
	Legnaro	3.87	3.38	3.27
Pipe mills	ADI Tubiforma	5.28	10.47	11.21
	Racconigi	56.91	76.29	52.65
	ADI Socova	4.20	5.27	7.12
Logistic hub	Marghera	6.02	6.29	5.77
Transport by sea	ADI Servizi Marittimi	850.66	868.41	1,161.82

Table 37: energy consumption in Terajoule of sites/plants aggregated by production category

Note: the Milan administrative office is not reported in detail in the Table 37 as it is not significant.

Energy intensity

Energy intensity is an indicator that defines energy consumption as a specific parameter of an organization, and it is representative of its business sector. Acciaierie d'Italia Group is made up of different production realities, this is why the specific parameters to be used as the denominator of the above indicator are often not comparable.

The Table 38 highlights the choice of the most representative indicator for the single production sites of the Group. For the Taranto, Genoa and Novi Ligure sites whose output consists of the finished product, the choice of the parameter fell on the first semi-finished product produced within the site's production process.

This means that for the Taranto plant the reference parameter is made up of tonnes of **net slab**, i.e. the semi-finished product leaving the steel shop; whereas, for Novi Ligure and Genoa, the quantity of material processed in the first station of the plants, i.e. the **pickling line**, was chosen. For Paderno, Legnaro, ADI Tubiforma (Salerno), Racconigi and ADI Socova, the **production** value of the finished product was considered as representative. For the logistic hub of Marghera, where there are no physical transformation processes of the material, the adopted indicator was the volume of **shipped** product. For the ADI Energia thermoelectric plant, the quantity of **produced energy** was chosen (i.e. the sum of generated electricity and steam). Finally, the **TWS** (Transport Work Ship) indicator is considered for the ADI Servizi Marittimi fleet, intended as the product of the nautical thousand miles traveled in the year times the million tonnes of material transported.

The table below summarizes the specific parameter adopted for the various sites/plants belonging to Acciaierie d'Italia Group.

COMPANY	SPECIFIC PARAMETER	PARAMETER MEASUREMENT UNIT
Taranto	Weight of the NET SLAB	[kton]
ADI Energia	PRODUCED ENERGY (Electricity + steam)	[MWh]
Novi	Weight of PICKLING LINE production	[kton]
Genoa	Weight of PICKLING LINE production	[kton]
Paderno	Weight of finished product PRODUCTION	[kton]
Legnaro	Weight of finished product PRODUCTION	[kton]
ADI Tubiforma	Weight of finished product PRODUCTION	[kton]
Racconigi	Weight of finished product PRODUCTION	[kton]
ADI Socova	Weight of finished product PRODUCTION	[kton]
Marghera	Weight of SHIPPED product	[kton]
ADI Servizi Marittimi	TRANSPORT WORK SHIP corresponding to miles travelled by the fleet times tonnes of material transported by it	[kmile*Mton]

Table 38: typical parameter of production for the Group's sites/plants

The value of the chosen specific parameter is the following:

SITE SPECIFIC PARAMETER	MEASUREMENT UNIT	2020	2021	2022
Taranto	[ton]	3,371,047	3,996,476	3,408,997
ADI Energia	[MWh]	3,325,774	3,741,360	3,424,814
Novi Ligure	[kton]	501.15	1,004.11	590.22
Genoa	[kton]	520.91	684.65	546.52
Paderno	[kton]	20.00	63.15	55.71
Legnaro	[kton]	11.00	29.28	23.85
ADI Tubiforma	[kton]	9.57	37.34	27.83
Racconigi	[kton]	37.36	87.95	60.12
ADI Socova	[kton]	6.11	13.71	18.89
Marghera	[kton]	292.56	249.54	253.65
ADI Servizi Marittimi	[kmile*Mton]	311.18	354.06	539.38

Table 39: specific parameter value for the calculation of energy intensity by production site

For the Taranto plant, a reduction in production of **14.7%** is observed in the period 2021-2022.

Table 40 shows the value of **energy intensity** understood as the ratio between the energy demand of the single plants and the previously defined parameter. In particular, the Taranto plant, due to its huge energy demand, results to have the highest energy intensity value: despite the **9%** reduction in energy

consumption, as shown in Table 37, there is an increase by **6.6%** of the energy intensity value between 2021 and 2022. This result can be justified by a reduction in production volumes by almost 14.7% (value referring to the tons of net slab produced in Taranto), as can be seen in Table 39.

ENERGY INTENSITY	MEASUREMENT UNIT	2020	2021	2022
Taranto	[TJ/kton]	21.50	21.22	22.63
ADI Energia	[MWh _{in} / MWh _{out}]	1.50	1.54	1.52
Novi Ligure	[TJ/kton]	3.77	2.78	3.42
Genoa	[TJ/kton]	3.19	2.98	3.38
Paderno	[TJ/kton]	0.77	0.30	0.20
Legnaro	[TJ/kton]	0.35	0.12	0.14
ADI Tubiforma	[TJ/kton]	0.55	0.28	0.40
Racconigi	[TJ/kton]	1.52	0.87	0.88
ADI Socova	[TJ/kton]	0.69	0.38	0.38
Marghera	[TJ/kton]	0.02	0.03	0.02
ADI Servizi Marittimi	[TJ/kmile*Mton]	2.73	2.45	2.15

Table 40: energy intensity value of the Holding single sites

The production value in tonnes of net slab was chosen as a specific parameter of the Acciaierie d'Italia Group. The data relating to the Group's energy intensity is up by 6.3% compared to the previous year. This increase is due to a drop in production of around 15%, against a disproportionate decrease in energy consumption.

ENERGY INTENSITY	MEASUREMENT UNIT	2020	2021	2022
ADI Holding	[TJ/kton]	28.17	27.86	29.62

Table 41: energy intensity of the Holding

In order to satisfy, at least partially, its energy demand with renewable sources, Acciaierie d'Italia Group is studying interventions and investments in the photovoltaic field for the installation of new systems in specific identified areas, inside and outside the Taranto plant.

Acciaierie d'Italia may also participate, as a partner, in the integrated **IPCEI Hydrogen IT02** project with the objective of producing green hydrogen starting from electricity produced by photovoltaic systems. This green hydrogen will be used in the Taranto plant to support the ecological transition model at the basis of the path undertaken by Acciaierie d'Italia for the iron and steel innovation of production processes.

In addition, Acciaierie d'Italia Group has signed a **cooperation agreement with Falck Renewables company** (today **Renantis**), which operates in the field of renewable energies, developing and managing plants for electricity generation, in order to develop in the Taranto area and in the sea in front of the city, wind farms for electricity generation, both on-shore and off-shore. Acciaierie d'Italia may supply the steel necessary for the construction of the offshore wind farm platforms, while Falck Renewables may supply Acciaierie d'Italia with technical support and design prototypes for the construction of electrical power plants from renewable sources on the land of Acciaierie d'Italia.

Emissions and air quality

GHG Emissions

Due to the considerable size of the industrial area and the specificity of the production processes carried out, air emissions represent one of the most critical and monitored environmental components. In accordance with the GRI Standards, the emissions of greenhouse gases, called GHG¹⁹, have been reported in this document:

- direct emissions in tonnes of CO₂ equivalent, defined as **Scope 1**, deriving from sources owned or controlled by the Group;
- indirect emissions from energy consumption in tonnes of CO₂ equivalent, defined as **Scope 2**, resulting from the generation of purchased or acquired electricity, heating, cooling and steam consumed by the Group.

It should be noted that the Taranto, Novi Ligure and Genoa plants and the ADI Energia processes are part of the Emission Trading System (ETS)²⁰ from which the direct emissions values (Scope 1) have been taken; for the other subsidiaries of the Group, which are not included in the reporting of the ETS system, the calculation of direct emissions was carried out by adopting conversion factors obtained from analyses by internal laboratories.

The data associated with Scope 1 direct emissions is shown below, which is down by approximately 12% compared to 2021:

DIRECT EMISSIONS SCOPE 1 OF ADI GROUP			
	2020	2021	2022
Scope 1 ²¹ [tonCO _{2eq}]	8,451,248	9,879,346	8,661,621

Table 42: direct emissions in tonnes of CO₂ equivalent (Scope 1) of the Group

With reference to the reporting of energy purchased or acquired (Scope 2), in accordance with the GRI Guidelines, it is possible to define two valorisation methodologies:

1. **Location-Based** methodology which considers the average intensity of the GHG emissions of the networks on which the energy consumption takes place, mainly using data relating to the average emission factor of the network;
2. **Market-Based** methodology that considers the emissions from electricity that an organization has intentionally chosen with a contractual form.

The energy carriers considered for the calculation of indirect emissions are those deriving from the purchase of electricity from the grid deducted by the quantity of energy sold by the Group to the grid; the energy value thus obtained was multiplied by an emission factor to obtain the result in tonnes of CO₂ equivalent.

19 GHG means Greenhouse Gases, or the gases in the air that allow the entry of solar radiation while hindering the exit of infrared radiation emitted by the earth's surface, giving rise to the greenhouse effect phenomenon.

20 ETS is the European Union's Emissions Trading System and is one of the main tools on which EU policy is based to combat climate change and reduce greenhouse gas (GHG) emissions in a cost-effective way.

21 Internal parameters calculated from laboratory analyses. For ADISM, the calculation factor prepared by the fleet SEEMP (Ship Energy Efficiency Management Plan) plan of the fleet is used.

INDIRECT EMISSIONS SCOPE 2 OF ADI GROUP			
	2020	2021	2022
Scope 2: Location-Based ²² [tonCO _{2eq}]	120,524	154,894	156,512
Scope 2: Market-Based ²³ [tonCO _{2eq}]	219,368	280,683	283,593

Table 43: indirect emissions in tonnes of CO₂ equivalent (Scope 2) of the Group

The total contribution of emissions provided by "Scope 1" and "Scope 2" is represented by the sum of the two components which can be expressed in two results according to the Location or Market Based methodology. It is possible to observe a **reduction** in CO_{2eq} emissions (Scope 1 + Scope 2 LB) between the years 2021 and 2022 even to 12.12%, as shown in the following table:

TOTAL EMISSIONS OF ADI GROUP			
	2020	2021	2022
Scope 1 + Scope 2 Location-Based [tonCO _{2eq}]	8,571,772	10,034,241	8,818,133
Scope 1 + Scope 2 Market-Based [tonCO _{2eq}]	8,670,616	10,160,029	8,945,214

Table 44: total direct (Scope 1) e indirect (Scope 2) emissions in tonnes of CO₂ equivalent of the Group

As for energy, the total emissions (Scope 1 + Scope 2 Location-Based) of the single plants aggregated by type of business or finished product are reported.

TOTAL EMISSIONS SCOPE 1 + SCOPE 2 LOCATION-BASED [tonCO _{2eq}]				
Category	Site	2020	2021	2022
Steelmaking cycle	Taranto	5,591,543	6,096,257	5,525,253
Power plant	ADI Energia	3,442,085	4,405,242	3,745,729
Cold rolling mills	Novi Ligure	107,648	163,028	120,508
	Genoa	99,914	121,671	110,819
Service centres	Paderno	842	1,036	590
	Legnaro	231	209	200
Pipe mills	ADI Tubiforma	360	723	771
	Racconigi	3,466	4,695	3,299
	ADI Socova	63	77	104
Logistic hub	Marghera	406	427	399
Transport by sea	ADI Servizi Marittimi	61,945	63,249	84,658

Table 45: total emissions Scope 1 + Scope 2 (Location-Based) of the plants/sites aggregated by production category

22 Emission factor used 251.9 gCO_{2e}/kWh for Italy and 51 gCO_{2e}/kWh for France - Source: Isprambiente, "Efficiency and decarbonization indicators for total energy consumption and power sector.", 2022 Edition, Table 2.9).

23 Emission factors used for the years 2021-2022: 456.57 (IT) and 48.57 (FR) gCO_{2e}/kWh (Source: AIB, European Residual Mixes 2021 - Table 2, Direct GWP). For the year 2020: 458.57 (IT) and 58.52 (FR) gCO_{2e}/kWh (Source: AIB, European Residual Mixes 2020 - Table 2, Direct GWP).

Carbon intensity

Through the ratio between the sum of direct (Scope 1) and indirect (Scope 2, Location-Based) GHG emissions and the specific parameter of the Organization (as shown in Table 39), it is possible to determine the **carbon intensity**.

CARBON INTENSITY				
Company	Measurement unit	2020	2021	2022
Taranto	[tonCO _{2eq} /kton]	1,658.7	1,525.4	1,620.8
ADI Energia	[tonCO _{2eq} /MWh]	1.0	1.2	1.1
Novi Ligure	[tonCO _{2eq} /kton]	214.8	162.4	204.2
Genoa	[tonCO _{2eq} /kton]	191.8	177.7	202.8
Paderno	[tonCO _{2eq} /kton]	42.1	16.4	10.6
Legnaro	[tonCO _{2eq} /kton]	21.0	7.1	8.4
ADI Tubiforma	[tonCO _{2eq} /kton]	37.6	19.4	27.7
Racconigi	[tonCO _{2eq} /kton]	92.8	53.4	54.9
ADI Socova	[tonCO _{2eq} /kton]	10.3	5.7	5.5
Marghera	[tonCO _{2eq} /kton]	1.4	1.7	1.6
ADISM	[tonCO _{2eq} /kmile*Mton]	199.1	178.6	157.0

Table 46: values of carbon intensity by production site

As a specific parameter of Acciaierie d'Italia Group, the production value in tons of **net slab** was chosen, i.e. the slab already subjected to the conditioning process (inspections, scarfing and grinding) and ready for rolling.

CARBON INTENSITY	MEASUREMENT UNIT	2020	2021	2022
ADI Holding	[tonCO _{2eq} /kton]	2,543	2,511	2,587

Table 47: Holding's carbon intensity

Despite the reduction in CO_{2eq} emissions by **12.12%**, as shown in Table 44, there was an increase by **3%** in the value of carbon intensity between 2021 and 2022. This result can be justified by a reduction in production volumes by almost **14.7%** (value referring to the tons of net slab produced in Taranto), as can be seen in Table 39.

Other significant emissions

The Acciaierie d'Italia Group monitors various emissions into the atmosphere, both channelled emissions through chimneys and diffuse emissions, including nitrogen oxides (NO_x) and sulfur oxides (SO_x).

For the Taranto, Novi Ligure and Genoa plants, the emissions data are those reported in the annual E-PRTR declarations, sent to the control authorities and validated by them and transmitted to the European register of emissions and transfers of polluting substances.

Dust is not a parameter covered by the E-PRTR declaration; these data, starting from 2012, are in any case reported in the Annual Report sent to the supervisory authorities.

For the entire Group, the emission values for Dust, SO_x and NO_x are as follows:

MASS FLOWS OF CHANNELLED EMISSIONS AND DIFFUSE EMISSIONS [ton/year]			
	2020	2021	2022
Dust	730.18	801.23	426.58
SO _x	6,017.68	5,908.97	3,754.15
NO _x	7,126.92	8,482.28	8,186.00

Table 48: channelled emissions and diffuse emissions of the entire Group

ADI Taranto Plant

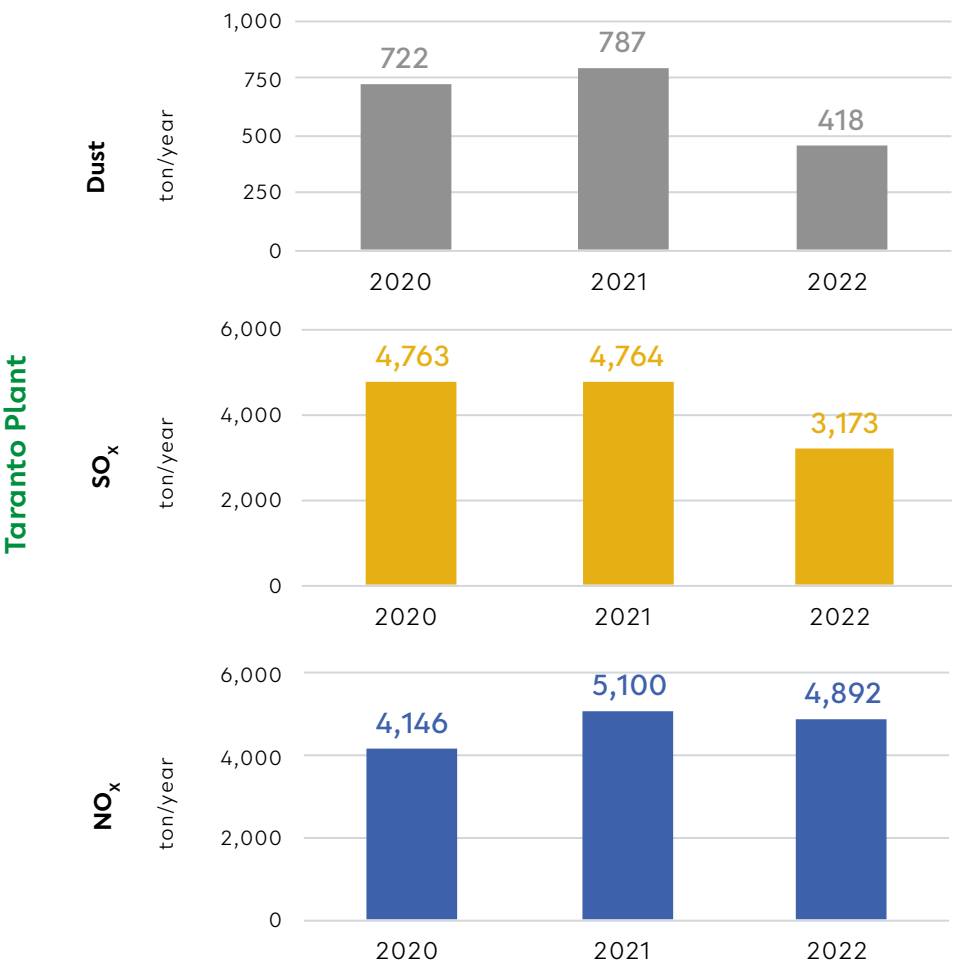
For the Taranto plant, which is the most critical from emissions point of view, the values in 2022 show a 40% reduction in dust compared to the previous year, and a 30% reduction in SO_x.

TARANTO PLANT MASS FLOWS OF CHANNELLED EMISSIONS AND DIFFUSE EMISSIONS [ton/year]			
	2020	2021	2022
Dust	721.80	787.10	417.7
SO _x	4,762.68	4,763.64	3,172.50
NO _x	4,146.00	5,100.28	4,892.10

Table 49: channelled emissions and diffuse emissions of Taranto plant expressed in tonnes/year

The **dust reduction** is due to the implementation of the prescriptions of the environmental plan. As an example:

- MEROS® filters operational since 2022 in the sinter plant;
- new dedusting systems for the coke oven stacks;
- new systems for collecting and treating emissions during coke pushing (between 2021 and 2022);
- coverage of conveyor belts, which was completed in July 2021.



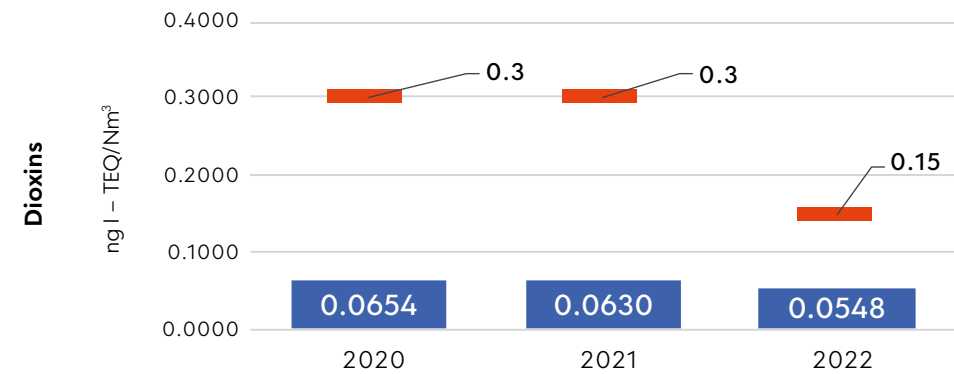
Graph 7: values of Table 49 rounded to the whole, of dust, SO_x and NO_x for the Taranto Plant

The emissions from the chimneys are measured periodically in accordance with the frequencies and sampling methods established by the AIA of the Taranto plant. To date, 23 chimneys in the hot area (Steel shops, Coke oven batteries, Sinter Plant, Blast furnaces) are equipped with a continuous monitoring system of emissions channelled into the atmosphere (EMS) and the data collected are transmitted in real time to the Provincial Department of Taranto of ARPA Puglia (Region environmental authority). Furthermore, the E312 chimney of the sinter plant is equipped with a long-term sampling system for the determination of the concentration of dioxins and furans (PCDD/F). The results of all measurements are periodically sent to the authorities. (MITE, ISPRA, ARPA Puglia, local authorities).

The following tables show information relating to the E312 chimney (sinter plant), which shows a reduction by 5% in 2022 compared to the previous year.

DIOXIN AVERAGE CONCENTRATION (PCDD/F) [ng I-TEQ/Nm ³]			
	2020	2021	2022
Dioxins	0.0654	0.0630	0.0548

Table 50: dioxins average concentration from the Taranto Plant



Graph 8: dioxins average concentration (PCDD/F). In red the limit value

In relation to the increase in benzene levels, ADI has provided documented evidence to ARPA Puglia that the increase in these levels is not attributable to the Taranto iron and steel plant which operates in compliance with the emission limits also thanks to the complete implementation of the prescriptions relating to coke oven batteries (with an investment of over €120 million). Therefore, ADI noted that it would be reasonable to evaluate and verify whether there are other possible sources of increase in the detection of benzene value. ADI has highlighted that the concentration levels detected in the control units of the urban area in the years 2020, 2021 and 2022 stayed below the limit set by the Legislative Decree 155/2010.

The dioxin ELV limit at chimney E312, expressed as an average annual concentration, was 0.3 ng I-TEQ/Nm³ until 31/12/2021; this value dropped to 0.15 ng I-TEQ/Nm³ from 01/01/2022 and, after the erection of the last MEROS® filter, it will become equal to 0.1 ng I-TEQ/Nm³.

The air quality outside the Acciaierie d'Italia plant of Taranto is constantly monitored through a network of control units managed by ARPA Puglia whose data is made available to the public on the ARPA Puglia website, and subject to periodic reports carried out by a section of the same Agency.

The control unit in Machiavelli Street is the most complete from the point of view of monitored pollutants and is generally taken as a reference for the characterization of air quality in the Tamburi district, near the industrial area. In addition to Acciaierie d'Italia, in this area there are also other industrial activities, the port activity and major roads such as mainly: Taranto-Reggio Calabria, Taranto-Brindisi and Taranto-Statte roads.

Among the parameters monitored in the aforementioned control unit subject to particular attention due to the effects on public health, there are suspended dust (PM₁₀ and PM_{2.5}) and benzo(a)pyrene – pollutants which, in addition to having various natural and anthropic origins, are also attributable to emissions deriving from various production activities.

The table below shows the trends calculated on the basis of the available data made public by ARPA Puglia.

PM ₁₀ , PM _{2.5} AND BENZO(A)PYRENE FROM MACHIAVELLI CONTROL UNIT ²⁴				
	Annual average limit	2020	2021	2022
PM ₁₀ [µg/m³]	40 [µg/m³]	24.40	24.00	23.98
PM _{2.5} [µg/m³]	25 [µg/m³]	12.09	11.00	11.17
BaP in PM ₁₀ [ng/m³]	1 [ng/m³]	0.22	0.33	0.26

Table 51: PM₁₀, PM_{2.5} and Benzo(a)pyrene from Machiavelli control unit

ADI Energia

For ADI Energia, the values in 2022 show a 50% reduction in SO_x compared to the previous year, and a 40% reduction in dust.

ADI ENERGIA MASS FLOWS OF CHANNELLED EMISSIONS AND DIFFUSE EMISSIONS [ton/year]			
	2020	2021	2022
Dust	5.6	8.7	5.2
SO _x	1,254.8	1,145.3	581.6
NO _x	1,274.2	1,470.8	1,213.5

Table 52: channelled emissions and diffuse emissions of ADI Energia expressed in tonnes/year

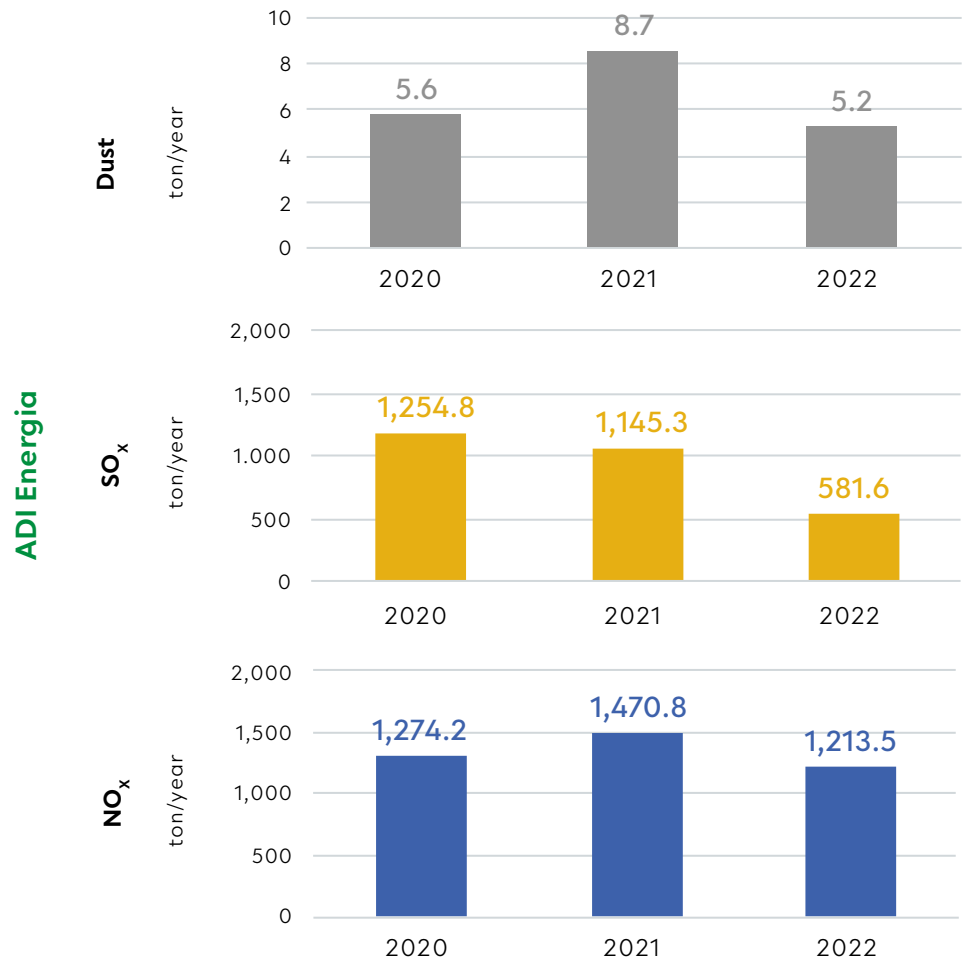
The production of SO_x is directly correlated to the presence of sulfur compounds in iron and steel gases: the power plant does not currently have any system for reducing this pollutant.



Coil - Taranto

24 The data shown in the table refer to the ARPA control unit in Machiavelli Street, located near the Taranto plant.

From 2021 to 2022 there was a reduction of iron and steel gases, used in ADI Energia, of approximately 18%, while the reduction of SO_x produced was approximately 49%, probably attributable to a different quality of iron and steel gases (in particular coke oven gas).

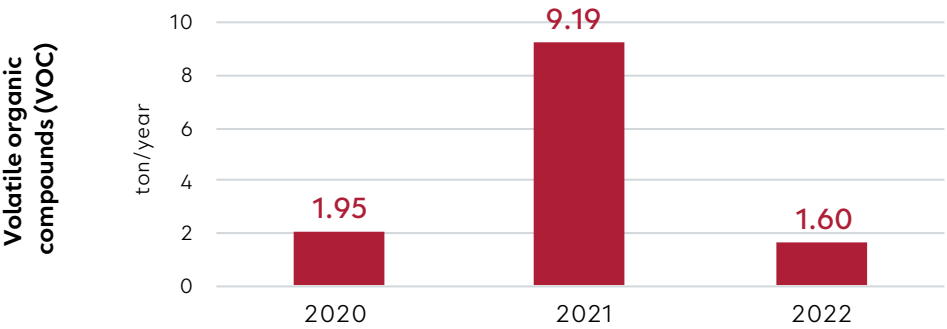


Graph 9: values of dust, SO_x and NO_x from Taranto ADI Energia

On the other hand, the data on fugitive emissions of volatile organic compounds (VOC) through the LDAR (Leak Detection And Repair), a programme that allows the identification of critical sources and the execution of targeted maintenance activities, show a marked improvement:

VOLATILE ORGANIC COMPOUNDS [ton]			
	2020	2021	2022
VOC	1.947	9.192	1.604

Table 53: volatile organic compounds for ADI Energia



Graph 10: volatile organic compounds (VOC) values emitted at Taranto from ADI Energia

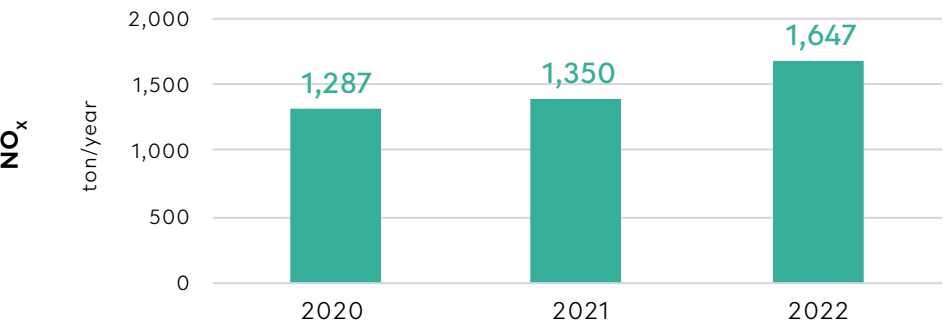
The VOC values derive from estimates made following periodic monitoring carried out according to the LDAR programme. The checks concern 5,232 components, such as pumps, compressors, valves and flanges in which there are some combustible gases used in the plant, in order to determine any leaks. Following the identification of a leak, a repair/replacement of the affected component is done, and subsequent monitoring is carried out. The maintenance activities done from 2021 to 2022 allowed to have a significant reduction of the estimated annual loss.

ADI Servizi marittimi

For ADI Servizi Marittimi, in particular for NO_x emissions, the EIAPP Certificate (Engine International Air Prevention Pollution) is issued for each engine according to the International Standard MARPOL ANNEX VI. The NO_x values in the year 2022 show an increase compared to previous years due to the sailing of ship "Gemma" which was stopped during those years.

ADI SERVIZI MARITTIMI MASS FLOWS OF NO _x [ton/year]			
	2020	2021	2022
NO _x	1,287	1,350	1,647

Table 54: mass flows emissions of NO_x for ADI Servizi Marittimi



Graph 11: trend of NO_x emitted by ADI Servizi Marittimi

Mal'Aria di città 2023

The results deriving from air quality monitoring were also evaluated by Legambiente in the recent report "Mal'Aria di città 2023" in which, with reference to the year 2022, a comparison is made of the average annual concentrations detected by 243 air monitoring units located in 17 regions²⁶ and representing 96 cities, with reference to three monitored pollutants such as fine particles (PM₁₀, PM_{2.5}) and nitrogen oxides (in particular nitrogen dioxide NO₂), considered by the international scientific community to be the main markers for describing the air quality we breathe. For each of them, the graphs related to the data contained in the report and the corresponding maps taken from it are shown below.

"MAL'ARIA DI CITTÀ 2023" REPORT BY LEGAMBIENTE – DATA FOR APULIA REGION ²⁵			
2022 Annual average values [µg/m³]	PM ₁₀	PM _{2.5}	NO ₂
Andria	34	16	22
Bari	23	13	22
Barletta	28	11	17
Brindisi	21	12	15
Foggia	21	11	20
Lecce	21	12	12
Taranto	21	11	18

Table 55: data from "Mal'Aria di città 2023" Legambiente Report representative of air quality of Apulian cities

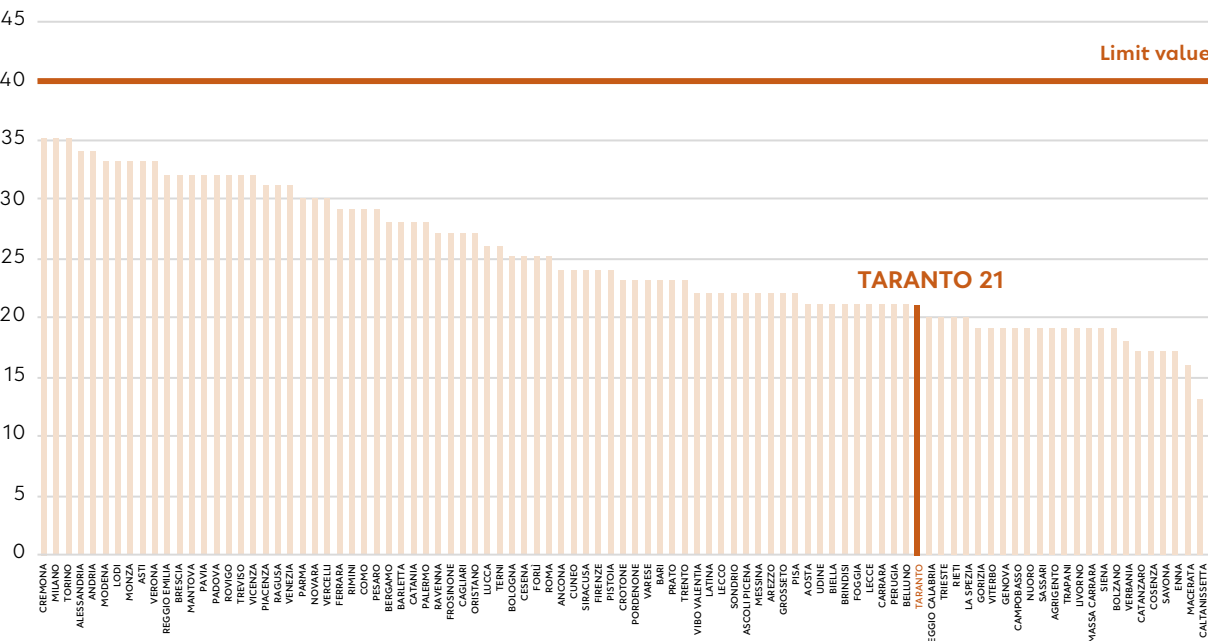
It should be noted that the data reported in "Mal'Aria di Città 2023" Legambiente Report refer to the ARPA control units located in the various regions. The data show that the city of Taranto recorded the lowest values even when compared to the other Apulian cities.

25 Data for Trani are not available.
26 As reported in the "Mal'Aria di città" Report of Legambiente, the regions of Abruzzo, Basilicata and Campania are excluded from the reporting since it was not possible to find the data, while for the Calabria region the data used represent the consolidated data for the first 6 months of the year.

The level of PM₁₀ emissions in 2022 places the city of Taranto in 72st position (out of a sample of 95) of the Italian cities covered by the survey, with an annual average concentration of 21 µg/m³.

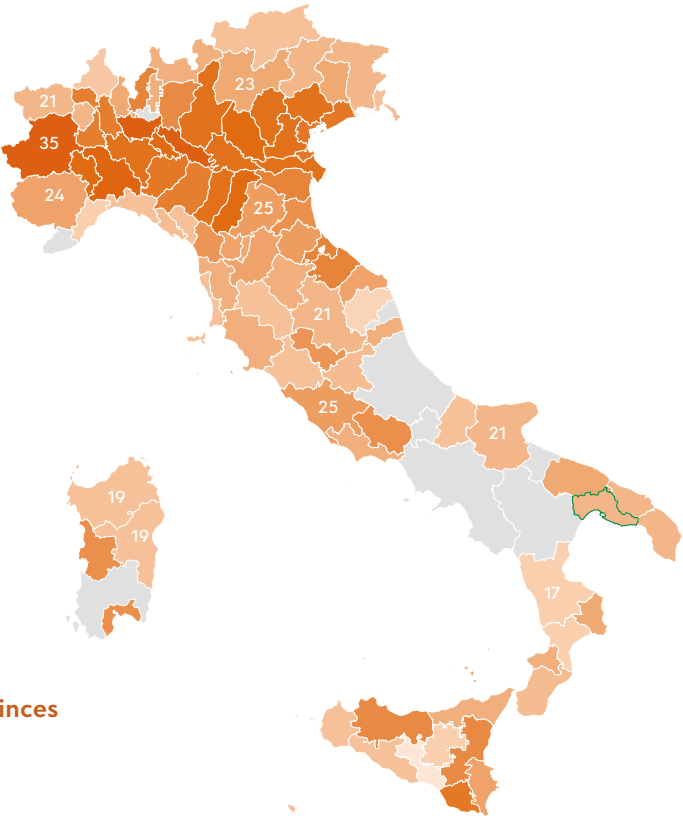
The limit of the annual average value established by Legislative Decree 155/2010 is equal to 40 µg/m³.

2022 Statistics - PM₁₀ - ANNUAL AVERAGE VALUES [µg/m³]



Graph 12: 2022 Statistics- PM₁₀

2022 Statistics - PM₁₀ - ANNUAL AVERAGE VALUES [µg/m³]



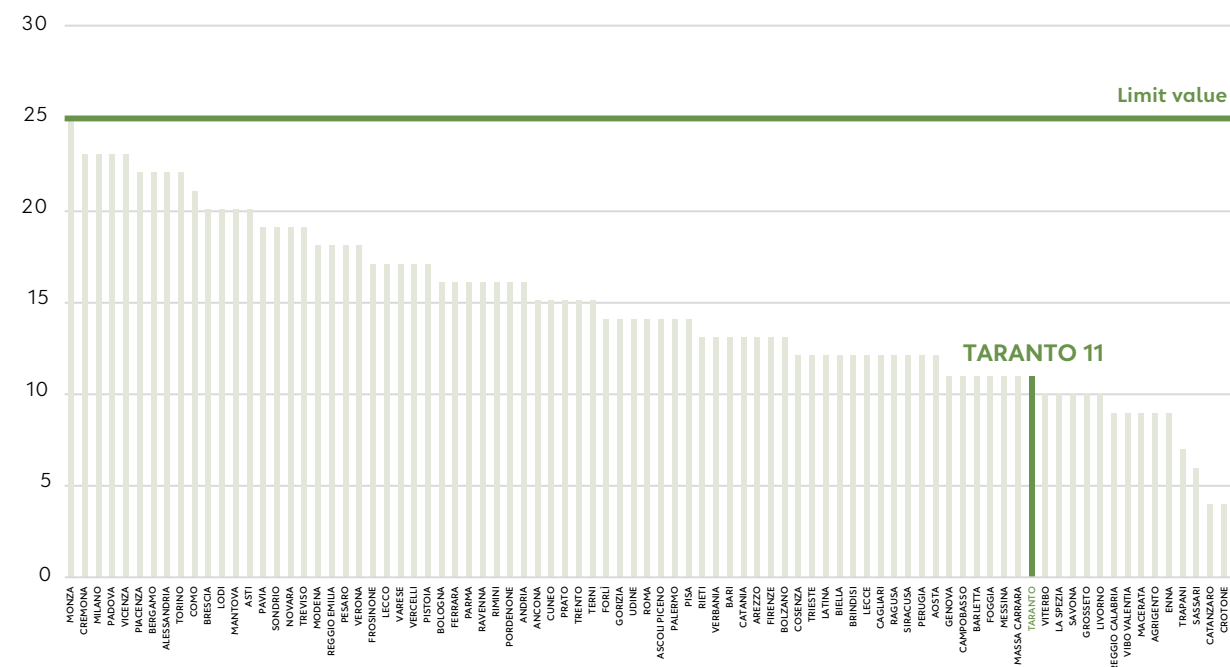
The statistics is negative: the top provinces are the most polluted.

Graph 13: 2022 Statistics- PM₁₀ – distribution by city

The ranking of cities, drawn up on the basis of PM_{2.5} surveys in 2022, has the city of Taranto in the 71st position out of a sample of 85 cities, with a measured value of 11 µg/m³.

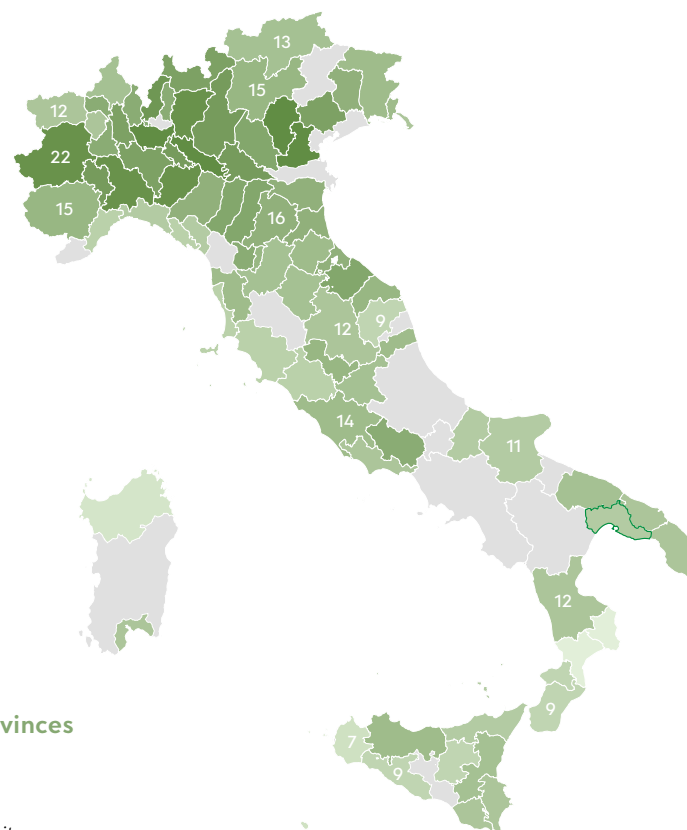
The limit of the annual average value established by Legislative Decree 155/2010 is equal to 25 $\mu\text{g}/\text{m}^3$.

2022 Statistics - PM_{2.5} - ANNUAL AVERAGE VALUES [µg/m³]



Graph 14: 2022 Statistics – PM_{2.5}

2022 Statistics - PM_{2.5} - ANNUAL AVERAGE VALUES [µg/m³]



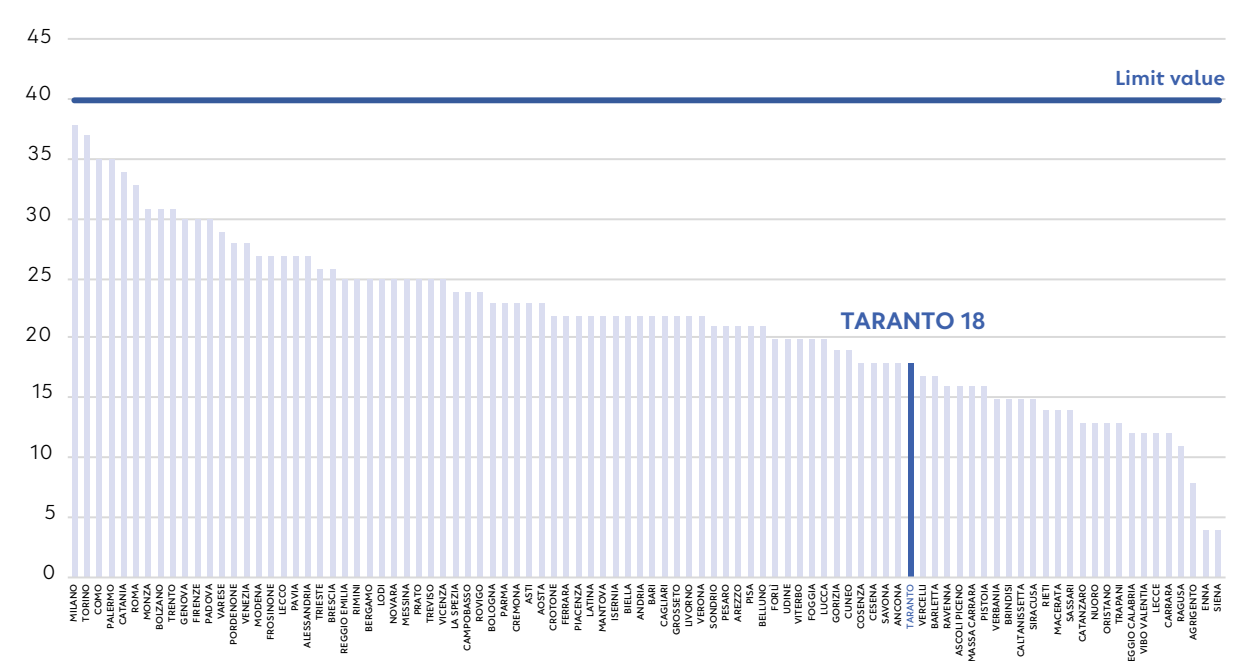
The statistics is negative: the top provinces are the most polluted.

Graph 15: 2022 Statistics – PM_{2.5} – distribution by city

Finally, as regards the distribution of NO₂ value over the various cities of the national territory, Taranto ranks 69th out of a sample of 94 cities, with a measured value of 18 µg/m³.

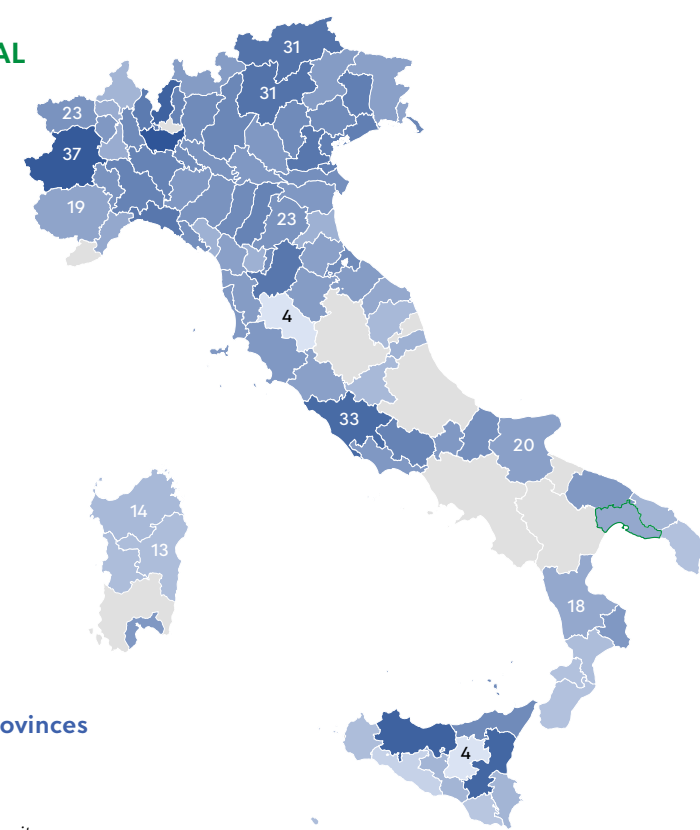
The limit of the annual average value established by Legislative Decree 155/2010 is 40 µg/m³.

2022 Statistics - NO₂ - ANNUAL AVERAGE VALUES [µg/m³]



Graph 16: 2022 Statistics – NO

2022 Statistics - NO₂ - ANNUAL AVERAGE VALUES [µg/m³]



The statistic is negative: the top provinces are the most polluted.

Graph 17: 2022 Statistics – NO₂ – distribution by city

Circular economy and waste management

Materials

ADI Group is the set of various industrial sites located throughout the area, each using materials to produce and package its own product or service. Among these it is possible to include:

- raw materials, i.e. natural resources used for transformation into products or services, such as iron ores and coal;
- materials related to the process, i.e. materials necessary in the production process, but which are not part of the final product such as, for example, lubricants, chemicals, materials for treatments in steel shop;
- semi-finished products, including all types of materials and components other than raw materials that are part of the final product such as, for example, ferroalloys, pig iron pellets and purchased coke;
- packaging materials, including paper, cardboard, wood and plastic.

Steel is not a renewable but 100% recyclable material for infinite times without losing any of its original properties. Therefore, it is never consumed but continuously transformed through recycling processes that make it a permanent material, contributing substantially to the development of a circular economy. For this reason, according to the **Bureau of International Recycling** (BIR)²⁷, steel is by far the most recycled material in the world.

The Group not only makes a direct consumption of raw materials, but also has a process of reuse and resale of residues that are useful for other processes.

To produce and package its products, ADI Group uses non-renewable materials in the following quantity:

	2020	2021	2022
ADI Holding	8,309,075	9,862,926	8,693,356

Table 56: quantity of material in tonnes used by ADIH

The values relating to the entire quantity can be split into 14 macro categories which contain numerous items, specific by type of plant and by year.

Iron ores, coal, fluxes and coke are used exclusively in the Taranto plant in the first phase of the production cycle, for the production of hot metal.

Pig iron pellets and DRI, purchased scrap, ferro-alloys and treatment materials are also used in the Taranto plant, in the second phase of the production cycle for steelmaking.

Refractories are materials used in the production sites of Taranto, Novi Ligure and Genoa.

Chemicals, lubricants and packaging are materials commonly used in the various plants of the Group.

27 The **BIR - Bureau of International Recycling** was founded in 1948 and is the international trade federation representing the global recycling industry, covering in particular the ferrous and non-ferrous metals, paper, textiles, plastics, rubber/tyres and waste electrical and electronic equipment.

The quantity of material, divided into macro-categories and expressed in tonnes, is as follows:

MACRO-CATEGORY	2020	2021	2022
Iron ores	5,118,932	5,966,160	5,244,792
Coal	1,802,023	1,956,320	1,999,587
Fluxes	790,185	1,017,606	871,550
Purchased coke	398,906	684,001	343,621
Pig iron pellets and DRI	18,617	33,665	15,517
Purchased scrap	33,181	19,473	38,395
Chemicals	32,596	38,820	45,560
Refractories	39,791	47,531	44,280
Ferroalloys	35,769	41,073	43,134
Metallic coatings	19,457	31,500	25,685
Steel shop treatments	7,734	10,306	7,025
Lubricants	6,324	8,010	6,032
Wood packaging	2,428	4,236	4,408
Other packaging	3,132	4,225	3,770
Overall total	8,309,075	9,862,926	8,693,356

Table 57: quantity of material in tonnes used by ADIH

The breakdown of materials in tonnes by single company highlights that 99.9% of the total concerns ADI S.p.A.:

COMPANY	2020	2021	2022
ADI S.p.A.	8,308,233	9,860,796	8,692,256
ADI Tubiforma S.r.l.	203	1,475	767
ADI Energia S.r.l.	392	442	288
ADI Socova S.a.s.	6	40	45
ADI Servizi Marittimi S.r.l.	241	172	0 (**)
Overall total	8,309,075	9,862,926	8,693,356

Table 58: breakdown of materials in tonnes by ADIH company

(**) In 2022, the technical management of ADI Servizi Marittimi fleet was outsourced; in this way the consumption of material belongs to the sub-contractor, therefore it is out of scope of this document.

Materials of Taranto Plant
8,283,555 tonnes equal to 95% of Acciaierie d'Italia Group

All materials **are purchased from external suppliers**.
Data relating to consumption are not estimated but taken from the company's accounting system.

Acciaierie d'Italia S.p.A. has developed procedures that have the purpose of regulating material recovery actions, thus reducing the withdrawal of virgin resources.

Taranto Plant

In accordance with the UNI EN ISO 14021:2016 standard, the Taranto plant produces carbon and micro-alloyed steel with a percentage content of internally recycled material and scrap, both recycled and purchased.

In 2022, approximately **274,000 tonnes** of ferrous materials were recovered within the Taranto plant, in addition to approximately **363,000 tonnes** of recycled scrap. In the same year, steel was produced with a share of recovered and/or recycled material of **18.7%**, an increase compared to 2021, when the value was 17.6%.

Recycled material is the sum of pre-consumer and post-consumer material. **Pre-consumer** material includes scrap produced at the plant other than plant demolition, mill scale, scrapped coils and DRI briquettes.

Post-consumer material includes scrap produced internally deriving from the demolition of plants and scrap purchased externally. The **recovered** material refers to ferrous recoveries and solidified residues (tundish and ladle skulls) from steelmaking.

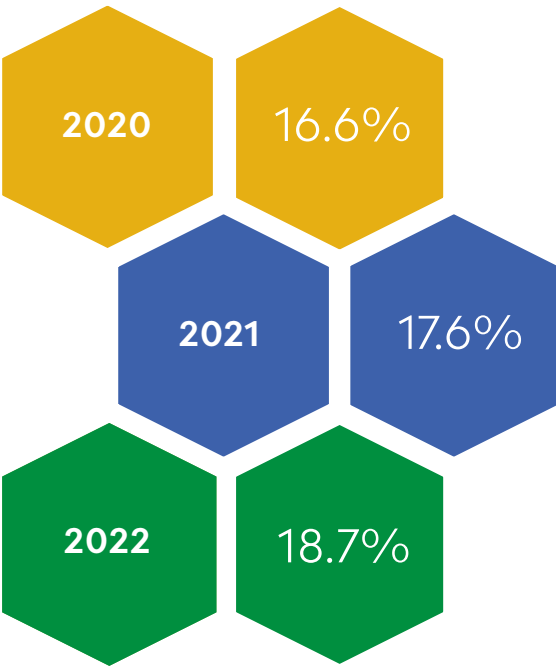
	2021	2022	2022
recycled material	pre-consumer	238,239	394,321
	post-consumer	37,939	28,069
recovered material		284,670	279,209

Table 59: quantities in tonnes of recycled and recovered material according to UNI EN ISO 14021:2016

Recycled scrap
362,915 tonnes

Recovered material
273,656 tonnes

Net slabs
3,408,997 tonnes



Percentage of recovered/recycled material calculated on the value of net slab quantity

Waste

To minimize the amount of waste produced, all work activities are aimed at optimizing processes. The following table shows the quantities in tonnes of waste produced by the various Group companies.

COMPANY	2020	2021	2022
ADI	2,324,682	1,786,783	1,281,006
ADI Energia	10,790	10,678	15,989
ADI Servizi Marittimi	1,152	1,154	2,672
ADI Socova	420	778	1,051
ADI Tubiforma	657	2,139	1,341
ADI Holding	2,337,701	1,801,531	1,302,060

Table 60: quantity of waste in tonnes by ADIH company

The following table shows the quantities of waste produced, according to hazardousness, and divided into recovered and disposed of. Those types of special waste that cannot be disposed of or recovered within the Group's plants, are sent to suitable external disposal facilities.

		2020		2021		2022	
Company		Non Hazardous	Hazardous	Non Hazardous	Hazardous	Non Hazardous	Hazardous
ADI	Recovered	1,898,919	4,201	1,308,915	5,951	938,794	7,108
	Disposed	409,302	12,259	459,324	12,593	320,836	14,268
ADI Energia	Recovered	138	52	131	546	5,296	634
	Disposed	10,141	459	9,703	298	10,020	39
ADI Servizi Marittimi	Recovered	0	0	0	0	0	0
	Disposed	0	1,152	0	1,154	0	2,672
ADI Socova	Recovered	0	0	0	0	0	0
	Disposed	420	0	778	0	1,051	0
ADI Tubiforma	Recovered	657	0	1,604	0	1,329	0
	Disposed	0	0	0	535	0	12
ADI Holding	Total recovered	1,899,714	4,253	1,310,650	6,497	945,419	7,742
	Total disposed	419,863	13,870	469,805	14,579	331,907	16,992

Table 61: recovered and disposed of waste, split according to their composition in tonnes

Taranto Plant landfills

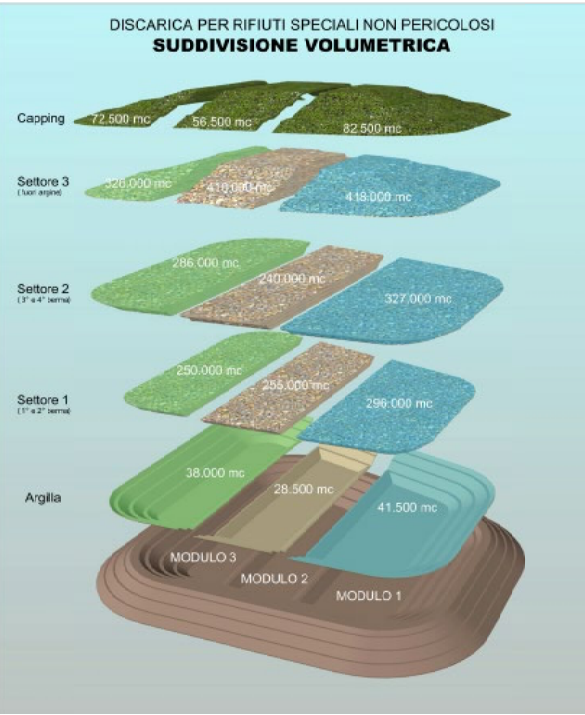
The Taranto plant, the Group's largest production site, has various landfills depending on the type of waste produced (two landfills for non-hazardous waste, called G3 and G2, the latter currently in a **post-management** phase²⁸ and one for hazardous waste, called V4-V5).

The plant has implemented its own landfill system in order to pursue a self-disposal policy, given the actual difficulty of finding receiving plants on the market capable of absorbing the quantities of waste produced continuously, and to minimize the environmental risks associated with transport on public roads. The waste delivered to the internal landfills comes exclusively from within the Taranto plant and from the interventions necessary for environmental remediation.

The G2 landfill for non-hazardous waste has a volume of 1,200,000 m³ divided into four lots. The waterproofing package, put for the lining of the bottom and the walls, is made up of a first natural waterproof layer, with a thickness of 1 meter of clay, and a second artificial waterproof layer, with a thickness of 2 meters of high-density polyethylene geomembrane (HDPE). This layer is covered with non-woven geotextiles (artificial material composed of rot-proof synthetic fibres with a filtering and draining layer) to protect it from punching and ultraviolet rays. On the bottom a macro-cracked HDPE

pipe is laid in order to convey the leachate to the collection well. Finally, there is a capping and final arrangement on which the irrigation system for the planted vegetation is built, fed by rainwater.

The G3 landfill for non-hazardous waste is entirely made up of suitably compacted and shaped de-ironedslag. The body of the landfill is divided into 3 modules and 9 lots (three for each sector and module) with a total volume of 2,800,000 m³, of which 1,510,000 m³ is cultivated and 1,290,000 m³ remains to be cultivated. Inside the landfill there are 3 vertical leachate extraction wells and 21 biogas extraction hoods. The waterproof package is the same as in the G2 landfill.



Volume layering of G3 landfill in the Taranto plant

The landfill for hazardous waste is divided into 2 modules called "V4" and "V5" with a total volume of 138,500 m³ (full) and 140,800 m³ (under cultivation) respectively. Unlike landfills for non-hazardous waste, the waterproof package is made of a first 2 meters thick natural waterproof layer of clay and a 2.5 meters thick artificial waterproof layer of high density polyethylene geomembrane (HDPE), the latter in turn covered with non-woven geotextiles to protect it from punching and ultraviolet rays. Furthermore, a drainage layer has been laid on the bottom (gravel) and a drainage buffer on the walls, to control the leachate. After the drainage layer, there is again a natural and artificial waterproof layer. Finally, the macro-cracked HDPE pipe is laid on the bottom in order to convey the leachate to the collection well.

The service area, next to the landfills, is made up of a security guard manned 24 hours a day, 7 days a week, equipped with video surveillance systems and a radiometric entrance gate. There are also three rainwater collection tanks that allow the separation of the first rainwater fall from the second washed rainwater and a covered leachate accumulation tank. In accordance with the monitoring plan, there are three downstream piezometers and one upstream piezometer.

The monitoring on the plant landfills mainly concerns:

1. shape monitoring of the landfill, essentially aimed at keeping its filling status under control;
2. monitoring of the leachate which consists in the measurement of the volumes produced and sent for treatment, in connection with weather/climate parameters, and collection and analysis of any leachate produced and/or in any case existing in the collection well, for the evaluation of its composition;
3. monitoring of the groundwater which includes measuring the groundwater level in the control piezometers and sampling and analysing the water in the control piezometers;
4. monitoring of gas emissions and air quality aimed at verifying any accidental generation of biogas, given the non-biodegradable nature of the waste disposed of and the determination of dust concentrations with deposit measuring devices;
5. environmental monitoring of asbestos fibres by sampling using environmental samplers to confirm the absence of asbestos fibres in the air.

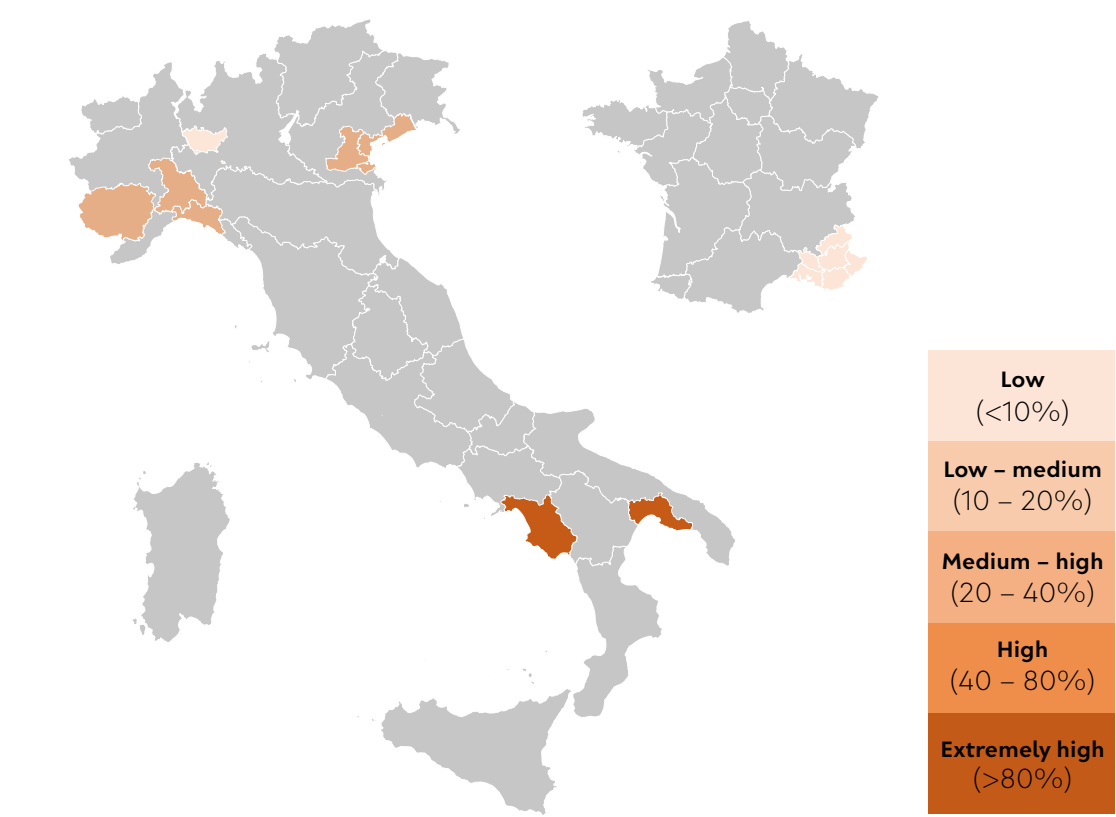
²⁸ The post-management phase is the period in which activities such as leachate disposal, biogas management, maintenance, control and surveillance are carried out. These activities are aimed at restoring the area affected by the landfill for the uses permitted by law.

Management of water resources

The proper and careful management of water resources is today a priority issue for companies at an international level and in the world. Water is everyone’s good and a resource available in limited quantities which, for this reason, must be protected and used sustainably. In fact, only 1% of the planet's water is drinkable or usable directly by man. The issue of preservation of drinking water resources and at the same time of their quality turns out to be decisive in all economies.

As highlighted by the World Resources Institute and reported in the Aqueduct Water Risk Atlas, water scarcity is a current problem. The graph below highlights the water-stress areas in which the various subsidiaries of ADI Group are located.

Water-stress areas by region



The areas highlighted are those in which ADIH's subsidiaries are located. Above right is the French territory where the production site of Socova.

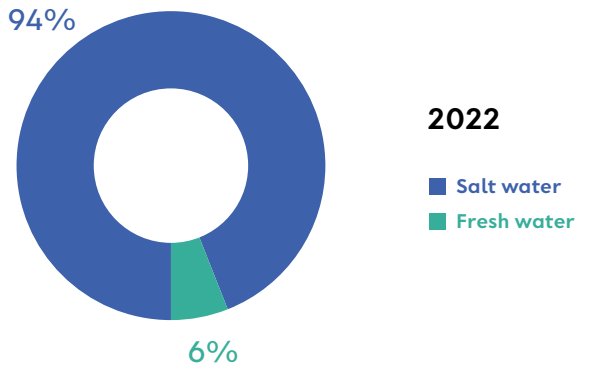
Water supply

At the Group's production sites, water is mainly used to cool the plants and to condition some products (steel, process gas, waste materials, etc.). The table below shows the water withdrawal split by supply source, in the reporting period relating to the Acciaierie d'Italia Group.

WATER SUPPLY BY SOURCE [Megaliters]			
Source	2020	2021	2022
Sea water	680,976	735,543	755,905
Surface water	23,177	26,763	31,109
Underground water	18,088	15,719	15,642
Third-party water resources	3,889	4,086	4,017
	726,129	782,111	806,673

Table 62: total water supply by ADIH in Megaliters

The largest consumer of water in the Group is the Taranto plant, including the plant itself and ADI Energia power plant. Overall, in 2022, the **Taranto site** took about **735,000 megaliters** of seawater, which represent 91% of the total water intake of the Group equal to about 807,000 megaliters.



Graph 18: water supply percentage

The ways of supplying the production sites are different and, below, those with a greater need for water are reported.

Taranto production plant

The Taranto production plant, including the plant itself and ADI Energia power plant, is supplied with water for industrial and civil use as shown below.

Industrial water is used for indirect cooling, that is those in which water does not come into contact with the product, and for production processes. The type used for indirect cooling is mainly seawater taken from plants located on the Mar Piccolo Sea (Sea Intake Channels). Before being distributed, it is chemically treated (chlorination) and filtered to eliminate the considerable biological load (fouling) and the presence of large quantities of floating materials. Subsequently it is sent to the power plants and re-launched to supply the plant users.

Freshwater for industrial use comes from the reservoir of "Sinni" river and, thanks to its quality (low salt content and low conductivity), it is used both in the production process and in the production of demineralized water distributed in the plant. For the production processes, water from "Tara" river is also used, with worse characteristics than that of Sinni in terms of salt content and conductivity, and more water from authorized wells, part of which is used for the production of osmotized water.

The water for civil use (canteens, dining rooms, changing rooms, etc.) is drinking water taken from the supply network of third parties.

With regard to water saving and efficiency, the Taranto plant collects and separates the types of wastewater making maximum use of internal recycling, using an appropriate treatment for each final flow. No drinking water is used for production lines, but industrial water circulation systems are used until the technical or legal limits are reached. Moreover, after suitable treatment, rainwater is used for wetting roads and iron ore and coal stockpiles.

Novi Ligure Plant

The water for industrial use is taken from the aqueduct of third parties and used all over the production cycle as it is or after demineralization treatment (DEMI water). The DEMI plant supplies to the whole plant demineralized water used in the cooling processes of the various lines. This water must have well-defined qualitative properties (pH and conductivity) according to the internal standard. The values measured by in-line instruments on the DEMI plant are monitored daily and recorded by the operators of the Water Treatment Department (TTA).

The water for civil use is also taken from the aqueduct and distributed within the plant via an exclusively dedicated network. Other water supply sources are artesian wells for industrial use by the electrogalvanizing line.

Genoa Plant

Water supplies involve different withdrawals: water from wells, drinking water and sea water.

The water from wells is drawn by five pumps from five artesian wells located in the Campi area (external area located on the north/east side of the plant) and from there sent to the piezometric tower from which it is sent via manifolds to the supply network where descaling products are added. Water from wells is used as process water to produce demineralized water (which ends its cycle at the water treatment plant), for the firefighting system, and as cooling water (partially recovered through a recirculation system).

The sea water is withdrawn through a single intake channel which enters for about 300 meters until it reaches an area equipped with rotating basket filters having the purpose of retaining the impurities. Here the water undergoes an anti-mussel treatment through the addition of sodium hypochlorite. From the pump room, the water is re-launched into the supply network through collectors. Sea water can be used for cooling the various systems (without ever coming into contact with the production cycle) and partly for the fire prevention system. Currently the consumption of sea water is zero. Drinking water is taken directly from the public aqueducts. It is used for civil uses, i.e. changing rooms, canteens, toilets, and several emergency systems.

Water discharge

The following table shows the water discharge by receiving body for the reporting period for the Acciaierie d'Italia Group.

WATER DISCHARGE BREAKDOWN BY RECEIVING BODY [Megaliters]			
	2020	2021	2022
Sea water	852,707	787,071	877,846
Surface water	1,302	1,223	1,053
Underground water	0	0	0
Third-party water resources	378	365	319
	854,387	788,658	879,218

Table 63: total water discharge in all ADIH's areas in Megaliters

The methods of discharge are different depending on the production plants, as reported below for the main ones.

Taranto Production plant

The water discharge, arriving through the sewage system at the two Discharge Channels of the plant, consist of cooling water, process water, civil wastewater, rainwater: before discharge in the receiving body (sea), it is analyzed.

Process water is treated in specific plants for each production line

Industrial water is used in the production process. The various production plants have specific water treatment lines where the pollutants in the wastewater are removed in order to restore the water with the suitable properties to be reused or discharged into the plant sewage system. Given the nature of the processes carried out and therefore of the substances found in the water, the main types of treatment are aimed at removing suspended solids, oils, lowering the temperature and in general the parameters foreseen by the BATs for the production of iron and steel and BATs for metal processing. The efficiency of the wastewater treatment plants is very high, achieving reductions of up to 98% - 99% of the typical pollutants inside.

Drinking water and water used for civil use (toilets, showers, canteens) are treated in Imhoff-type septic tanks before being conveyed into the plant sewage system where, thanks to the residual chlorine in the sea water, they undergo further treatment of disinfection before going into the receiving body (sea) through the discharge channels.

The rainwater falling onto the surfaces of the hot area and the landfill area is conveyed through dedicated networks to specific treatment plants where, through sedimentation and subsequent oil removal, it is suitable for reuse (wetting of roads) or, if exceeding, discharged into the plant sewer. The rainwater falling on the remaining part of the plant is drawn into the terminal sections of the discharge channels where it undergoes sedimentation and oil removal.

All discharges from the plant (final and partial) are authorized by the AIA DVA DEC 2011 0000450 of 04/08/2011 and subsequent additions (DVA DEC 2012 0000547 of 26/10/2012 and DPCM 29.09.2017).

The final industrial discharges of the plant comply with table 3 of Part III attachment 5 of Legislative Decree no. 152/06 (limit values for emissions into surface water and sewers), whereas the partial industrial discharges of the plant comply with the specific limits for the relevant area (coke plant, blast furnace, steel shop, etc.) as per DPCM 29/09/17. The sampling frequencies are indicated in the Monitoring and Control Plan of the AIA (Table 114 - Monitoring of industrial discharges). Specifically, there are parameters that are checked on a daily, weekly, monthly and quarterly basis for all discharges of the plant.

The purpose of the checks is to comply with the (general and specific) regulatory limits and to control the purification efficiency of the plants in order to introduce wastewater of a quality as good as possible, after the received treatment.

Novi Plant

Since 2015, a contract has been signed with the public purification plant of Novi Ligure for the reuse of treated water, for replenishment of industrial water, especially in the summer months to limit the exploitation of Novi water basin.

With regard to discharge, internal water can be split into 3 types:

Industrial wastewater is conveyed from the collection network to the company purification plant and, after treatment, introduced into the Alessandrina canal (ducted). The Alessandrina canal enters the Rio Gazzo (also ducted) after the diversion of the latter towards the purification plant; thus, the water of the Alessandrina canal flows into the natural riverbed of Rio Gazzo which is downstream of the weir and the aforementioned diversion.

Civil wastewater network is all the water coming from the toilets and civil uses, through a special sewer network, conveyed, after an initial purification, into septic tanks and, together with the rainwater from the yards, into the public sewer through the discharge points S1, S2, S3, S4, S5, S6, S7, S8, S9. In the electro-galvanizing area, rainwater is collected separately and conveyed into surface water.

Rainwater network, based on the assessment of possible contamination risk of the rainwater falling on the plant site, the areas have been divided into sensitive and non-sensitive, according to the characteristics of each of them. In particular, for surfaces defined as "sensitive", the conveyance and collection of rainwater towards the internal water treatment plant has been foreseen.

Procedures are foreseen within the Novi Ligure plant which give indications on the operating methods for managing the industrial water sent from the processing plants to the purification plant. An analysis of the wastewater is carried out daily to monitor the quality and compliance with the established limits. At the same time, the monthly checks prescribed by AIA are carried out by a specialized technical laboratory.

The discharges related to each plant are all sent to the water treatment plant which, through a chemical-physical process, produces wastewater with qualitative characteristics which are compliant with the limits set by AIA. The only plant where there is partial recovery of water is the CAPL continuous annealing line which recovers internally the demineralized water used in the cleaning process.

Genoa Plant

Wastewater consists of process water, civil wastewater, rainwater and cooling water.

The wastewater discharge from the production lines is conveyed to the centralized treatment system before its subsequent discharge into the airport channel through channel 12.

Civil waste (toilets, showers, canteen) is treated in septic tanks (Imhoff) before being conveyed through the underground plant channels (channel 6, channel 11 and channel 12) to the airport channel.

Rainwater falling onto surfaces where there is no risk of contamination, such as sheds and buildings, coil storage areas, quays, roads, railway lines and internal manoeuvring areas, is not treated and conveyed through the underground plant channels (channel 6, channel 11 and channel 12) to the airport channel.

Rainwater falling onto surfaces (scrap yard, fuel station, drop-off point, west gate areas used for entry, exit, parking and weighing of heavy vehicles) potentially at risk of contamination, is conveyed and treated into systems which consist of accumulation/sedimentation and subsequent de-oiling of the water before being sent through the underground plant channels (channel 6, channel 11 and channel 12) to the airport channel.

The cooling water does not come into contact with the elements of the production cycle (in any case there is a control sump with an oil separator filter), and therefore it is conveyed without any treatment to the underground plant channels (channel 6, channel 11 and channel 12) and through these to the airport channel.





6 | Value

Customers

Thanks to a diversified and integrated structure, the Group’s products and services satisfy various needs by serving international customers in numerous and diversified operating areas.

The main products supplied include coated and uncoated hot and cold flat rolled products, Quarto heavy plates, medium diameter pipes longitudinally welded with electrical resistance (ERW process).

These products are used in various industrial sectors such as automotive, industrial vehicles, shipbuilding, manufacturing of household appliances, structural constructions, pipes for the transport of oil, gas and water. In particular:

- hot and cold rolled coils are used in the automotive, household appliances, oil and food drums, packaging (food tins, canning and various metal containers), pressure tanks and boilers, ducts, pipes, various metallic structures, window frames, etc.
- heavy plates are used extensively in shipbuilding, metal construction, in the renewable energy sector (wind towers), in the construction of offshore platforms and manufacturing of pipes for the transport of water, gas, oil, etc.).
- the hollow sections of various sizes, are suitable for a vast range of structural applications and precision mechanics, construction and agriculture, as well as for components and parts of plants and machinery (rollers, bushings, supports, spacers, ring nuts, frames, etc.).
- SAW-ERW pipes are used in the field of fluid transport of various kinds (water, gas, oil, etc.).

2022 market analysis

The volume of finished product put on the market by Acciaierie d'Italia Holding S.p.A. in 2022 was 3 million tonnes, of which 99% on the European market (95% EU) and, in particular, 76% on the national market.

AREA	PRODUCT DESTINATIONS	VOLUME [ton]	VOLUME %
Europe	731	3,133,010	98.6%
America	4	22,283	0.7%
Africa	4	19,171	0.6%
Asia	1	1,972	0.1%

Table 64: breakdown of ADIH product destination markets

On international markets, the destinations of main interest for Acciaierie d'Italia are in particular the Iberian Peninsula (9%) and Germany (5%), followed by France (2.3%) and Turkey (2%).

COUNTRY	VOLUME [ton]	VOLUME %
Italy	2,427,934	76.4%
Iberian Peninsula	270,446	8.5%
Germany	146,908	4.6%
France	71,742	2.3%
Turkey	59,979	1.9%
Belgium	28,538	0.9%
Greece	23,855	0.8%
Switzerland	23,855	0.8%
Romania	17,973	0.6%
Austria	15,685	0.5%
U.K.	15,272	0.5%
Algeria	12,558	0.4%
Mexico	10,448	0.3%
Poland	10,165	0.3%
Netherlands	8,643	0.3%
USA	6,861	0.2%
Egypt	6,613	0.2%
Canada	4,974	0.2%
Hungary	2,912	0.1%
Slovenia	2,473	0.1%
Others (10)	6,282	0.2%

Table 65: breakdown of shipped volume by destination country

With a shipped volume of approximately 2.6 million tonnes, coils represent the main share of shipped product, with over 80% of the total product, mainly placed on the national market (77% of the total marketed), followed by heavy plates (8% of shipped volume out of which 65% to the domestic market) and slabs (6% of shipped volume of which 94% to the domestic market).

PRODUCT	VOLUME [ton]	VOLUME %	MARKET SHARE	
			Domestic	Foreign
Coils and derivatives	2,626,706	82.7%	77%	23%
Heavy plates	243,617	7.7%	65%	35%
Slabs	175,100	5.5%	94%	6%
Hollow sections	113,156	3.6%	73%	27%
Pipes	17,858	0.6%	31%	69%

Table 66: shipped volume breakdown by market

Within the **coils** sector, cold rolled and coated products constitute the main share of product placed on the market with 1.4 million tonnes shipped (54%), followed by hot rolled coils (43%) and tinplate and chrome-plate (4%) which, unlike other products, are placed for almost the entire volume on the domestic market (98%).

COILS AND DERIVATIVES	VOLUME [ton]	VOLUME %
Hot rolled and pickled coils	1,119,746	42.6%
Cold rolled coated coils	1,408,612	53.6%
Tinplate and chrome-plate	98,350	3.7%
	2,626,706	

Table 67: coil sector breakdown by volume tonnes and percentage

With regard to the domestic market, over 80% of the shipped product is sent to the north, in particular the north-east (53%), whereas the market share relating to the centre-south and the islands is 16% and 0.6% respectively.

MACRO AREA	VOLUME [ton]	VOLUME %
North-East	1,275,525	52.5%
North-West	742,844	30.6%
South	202,836	8.4%
Centre	192,034	7.9%
Islands	14,695	0.6%

Table 68: shipped volume breakdown by the domestic market area and destination numbers

On the national territory, 83% of the marketed products belong to the sector of coils and its derivatives with destinations concentrated in the northern area (83%). The main shipped products are hot-rolled coils (52% of shipped volume, 92% north area), cold-rolled coils (43% of shipped volume, 79% north area) and tinplate (5% of shipped volume, 72% central-south area).

PRODUCT	PRODUCT DESTINATIONS	VOLUME [ton]	VOLUME %	MACRO-AREA				
				North-East	North-West	South	Centre	Islands
Coils and derivatives	407	2,016,029	83.0%	50.1%	33.2%	7.7%	8.6%	0.4%
Heavy plates	3	164,638	6.8%	49.3%	27.1%	16.7%	5.4%	2%
Slabs	119	158,856	6.5%	100%	0%	0%	0%	0%
Hollow sections	178	82,962	3.4%	28.3%	34.2%	22.1%	11.1%	4%
Pipes	5	5,449	0.2%	0%	38.8%	55.8%	5.5%	0%

Table 69: shipped product volume breakdown by domestic market

In particular, in the field of strips, tinplate and chrome-plate represent a very important market niche due to the peculiarities of our country (about 5% compared to the shipped volume of the coils sector) and its use is concentrated in southern Italy (72%), and in particular in the Campania region (5.3%).

PRODUCT	VOLUME %	SHIPPED TO DOMESTIC MACRO-AREA [% ton]		
		North	Centre-South	Islands
Hot rolled and pickled coils	52%	91.9%	7.6%	0.5%
Cold-rolled coated coils	43%	78.9%	20.6%	0.5%
Tinplate and chrome-plate	5%	27.8%	72.2%	0%
		83.3%	16.3%	0.4%

Table 70: shipped product volume breakdown by domestic market macro-area

In detail, the distribution by destination region highlights most of the volume divided between Emilia-Romagna (29%), Lombardy (23.8%) and Veneto (18.8%).

REGION	VOLUME [ton]	VOLUME %
Emilia - Romagna	709,558	29.2%
Lombardy	578,678	23.8%
Veneto	457,410	18.8%
Piedmont	134,888	5.6%
Campania	129,052	5.3%
Friuli-Venezia-Giulia	81,608	3.4%
Tuscany	72,523	3.0%
Marche	65,565	2.7%
Umbria	38,098	1.6%
Abruzzo	35,166	1.4%
Liguria	29,040	1.2%
Apulia	28,430	1.2%
Trentino-Alto-Adige	26,948	1.1%
Lazio	15,848	0.7%
Sicily	13,127	0.5%
Calabria	6,282	0.3%
Basilicata	3,608	0.1%
Sardinia	1,569	0.1%
Molise	296	0.0%
Valle d'Aosta	238	0.0%

Table 71: shipped volume breakdown by destination region

Customer satisfaction and claim management

The Group is committed to guarantee a high level of product quality and service offered in order to achieve top customer satisfaction, ensure reliable feedbacks and establish lasting relationships based on dialogue, collaboration and trust.

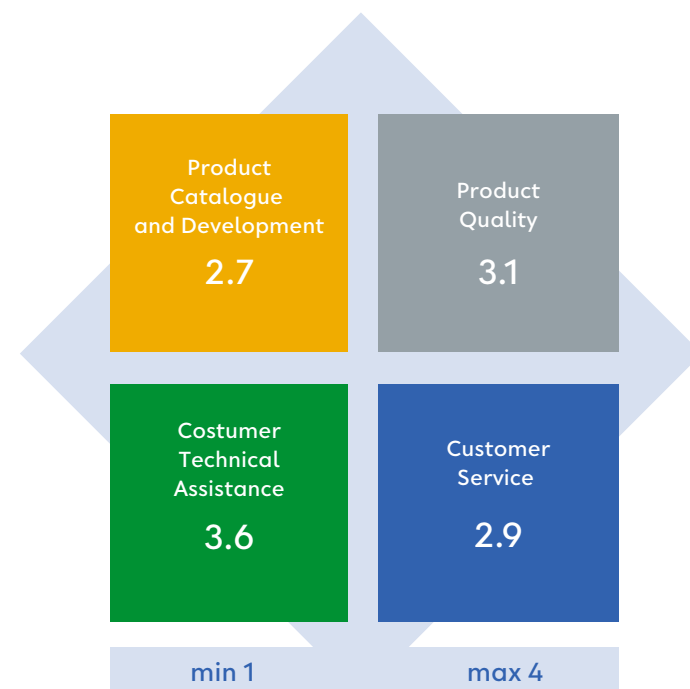
The customer satisfaction analysis is an important moment for acquiring and consolidating a competitive advantage on the market. The ability to meet customer expectations is made more and more critical by the continuous increase in competitive pressure and globalization of markets.

For this reason, the Group has adopted a procedure for monitoring and measuring customer satisfaction which provides for the submission of specific questionnaires from customers deemed strategic and significant for the manufactured product (in terms of volumes, type of product and use, or because representative of the market segment in which they operate). According to the outcome of the latest survey carried out, customers judge ADIH's overall performance as satisfactory (final score 3.1 on a rating scale from 1 to 4, or from "not at all satisfied" to "very satisfied").

Particularly appreciated were the quality of the product (3.1) and, as regards the service, the technical assistance (3.6).

The value found on “Product Catalogue and Development” shows that it is necessary to improve the technical documentation available to customers and to expand the qualitative and dimensional range of products available, as well as it is necessary to give a greater boost to product development activities.

In addition to the direct survey via questionnaire, customer satisfaction can be detected through the analysis of other information held by the Sales Departments, Quality Department and Customer Technical Assistance, such as the trend of claims and reports and communications deriving from contact with customers.

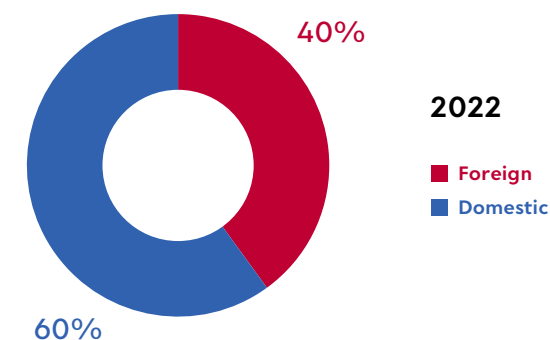


ADIH customers' satisfaction

The evaluations provide an overview of Acciaierie d'Italia's performance and how this is perceived by customers with respect to their expectations and, where possible, also with respect to what is offered by the competitors. The judgments collected are used to improve the performance of the Organization. The critical issues arising on technical, sales and service aspects are always analyzed and subjected to corrective actions such as: professional updating of operating personnel, review of manufacturing and control operating practices, product inspections, definition of improvement plans, improvement of information flows.

As far as claim management is concerned, they are classified according to their type:

- **technical type**, i.e. attributable to qualitative or production non-compliance and therefore of direct responsibility for the plant;
- **logistic type**, attributable to defects originated during transport: damage suffered by the products inside or outside the production unit during storage, handling, transit or transport, also carried out by third parties on behalf of the Company, such as dents, damages, oxidation and others;
- **commercial type**, due to disservices or anomalies of a commercial nature: confirmation error, return for not unloaded material, contract penalties, early/delayed delivery, weight and other.



Graph 19: percentage breakdown of claims by volume

In 2022, with an average time for technical claim management of around 46 days (1,800 technical claims managed, 50% with technical visit), 60% of technical claims concerned the domestic market, whereas the foreign share is mainly concentrated in the Iberian Peninsula (17% of the total), in Germany and Austria (17% of the total); these markets represented 90% of the shipped turnover in 2022 and 75%, 10% and 5% respectively.

The Customer Technical Assistance is involved in examining the claim and in the possible technical visit at the customer's facilities.

PERCENTAGE OF ACCEPTED CLAIMS FOR TECHNICAL REASONS

	2020	2021	2022
COILS	0.25%	0.16%	0.36%
All products (*)	0.24%	0.15%	0.33%

(*) coils, plates, pipes

Table 72: percentage of accepted claims for technical reasons

In 2022, claims accepted for technical reasons on all sold and invoiced products accounted for 0.33% of invoiced shipments, increased when compared to 0.15% of the previous year, as well as for the coil sector, where the percentage of **technical claims accepted**²⁹ went from 0.16% to 0.36% with a **frequency rate**³⁰ of 0.77%.

This worsening, which affected the Taranto and Novi Ligure plants on pickled and coated (galvanized and electro-galvanized) products is motivated by the following:

- year 2022 also includes claims relating to 2021 production;
- the ups and downs of the market (increase of prices in the first part of the year and collapse of prices in the second part) prompted customers to complain immediately without the possibility of recovering any defective material;
- due to market instability, sales and logistics claims were also included in the technical complaints differently from previous years, when they had not been included.

The coils and derivatives sector contributed for 96% of the total verified technical claims, and around 90% of the total shipped and invoiced quantity (even though slightly down, the figure is in line with the average of previous years, see detailed table).

²⁹ The percentage of technical claims accepted is the ratio between the accepted quantity in tonnes and the invoiced shipment in tonnes.

³⁰ The frequency rate is the ratio between the number of pieces found to be defective and the total number of pieces shipped.

PRODUCT LINE		2020			2021			2022		
		% shipped	% acc.	% ton acc.	% shipped	% acc.	% ton acc.	% shipped	% acc.	% ton acc.
Total Coils and derivatives	Subtotal coils and derivatives	91.3%	0.22	83.2%	86.6%	0.15	87.4%	84.8%	0.35	88.8%
	Tinplate and chrome-plate	2.6%	1.48	16.2%	3.9%	0.36	9.3%	3.3%	0.73	7.2%
		93.9%	0.25	99.4%	90.5%	0.16	96.7%	88.1%	0.36	96.0%
Heavy plates		3.6%	0.02	0.3%	6.2%	0.00	0.1%	8.1%	0.01	0.2%
Hollow sections		2.5%	0.03	0.3%	3.3%	0.15	3.2%	3.8%	0.33	3.8%

Table 73: trend of the technical claims accepted on the shipped quantity by product line

Despite the worse results compared to 2021, the performance of **tinplate and chrome-plate** (% Accettato (% Technical claims accepted, 2020: 1.5% - 2021: 0.36% - 2022: 0.73%) and **hollow sections** (% Technical claims accepted, 2020: 0.03% - 2021: 0.15% – 2022: 0.33%) remained substantially positive.

Excluding hot rolled products with black surface and tinplate and chrome-plate from the analysis of the coils sector, the final percentage of technical claims accepted of the three main plants in 2022 were: 0.67% Taranto - 0.60% Novi Ligure - 0.33 % Genoa.

2022			
	Shipped [ton]	% acc.	% Freq.
Taranto	476,537	0.67	1.45
Genoa (tinplate and chrome-plate excluded)	399,020	0.33	0.75
Novi Ligure	548,047	0.60	1.25

Table 74: final percentage of technical claims accepted at the three main plants

The Group is constantly committed to improving the management of contact methods and communication channels, the monitoring of complaints and requests for information, in order to reduce the processing time of the requests received and guarantee their correct management. Great attention is paid to the analysis of reports, in order to understand the customer’s perception and any critical issues in real time, to implement immediately the appropriate corrective actions, without compromising the general satisfaction of the customer. Furthermore, Acciaierie d’Italia Group is constantly committed to guaranteeing customer privacy by:

- adopting IT and management measures able to ensure the protection of personal data collected, filed and processed;
- not disclosing or using customers’ personal information for any purpose other than as intended;
- communicating directly to customers any changes in data protection policies or measures.

The guarantees on the health and safety of customers over the entire product life cycle

The Group is committed to satisfy the customers not only from a technical and production point of view, but also by protecting their health during the entire product life cycle. With a view to transparency towards customers, the Organization undertakes to monitor the processes so that a series of regulatory obligations and essential values strictly connected to the product are respected and pursued. To meet these requirements, Acciaierie d’Italia adopts the following declarations of conformity:

- the **REACH regulation** (Registration, Evaluation, Authorization of Chemicals): all products placed on the market belong to the category of “articles without intentional release of dangerous substances” and in any case none of them is existing in dangerous concentrations in the products;
- the **“End of Life Vehicles” directive**: the steel grades produced by Acciaierie d’Italia comply with the ELV2000/53/EC Directive, since substances such as mercury, hexavalent chromium, carbon and lead are not used or deliberately added in the manufacturing processes and their possible presence is only in the form of traces within the limits of the same Directive;
- the **RoHS Directive** (Restriction on Hazardous Substances): the steels produced by Acciaierie d’Italia and intended for the production of electrical and electronic equipment (EEE) contain hazardous substances in lower concentrations than those indicated by the Delegated Directive 2015/863/EU.

Furthermore, regular checks are carried out on the devices that contain radioactive sources used in the production process, and radiometric checks are carried out on the production of steel and on the ferrous scrap used, in compliance with current regulations and with international guidelines on ionizing radiation.

Finally, Acciaierie d’Italia, in compliance with European directives and regulations, issues special **“Product Safety Data Sheets”** for each type of product. This documentation regulates the correct method of use of the product and the risks potentially deriving from its use, both from an environmental point of view and in terms of health and safety, and identifies the most correct methods of disposal. All this information allows the customer to make an informed and aware choice for the purchase.

In the reporting period, there were no cases of non-compliance with regulations and/or self-regulatory codes concerning the impacts on the health and safety of products and services

Technical certification of products sent to customers

When required or foreseen, the products sent to customers are accompanied by a **technical certificate** (mill test certificate or mill test report) issued by the manufacturer (the plant) to certify the chemical-physical properties of the product and its compliance with the applicable standards and technical specifications. Typically, test certificates comply with the EN 10204 standard for steel products. For certain products or applications, the certificates (and the relative tests reported) are validated by recognized third party certification bodies (RINA-Italian Naval Registry, Bureau Veritas, Det Norske Veritas, Lloyd Register and others). Furthermore, steel products intended for structural use in construction (both strips and plates) are accompanied by the **Declaration of Performance (DOP)** required by European regulation no. 305/2011 which sets the harmonized conditions for the analysis of construction products. With this declaration, which accompanies the EC marking of construction products, the manufacturer (the plant) responsibly supplies the information relating to the essential properties of the product. The monitoring of constant performance of the product properties is certified by an external body accredited for the purpose in the context of quality management systems. On the other hand, for hot-dip galvanized construction products, the certification is issued by the Central Technical Service of the Superior Council of Public Works which belongs to the Ministry of Infrastructure and Transport.

Suppliers

Suppliers represent the first step in both the Group's quality and ability to be a competitive player on the market.

The Group's suppliers are in line with the **purchasing Policy**, an integral part of the Governance structure of the Purchasing Department, the objective of which is to ensure that all the Group's purchasing activities are carried out in a fair, transparent, responsible and ethical manner in order to obtain high quality standards, timely deliveries, compliance with regulations and internal procedures, and best market value of the purchased goods and services.

Collaboration relationships between **Acciaierie d'Italia Group** and its suppliers are regulated and based on principles of loyalty, respect and integrity, and in accordance with the typical principles of Antitrust procedures, respecting conduct such as to avoid any potential form of fraud and conflicts of interest. The Group also promotes **sustainable innovation** of suppliers, intensifying strategic partnerships in order to create customized, innovative and sustainable solutions.

Selection, qualification and monitoring of suppliers

The Group is committed to the production of safe and sustainable steel. In support of this objective, the Group defines, within the **Policy of Responsible Sourcing**, guidelines and principles of **Responsible Procurement** integrated into corporate processes, promoted and communicated to all Group suppliers. This is achieved by establishing relationships with suppliers that allow to:

- guarantee the performance of purchasing activities in an efficient and effective manner and in compliance with company regulations;
- develop sustainable purchasing solutions in line with the strategy, needs and expectations of customers, regulations, regulatory bodies and all stakeholders in general;
- generate long-term value for the Organization, suppliers, customers and stakeholders.

Suppliers differ in:

- Standard suppliers;
- Low Value Spot suppliers (with a maximum annual expenditure of 20 thousand euros);
- Emergency suppliers (used for urgent/emergency purchases);
- Accounting suppliers (with a procurement process managed exclusively by payment requisition).

The supplier qualification process is aimed at verifying, assessing and monitoring the supplier's integrity, reliability and capital and financial solidity.

With the collaboration of qualified professionals, starting from the scouting process for new suppliers, the Group has a selective and accurate approach which provides for the collection of preliminary information from the potential commercial partner, the organization of meetings between the parties, searches on open sources supported by a deep understanding of the business. The goal is to identify commercial partners who are able to guarantee economic competitiveness, best available technologies and sustainability.

Once a potential supplier has been chosen as a candidate to become a Trading Partner, ADIH starts a structured qualification process aimed at verifying, assessing and monitoring the integrity, reliability and financial solidity of the supplier both as a governance policy and as a social and environmental protection policy.

To make the supplier qualification process more solid and structured, the Group has provided itself with the most innovative *business management software ERP systems* to process and monitor the supplier qualification process, which includes:

1. the supplier creation request;
2. the registration by the supplier;
3. the supplier qualification;
4. the reputational due diligence;
5. checks on health, *environment and safety*;
6. the approval or rejection of the supplier's qualification;
7. the coding of the supplier in the corporate information system.

The qualification of both Italian and foreign suppliers requires that the supplier has provided, through the supplier portal, the acceptance of the Code of Corporate Conduct and the Anti-Corruption Code and, for suppliers having this obligation, the Certified Financial Statements relating to the last three fiscal years.

Furthermore, where present, a copy of the following documents is required:

- Completion of the questionnaire prepared by ADI with personal data/company data;
- Health and Safety Management System certificate (ISO 45001 or equivalent);
- Quality Management System Certificates (ISO 9001, IATF 16949 or other);
- Environmental Management System Certificate (ISO 14001);
- Environmental Policy;
- Code of Ethics/Conduct or a written policy that supports ethical business practices;
- Anti-Fraud and Anti-Corruption Protection Policy;
- Risks Assessment Document;
- Civil liability policy towards third parties with the related receipt of payment;
- DURC or similar document showing regular contributions;
- Historical corporation certificate / Certificate of registration in the Chamber of Commerce / Certificate of registration in the professional register.

At the end of this process, if the outcome is positive, it is possible to proceed with the qualification of the supplier. The timing regarding the duration of the qualification is attributed differently depending on the type of supplier.

The suppliers with whom the Group collaborates are required to comply with the basic requirements on health and safety, human rights, ethics and transparency, environmental protection and data protection.

As part of the Integrated Quality, Environment and Safety Management System, the Organization confirms and reviews its suppliers on a regular basis, or on purpose in case of atypical events, following specific procedures aimed at regulating the supplier evaluation and selection processes.

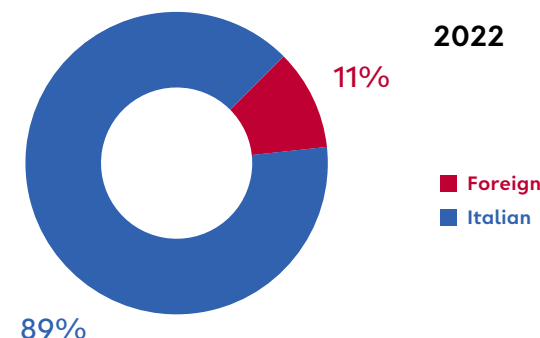
As far as monitoring is concerned, it can take place through site visits, due diligence and follow-up of action plans, or through self-assessments by the supplier. The constant monitoring of suppliers is a guarantee over time that they are aligned with the typical values of the company standards.

Type of Suppliers and Goods

In 2022, Acciaierie d'Italia collaborated with **1,454** suppliers for all the Group's plants and offices, of whom:

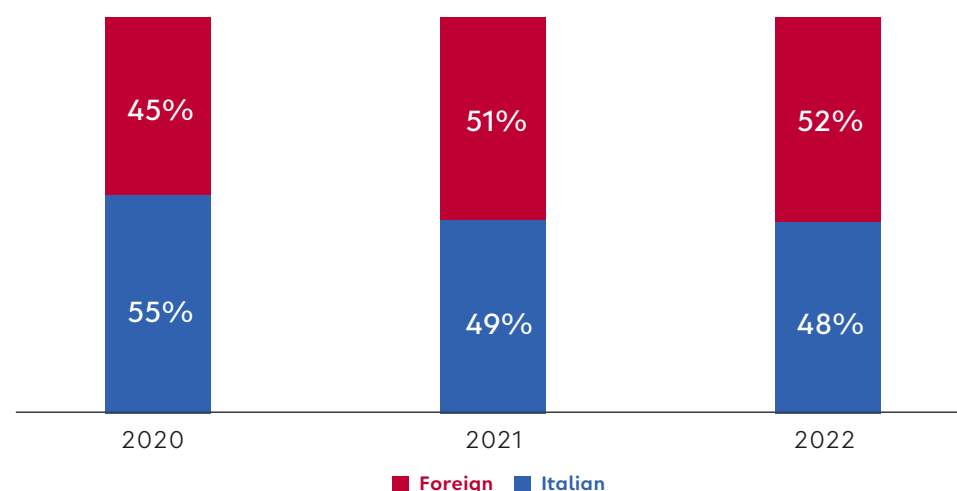
- **1,297** italian, equal to **89 %**;
- **157** foreign, equal to **11 %**

The use of foreign suppliers mainly concerns the procurement of raw materials, capital goods and services that cannot be found on the national market.



Graph 20: breakdown of suppliers in 2022

Analyzing the procurement trend in terms of percentage of orders between foreign and domestic suppliers, an almost symmetrical distribution between them can be observed over the years. The slight increase in the percentage of orders from foreign suppliers compared to Italian ones is justified by the increase in the price of raw materials, which are goods available only on the foreign market.

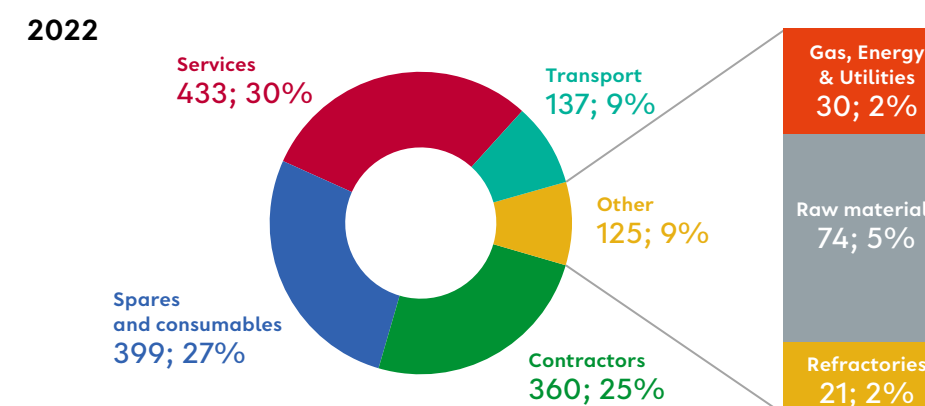


Graph 21: percentage breakdown of the total value of orders issued to Italian/foreign suppliers

The Group's production processes require a varied type of supply due to the considerable complexity of the plants and the production cycle. To simplify, it is possible to identify the following macro-categories of supplies, common to all production sites:

- Raw materials
- Spares and consumables
- Gas, Energy and Utilities
- Refractories
- Services
- Contractors
- Transport

Materials represent the majority of orders both in terms of volume of material handled and of value associated with them. This result depends on the fact that the materials include the **raw materials** used directly in the integrated hot phase, therefore essentially only for the Taranto plant. The volume of raw materials procured is directly proportional to the production of hot metal and represents the order value with the greatest impact.



Graph 22: breakdown of suppliers by type of product or service in 2022

Orders classified as **Energy and Utilities** are directly attributable to the energy demand of the production sites as well as the need to use technical fluids (**Utilities**) such as, for example, water and technical gases, which are also of physiological importance within the cycle.

Contractors represent the type into which all orders for large, extraordinary maintenance projects, plant revamping, investments with a high economic impact are found.

Refractories are all those materials, generally deriving from clay, lime and other additives, typically used in furnaces and combustion plants (including, for example, blast furnaces, steel shop converters) as an internal lining of the installations, since they have a huge resistance to heat.

The **Spares and Consumables** category includes orders for the procurement of spare parts for the plants and secondary materials which do not contribute directly to the generation of the finished product but are indispensable for the normal operations of the production cycle.

The Group also has a series of collaborations and consultancies on various aspects and topics, from purely technical ones to those relating to health and safety, coordination, planning, etc. which fall within the category of **Services**.

Transport represents a strategic aspect within the Organization since it has direct repercussions both on production continuity (internal transport) and on deliveries of the finished product to customers (external transport).

The large number of contractors, spare parts and consumables is representative of the continuous support that the Organization gives to the production lines in terms of investments for plant modernization and finalization of environmental investments. The same goes for service providers, who are of paramount importance in terms of professional technical support.

A niche percentage (only 9%), but highly impacting from the point of view of the associated economic value, is represented by suppliers of Raw Materials, Refractories and Gas, Energy and Utilities, which due to their highly specialized and strategic nature, are difficult to find on the national and international market.

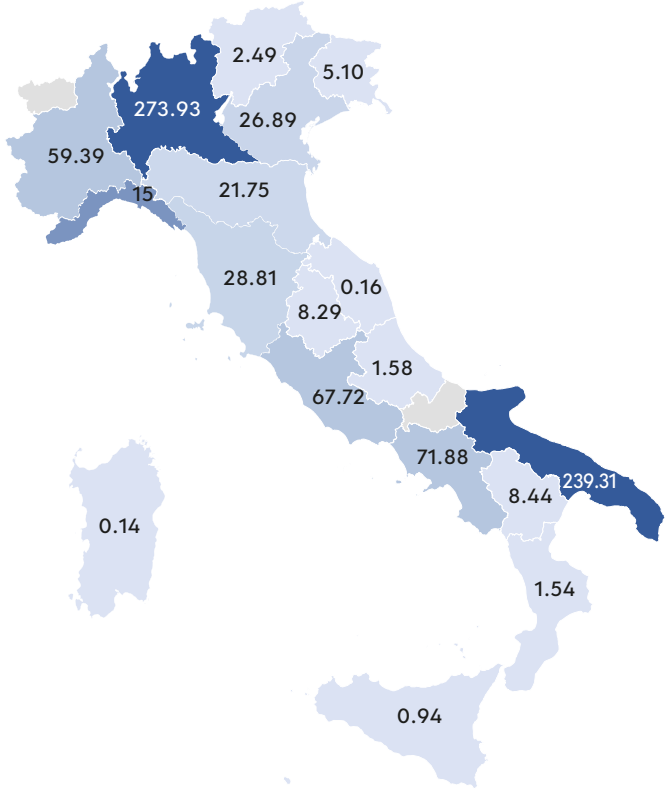
Expenditure towards local suppliers

In 2022, the distribution in number of suppliers on the national territory had Lombardy as the region with the highest number of suppliers (422) with orders for almost 274 million euros, followed by Apulia with 264 suppliers with orders for over 239 million euros. Liguria represents the third Italian region for economic impact on the territory with orders for a total of 152 million euros assigned to 104 different suppliers.

The suppliers of **Gas, Energy and Utilities**, around **30** in total, to which the Company assigned orders for almost **1,243 million** euros, have been excluded from the following table.

REGION	NO. OF SUPPLIERS	AMOUNT [M€]
Lombardy	422	273.93
Apulia	264	239.31
Piedmont	118	59.39
Liguria	104	152.34
Lazio	71	67.72
Veneto	71	26.89
Campania	50	71.88
Emilia-Romagna	45	21.75
Tuscany	29	28.81
Umbria	25	8.29
Basilicata	14	8.44
Trentino-Alto Adige	10	2.49
Abruzzo	9	1.58
Friuli-Venezia Giulia	9	5.10
Marche	9	0.16
Calabria	7	1.54
Sicily	6	0.94
Sardinia	4	0.14
Total	1,267	970.69

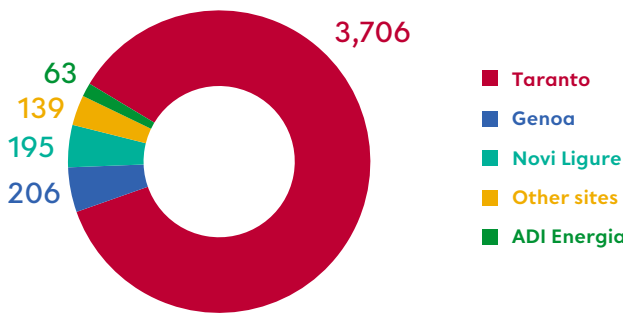
Table 75: number of Italian suppliers (excluding those for Gas, Energy and Utilities) and related amount of orders assigned (in million euros)



Graph 23: distribution on the national territory of the economic impact towards local suppliers, excluding those of Gas, Energy and Utilities

Group expenditure

Within the Group, Taranto represents the production cluster with the greatest production impact and, as such, the main economic effort in terms of orders is destined to it. In **2022**, for the **Taranto** site alone, orders were awarded for a total of over **3,706 million** euros. For the plants in **Genoa** and **Novi Ligure**, which are the two most productive sites after Taranto, orders were awarded for **206 million** euros and **194 million** euros respectively.



Graph 24: breakdown of the value of issued orders in 2022 by the Group sites/companies in million euros

Even during the temporary suspension at the end of 2022 of some contracts with external companies, the safe operation of the Taranto plant installations was constantly guaranteed, as were the activities connected to the interventions of the Environmental Plan for the reference year.

Economic sustainability and generated value

Acciaierie d'Italia Holding Group is one of the largest Italian industrial groups and one of the most important integrated cycle steelmakers at European level.

The 2022 financial year was characterized by the Russia-Ukraine conflict and the significant consequences on the markets for the supply of raw materials and energy resources.

The socio-political instability resulting from the conflict has caused a slowdown in the global economy and a consequent reduction in world steel production by approximately 7% compared to 2021.

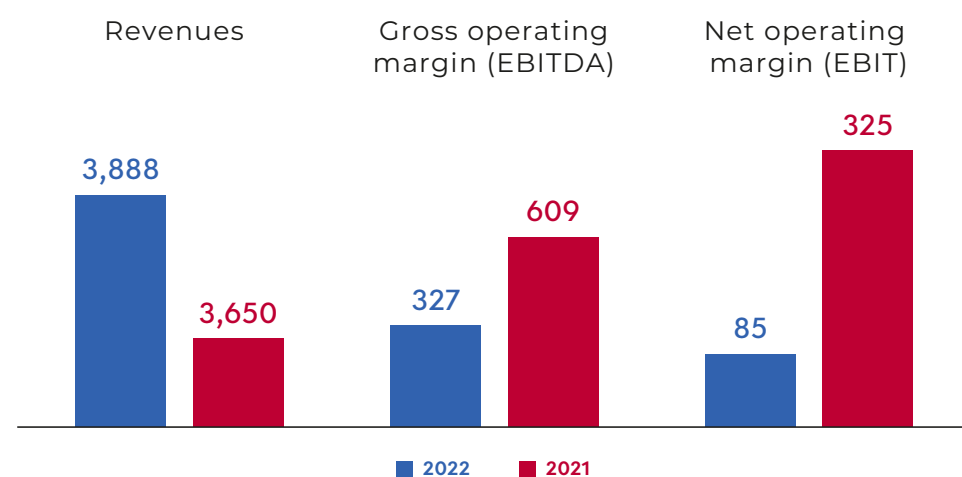
Public measures to support the economy (in particular Legislative Decree No. 4 of 27/01/2022 and subsequent amendments) only partially compensated for the higher energy costs which the Group had to face during the year, like the other Italian and European operators.

The economic results achieved in 2022

The Group produced 3.5 million tonnes in the year, generating revenues of Euro 3.9 billion against a positive EBITDA of Euro 327 million.

Despite the extraordinary increase in the cost of energy, in particular with the price of gas which increased in 2022 by approximately 7 times compared to the values of January 2021, the consolidated income statement of the Group closed with a net profit of Euro 84.6 million.

During the year, the Group also made significant investments (Euro 440 million) focusing attention on technological innovation of production processes, on revamping of the main installations, and on environmental investments required by the Integrated Environmental Authorization (AIA).



Graph 25: economic results in 2022 [million €]

Below is an extract from the income statement of the 2022 consolidated financial statements of Acciaierie d'Italia Holding.

RECLASSIFIED INCOME STATEMENT (thousand €)	2022	AS A % OF 2022 REVENUES	2021 (*)	AS A % OF 2021 REVENUES
Revenues	3,887,705		3,649,714	
External costs	(3,202,646)	(82.38%)	(2,691,141)	(73.74%)
Value Added	685,058	17.62%	958,573	26.26%
Labour cost	(357,726)	(9.20%)	(349,556)	(9.58%)
Gross operating margin (EBITDA)	327,332	8.42%	609,017	16.69%
Depreciation, write-downs and provisions	(148,528)	(3.82%)	(143,835)	(3.94%)
Net operating margin (EBIT)	178,805	4.60%	465,182	12.75%
Ancillary expenses and income	(129,935)	(3.34%)	(334,207)	(9.16%)
Financial expenses and income	18,317	0.47%	(29,599)	(0.81%)
Profit (Loss) from ordinary operations	67,186	1.73%	101,377	2.78%
Non-recurring income (expenses)	-	0.00%	425	0.01%
Profit (Loss) before taxes	67,186	1.73%	101,802	2.79%
Income taxes	17,464	0.45%	223,254	6.12%
Profit (Loss) for the fin. year	84,650	2.18%	325,056	8.91%

Table 76: reclassified Income Statement [thousand €]

Main management interventions

Ordinary redundancy fund with related COVID19 reason

The first quarter of 2022 saw the conclusion of the use of the specific social measure of Ordinary Redundancy Fund with related COVID 19 reasons, introduced and financed by the Government during 2020 specifically for Companies of national strategic importance with at least one industrial site with a workforce of over 1,000 employees. The Group made use of this tool within the limits of the funds allocated until 27 March 2022.

Extraordinary Redundancy Fund

Starting from 28 March 2022, an Extraordinary Redundancy Fund procedure was activated for restructuring making use of the best available technologies to increase the production of installations in the hot phase area of the Taranto site and, at the same time, promote investments aimed at redesigning the production units operated with a view to future environment, production and financial sustainability.

Direct economic value generated

VALUES IN THOUSAND €	2022	2021
Net revenues	3,887,705	3,649,714

Analysis of Direct economic value generated and distributed

VALUES IN THOUSAND €	2022	2021
Direct economic value generated	3,887,705	3,649,714
Economic value distributed	3,708,587	3,381,941
Operating costs	3,332,581	3,024,923
Employee wages and benefits	357,726	349,556
Payments to providers of capital	18,254	7,085
Payments to the Public Administration	26	377
Economic value retained	179,118	267,773

In the table above, Acciaierie d'Italia discloses a picture of the economic value generated and distributed by the Company to its stakeholders, including suppliers, employees, investors and the Public Administration. This value represents the wealth produced by the Company and the related impact on the main categories of stakeholders, in compliance with the requirements of the 201-1 reporting standard of the GRI Standards.

The directly generated economic value corresponds to the revenues from the core business.

Operating costs include costs for raw materials and goods, costs for services and other operating costs, net of the tax contribution deriving from the Decree Law of 27 January 2022 which aims to mitigate the increase in energy-related costs.

The item payments to capital suppliers includes the interest paid during the year, while the item Payments to the Public Administration refers to the taxes paid by the company in 2022.

Revenues

Acciaierie d'Italia S.p.A. sells its products mainly on the domestic market. The graph shows the breakdown of revenues between the domestic and foreign markets. Over the years, the Italian market has taken increasingly higher shares within the total sales volume.

% VALUES	2022	2021
Italy	80	77
EU	17	20
Outside EU	3	3

Table 77: percentage breakdown of turnover between markets where the finished product is sold

Technological Innovation

In recent decades, the introduction and spread of information and communication technologies have deeply changed the economy and society on a global level, triggering a new industrial revolution that has caused a sudden transformation of the borders and internal dynamics in each sector.

Acciaierie d'Italia Group has taken the fundamental step to move towards Industry 4.0, understanding the role of digital transformation and how this is an essential requirement that has effects both from a technological and cultural point of view.

Digitalization in the iron and steel industry

Steelmaking in the age of digitalization requires new approaches, and digital transformation offers huge potential for the development and integration of innovative solutions and strategies. Such solutions are mainly aimed at identifying potential for optimization and making processes safer and more efficient in the global competitive scene.

Acciaierie d'Italia Group has undertaken the path of digitalization, being aware that the implementation of Industry 4.0 in the iron and steel industry is a demanding challenge, but at the same time, the growing global competition and the continuous pressure to maximize production efficiency are motivational levers, which lead to investing and believing in the implementation of new digital tools. The various areas of interest and development of Industry 4.0 in the steel sector and some projects already in progress and developed are described below.

Management of production processes and maintenance

Monitoring and evaluation of the process and equipment conditions requires the analysis of multiple parameters and KPIs, from simple variable data to the recognition of trends and complex phenomena, resulting from multiple causes and factors.

Recent digital solutions can track the specific KPIs of the various processes over time, leading the business operations to a new level of monitoring and control, based on knowledge, and at the same time detecting short, medium and long-term trends to be applied to the predictive maintenance, process prediction and process optimization from primary metallurgy to steelmaking and hot and cold rolling.

Quality management

Acciaierie d'Italia Group is interested in developing a centralized platform capable of transforming all the data of the entire production process into information that can be employed by users.

These data form the basis for the quality assurance system, through which the dedicated Function and Customer Service define the criteria by material quality, by customer, by case of application and by order. Early identification of process deficiencies and inadequate product quality allows to reduce production costs through the reduction of internal downgrades and customer claims, allowing full traceability in shorter time.

Anti-collision system for workers' safety adopted in the coke making department

14
machines with We-Tag
device

300
operators equipped
with We-Tag device

3,000 m²
of surface covered
by the system

55
traffic light systems

In the coke making area there are different handling machines, of large dimensions, dedicated to coal loading the and coke pushing activities. These machines move in the presence of operators and potential obstacles that can collide with their movement

The “*anti-collision and access control system*” is a support system (Decision Support System) for the operators who deal with the movement of the machines which are alerted by the presence of operators nearby, in turn alerted by the wearable Tag device, avoiding any collisions caused by conditions of poor visibility or lighting.

When the distance between man and machine approaches 7 metres, the system warns the operator with a “pre-warning” status; below 7 meters, the system triggers the “warning” status.

The system is completed by a traffic light system installed on each access point that interferes with the movement, warning the worker that is entering the gate of the presence of the machine nearby.



Existing batteries in the coke making area

Vehicles – Workers anti-collision system

3
machines equipped
with device

10
We-Tag devices supplied
(internal and external
operators)

1,500 m²
of covered area

100,000 m²
of outdoor area

A system has been installed in the Reception Warehouse of the Taranto plant, to reduce the collision risk between vehicles and workers in the working area.

The adopted solution provides for the installation of a number of sensors, on each operating vehicle, connected to a management unit, also located on board the vehicles, and a display, located in the driving cabin which can be used by the driver of the vehicle to promptly warn of the possible collision, visually and audibly, also showing the direction of possible impact.

The device is currently installed on 3 operating machines for internal handling.

The alarm is made possible by the communication between the sensors installed on the vehicles and the TAGs supplied to the personnel operating in the areas. This technology allows to avoid collisions between vehicles suitably equipped with the described devices and between these vehicles and the workers walking by also equipped with wearable active PPE.

“We-Tag” active device system on the casthouse floor of a blast furnace

1,200 m²
of surface covered
by the system

40
Tag devices for shop
operators

60
Tag devices
for maintenance
operators

130
workers trained to use
the system

15
antennas to continuously
track devices

The “We-Tag” Active Device system, installed on the casthouse floor of a blast furnace, consists of an additional safety system for operators in the casthouse floor of the blast furnace (on a surface of about 1,200 m²), through wearable tags. The system allows to create a virtual perimeter associated with several specific areas of the casthouse floor (virtual geo-fence).

The safety support system allows the operator in the control room and/or the shift leader to have the complete picture of the position of the operators during the various process phases. It also allows the operator in the control room to manage the process in order to start the various operating phases by verifying the correct positioning of the operators more precisely.



Tuyeres for hot air injection at the blast furnace

Management of energy carriers and energy efficiency enhancement

In steel plants, a substantial part of costs is associated with energy and energy efficiency of processes. In the current context, Acciaierie d'Italia Group is paying particular attention to this issue not only in economic terms, but also due to the associated environmental implications.

Production process optimization solutions are being studied through a global and in-depth analysis of the behaviour of the single processes and the impacts of raw materials, of production configurations (Process Efficiency Analyzer) in combination with predictive analysis of efficiency in real-time (real-time Efficiency Predictor) to address the forecast of energy demand and energy planning as a whole, i.e. electricity, steel gases, natural gas, steam and technical gases.

In 2022, the Group received a proposal from a business partner for the adoption of an integrated management platform for energy, energy sources and sustainability for energy-intensive processes, leveraging the power of IoT, Big Data, Machine Learning and other industry 4.0 technologies.

Production planning

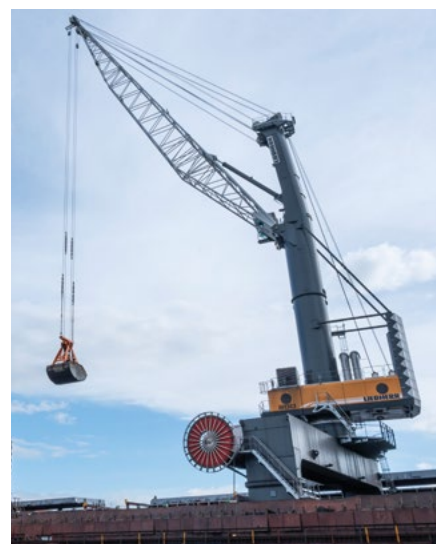
The in-phase planning of a multi-process and multi-production line system is of great combinatorial complexity. The implementation of a digital production planning system will support plant operators by achieving flexible production scheduling, real-time material tracking of the whole supply chain, continuous performance optimization from customer order to finished product, achieving better performance in terms of respect of delivery times, faster order processing, optimized product inventory levels using machine learning methods, artificial intelligence and big data analysis to monitor all production stages along the entire production and shipping process.



Multimedia workstations for staff training

New cranes for unloading raw materials from pier no. 4 (Taranto)

At the Taranto plant, the procurement of raw materials used in the hot metal production phase takes place via cargo ships berthing at the piers managed by the plant. The unloading of raw materials is carried out by grab cranes. In 2022 and in the first months of 2023 an important project for the purchase of 4 mobile harbour cranes is being completed, with a total expected budget over **30 million euros**.



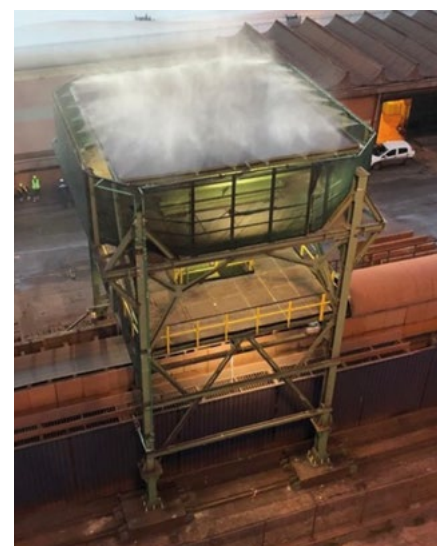
New crane for unloading raw materials

The resulting benefits will have effects on various aspects, such as safety, environmental impact and operational performance.

These new cranes have an enhanced resistance to adverse weather conditions, a circumstance to which particular attention was paid after the dramatic events caused by the typhoon that hit the city of Taranto in 2019 causing a fatal accident and structural damage to the installed cranes at that time. In case of exceptional weather events, the new emergency locking systems (called **Storm Lock Pin**) prevent the crane from moving by the insertion of an integral brake with the portal in a slot on the pier and, in addition, provide for an additional mechanical wedge locking system operated by hydraulic pistons. The shape and ergonomics of the new cranes reduce the escape time of the operator from the control cabin as they are equipped with a descent device in addition to the traditional one.

The environmental benefit deriving from the installation of the new machines is linked to the reduction of energy demand of the new fully electric drives. The environment contamination risk caused by the dusting of unloaded material is eliminated by the new type of 15 closed buckets which transfer the material from the hold to the loading hoppers of the conveyor belts.

The 15 ecological buckets comply with the DPCM prescription of 14 March 2014 and are managed by a software that allows proper management of lifting, opening and closing speeds. The 4 closed and water sprayed hoppers are able to receive the material from the bucket of the crane and to transfer it, in a controlled way, to the conveyor belt. The upper part of the hopper is equipped with a windbreak grid arranged around the perimeter and with a nebulized water spraying system ensuring the absence of any dust leakage. Last but not least, it is necessary to mention the improvement in the operating performance within the objectives of the investment which, when fully operational, will allow for an increase in the unloading capacity up to 40kton/day reducing the costs of unloading operations up to 50%.



Loading hoppers of conveyor belts

Upgrade of the furnace burners in the rolling area (Hot Strip Mill no. 2)

The Taranto plant is dedicated to hot rolling as it is equipped with 2 hot strip mills (TNA1 and TNA2) and 1 plate mill (TLA). The TNA2 has 5 furnaces (called “walking beam furnaces”) which allow the incoming slab to be preheated from ambient temperature up to a temperature of approximately 1,250°C. This high temperature allows the material to reach the level of deformability as necessary for the subsequent rolling operations (thickness reduction).

The slabs are loaded onto special conveyors and led to the access “doors” of each of the five furnaces.

The material loaded inside the furnace is heated and then “pushed” on the rolling table to start the rolling process.

The objective of the burners upgrade project is to improve the efficiency of the combustion system inside the walking beam furnaces of the TNA2. The activity involves the replacement of the existing burners with second generation Low NO_x burners (of equal power) and the consequent adaptation of the control system and the existing logic to the current regulations in terms of safety.

In normal operating conditions, the investment will bring a benefit in terms of energy efficiency measurable in the reduction of specific consumption of gas per unit of heated slab weight of almost 10%.

The budget of the entire project is over **27 million euros**.

Upgrade of hot metal desulphurization plant (Steel shop no. 2)

Inside the Taranto plant there are two steelmaking shops (ACC1 and ACC2) which refine the hot metal coming from the blast furnaces, reducing its carbon content (decarburization) and perform a series of secondary metallurgy operations in which the ferroalloys necessary to achieve the designed chemical composition are added. The two steel shops are equipped with 4 desulphurization stations for the ladles of hot metal, tapped from the blast furnaces, with the aim of reducing the sulfur content in the molten bath. Of the four desulphurization stations, two are of the “injection” type and two of the “KR” type. The “injection” ones have been out of service since 2013 for environmental reasons.

With a view to technological renewal, Acciaierie d'Italia has reactivated the project for the revamping of the hot metal desulphurization plant by injection, with the aim of creating steel grades with a high production mix to align the order portfolio with the demands of the current market (steel grades with very low sulfur content around 15 ppm). An important aspect from the environmental point of view is the implementation of an airtight and movable “Dog-House” which contains the hot metal ladle during the treatment. The suction of fumes from the desulphurization process is ensured by the connection of the Dog-House to the existing fume suction system.

The budget of the entire project is of over **16 million euros**.

The image shows a modern building with a series of vertical, rust-colored metal fins or louvers that create a rhythmic pattern along its facade. The building is situated on a grassy slope under a clear blue sky. In the background, another part of the building with a curved, grid-like metal structure is visible.

7 | Research & Development Centre

7 | Research & Development Centre

Acciaierie d'Italia considers research, technological development, technical updating and innovation as the engines to face the current challenges of energy, digital and ecological transition, and achieve the objectives of **decarbonization, environmental sustainability, quality and competitiveness of its own processes and products**. To this end, the Group is investing in the creation of a Research and Development (R&D) Centre capable of offering methodological and scientific support to the industrial sector of the Group.

At the Taranto plant, since 2021 about twenty ADI researchers and a variable group from RINA-CSM (Material Development Centre), a research and technical-scientific consulting centre specialized in the iron and steel sector, have been active. In 2021, RINA-CSM was assigned with the task of training young researchers.

The Research and Development Centre occupies an area of **over 2,200 m²** in a modern and renovated building on two levels, almost fully equipped during 2022, to accommodate **15 highly specialized scientific laboratories**, and three **multimedia rooms** capable of hosting seminars and technical-scientific dissemination events.

A major investment, both at a strategic level and for the economic resources involved, is represented by the **Research and Development Laboratory** located on the ground floor of the R&D building (about 1,000 m²), which will be perfectly integrated into the existing laboratory system, expanding the portfolio of methodologies with very high sensitivity tools.



R&D Scientists

In 2022, work began on upgrading the R&D facilities, expected to be completed in May 2023, and the laboratory equipment was ordered and partially received. The plan of the laboratory includes three macro-areas:

- a warehouse for the entry and storage of samples and consumables;
- the “Chemical Laboratory”, equipped with instruments for chemical and electrochemical analysis, thermal analysis and development of corrosion protection systems, product analysis and support to iron and steel processes;
- the “Materials Laboratory”, where there will be tools for the physical analysis of materials: X-ray analysis, optical analysis from low to very high magnification, hardness measurements, element/compound analysis, both for surface and volume.

In support of all methodologies, there will be tools for the preparation of the specimens (cut-off machines, sanders, embedding machines, etc.) and, above all, a LIMS, Laboratory Information Management System, i.e. a software platform capable of supporting the workflow, integrating the Group's tools and laboratories and managing data and metadata in a simple way and in accordance with the principles of Industry 4.0. In this way it will be possible to implement the concept of “**extended laboratory**”, i.e. of a single analytical capacity for the whole company, also including the experiment results. This variety of methodologies and instrumentation, to support the work of technicians, researchers and company departments, is valuable and fundamental to support the path of innovation and deep transformation undertaken by Acciaierie d'Italia.

The Research & Development plan and activities

In continuity with the work started in 2021, the R&D Centre works by establishing ambitious objectives concerning various areas of application including:

- **energy transition and environmental sustainability**, with activities that include the study of sustainable sources and alternatives to fossil fuels, the capture and valorisation of CO₂, the energy efficiency of processes, the reduction of emissions;
- the **circular economy**, with the study of solutions for the valorisation of by-products and the reuse of secondary raw materials from other production chains;
- the development of **innovative and competitive products** such as steels for applications with hydrogen or mixtures, or high-strength steels for large infrastructures;
- **process innovation** in order to guarantee continuous improvement, competitiveness, sustainability and safety;

- **digitalization** which allows processes to be supported and made more efficient also through predictive maintenance and process modeling activities (FEM, CFD, Digital Twin, Machine Learning).

Furthermore, the Research and Development Centre of Acciaierie d'Italia has a keen interest and scrupulous attention towards (national and European) **funding programs** intended to support **innovation and research** both in the iron and steel field and in the environmental field, energy and climate. These initiatives represent a strategic opportunity not only to finance research and technological development, but also to recognize the high innovative value of the proposed projects and to establish collaborations and important relationships with major players in the steel, scientific, technological and academic sectors at international level.

Indeed, in 2022 the Centre submitted 14 proposals for Research, Development and Innovation projects to the following European calls: Horizon Europe, RFCS – Research Fund for Coal and Steel, LIFE – Environment and Climate Action, and other initiatives are in the study phase with various scientific partners.

The projects submitted to the various European funding initiatives and those developed by the R&D centre in 2022 range from the decarbonization of processes to the circular economy:

- Decarbonization of processes through:
 - **alternative and carbon neutral energy sources** (BIOCODE, COREFUEL, PROSYNTEG, PLASTIC INJECTION);
 - **capture** (ELEVATE, GREENSMITH, BIOFILT);
 - **enhancement of CO₂** (Carbonation, SWAN).
- Circular economy through:
 - the reuse and **valorisation of steel by-products** (ZINCVAL, SLAGREEF 3D, POWERSLAG);
 - energy efficiency and study of the **impact of electrification** of processes on the existing network (H2ENERGY NET);
 - the use of **models** for prediction of steel properties, improvement of processes or monitoring of the residual life of plant components (STORM, PASHA, DEBATE);
 - the development of suitable **steels** for the construction of **renewable wind or wave energy production** systems (REFOS2).

In line with national and European energy and ecological transition policies, seeking to anticipate the implementation timing towards decarbonization, Acciaierie d'Italia Group has given its availability to become a partner in the Research and Innovation project by Rina Consulting Materials Development Centre, called **HYDRA**.

The Research and Development Department constantly monitors possible external sources of

Italian and European funding (RFCS, Horizon, Just Transition Fund, PNRR and others), and in 2022 the Group participated in a series of training and dissemination events concerning the calls and development opportunities for Research and Innovation projects. To name a few, R&D participated in the Info Days of the “Innovation Fund” European calls (29-30 November 2022), LIFE (18-20 May 2022) and EU RFP (25 January 2022) and in the presentation of the FISA (Italian Fund for Applied Sciences) call promoted by MUR (Ministry of University and Research) last 15 November 2022.

Alongside the European Research and Innovation proposals, the 2022 activities included **support to the operating areas**, the metallurgy and the Quality Department by collaborating in the development of the product and production process, participating in in-depth discussions with customers and suppliers, and also promoting training and dissemination activities such as seminars on stainless steel metallurgy, publication of scientific articles and attendance to industry events and conferences.

During these first years of activity, with the support of RINA-CSM, improvement and development projects have been developed for some categories of products to improve ADI's position on the market:

- Hot dip galvanized Dual Phase steel;
- Interstitial-free “super formable” hot-dip galvanized steel;
- Formable high strength, hot dip galvanized steel (grade HX420LAD);
- Hot stamping steel (used intensively on the FCA production lines in Cassino for the production of high/very high resistance components);
- Cold rolled strips for the manufacture of tinplate/chrome plate with development of steel grades for products for more severe applications such as easy-open and aerosols (EN standard 10202);
- High grade and high thickness plates for structural applications: the grades of interest

are included in the European standard EN 10025 and in particular the products of greatest interest for ADI are the S420M/ML grades with thicknesses up to 60 mm and the 460N grades;

- Sheets for boiler makers complying with ASTM A516 degrees 60 ÷ 70;
- Plates and strips for the production of pipes for the transport of gas and hydrogen;

- Pickled base galvanized strips to improve process stability and mechanical properties;
- Black coils made of AISI 304L steel.

The support to the production areas was carried out through verticalized projects to improve the process with the aim of reducing defects on the finished product.

Partnerships and collaborations

In 2022, the R&D centre of Acciaierie d'Italia consolidated and expanded its **Scientific and Industrial Network** of collaborations, with universities, research centres, strategic industrial partners, schools and companies in the Apulian, national and international areas.

The active collaboration relationships are already numerous and aim, on one hand to grow the **company know-how** and **skills** thanks to the interaction with experts from the academic and industrial world, on the other hand to support ADI in achieving the important transition and decarbonization goals.

In particular, on 5 October 2022 Acciaierie d'Italia and the **Polytechnic of Bari** entered into a partnership agreement, signed at the Taranto plant by the Rector of the Polytechnic of Bari, Francesco Cupertino and by the CEO of Acciaierie d'Italia, Lucia Morselli, with the Minister of University and Research, Maria Cristina Messa, in video connection and the Councillor for Economic Development of Apulia Region.

This agreement laid the foundations for a long-term relationship with one of the most important national universities, in which the professors of the Polytechnic and the R&D Centre are already committed to launching studies and projects to support the activities of researchers, research,

technological development and innovation for the growth of the iron and steel sector, of the regional economic and productive context and to stimulate greater and greater attention to issues of sustainability in manufacturing.

A collaboration agreement was also signed with the **University of Salento** with which some project activities are being defined to be carried out in the coming months.

Besides, in 2021 an agreement had already been stipulated with the Chemistry department of the **University of Bari**, focused on issues related to Circular Economy and environmental sustainability, which in 2022 was consolidated by various scientific-experimental activities and the presentation of two European project proposals in partnership.

This valuable collaboration with one of the most important local academic centres has led to the birth of various activities for the valorisation of iron and steel by-products such as blast furnace slag and steelmaking slag, of environmental sustainability mainly for the aspects related to water treatment and, above all, of experiments to support the energy transition through the development, on a laboratory scale, of processes for the production of green hydrogen, biofuels and reuse of CO₂.

Specifically, these aspects have been the subject of an important scientific publication in the prestigious journal Nature-Scientific Reports entitled "Steel Slag as Low-Cost Catalyst for Artificial Photosynthesis to convert CO₂ and Water into Hydrogen and Methanol" signed by researchers from the University of Bari, of the CNR and Acciaierie d'Italia, in which for the first time steelmaking slag is used as a catalyst in artificial photosynthesis processes for the sustainable, efficient and circular conversion of CO₂ and waste water into hydrogen and methanol.

The R&D Centre is also collaborating with other Italian Universities and Polytechnics such as:

- the Department of Engineering for Environment, Land and Infrastructure (DIATI) of the **Polytechnic of Turin**, to study the possibility of carrying out an experiment that exploits algal photobioreactors for the **bio-fixation of CO₂**;
- the **University of Naples**, with which an important experimental activity is underway on the **accelerated carbonation of steel by-products**, in support of the objective of reducing CO₂ emissions;
- the **Scuola Superiore Sant'Anna** and the **University of Pisa** which collaborate with the R&D Centre in the context of European projects on the issues of circular economy, digitalization and innovation of processes and products;
- the **University of L'Aquila** with which an exchange phase is underway to establish some activities of common interest in the field of energy transition.

In addition to the academic network, stable collaboration continued in 2022 with **RINA-Centro Sviluppo Materiali (Materials Development Centre)**, which supports the R&D Centre in product development, circular economy and European projects, and will also train the technicians of the new R&D laboratories in the coming months.

The collaborations that were already started in 2021 with strategic industrial partners such as Paul Wurth, ENI, FINCANTIERI and SNAM were the protagonists in 2022 of a synergistic work, in particular for studies on the capture, transport, storage and valorisation of CO₂, through the submission of two European project proposals: "ELEVATE" in the Horizon call and "GREENSMITH" in the CETP call.

In addition to the initiatives already mentioned, there are many companies, universities and industrial partners with whom the R&D Centre collaborated during the year in European activities and projects, just to name a few: TNO, UNI, VEOLIA, CIRCE, IMMIB, MARCEGAGLIA, SWERIM, TATA STEEL, SMS GROUP, RWTH, University of Athens, KTH, SOCAR, ELLAKTOR, WUST, UPORTO, FERALPI, THYSSENKRUPP, Polytechnic of Milan, IDENER, BFI, Linde Group, FeHS, RSE and many others.

Furthermore, the Centre has participated since 2020 as a signatory in the Eco-Innovation activities of **ICESP**, the Italian platform of stakeholders on circular economy, chaired and coordinated by ENEA. For ADI, the ICESP platform is also an opportunity to create synergies with possible university partners, from the world of research, companies or associations and to expand ADI's network of collaborations for the development of future research projects.

ADI has also joined **APEAL**, the association of European steel producers for packaging, with which the Research Centre collaborates to identify the most sustainable, fastest and cheapest process to achieve the goal of 100% recovery of tinplate, thanks to the removal of the layer of impurities and tin which limits its use as scrap.

Research and Development as a Technology Incubator

One of the objectives of the R&D Centre is to act as an innovation incubator by collaborating with start-ups in order to accelerate the development of innovative technologies in the various strategic fields of interest such as circular economy, environmental sustainability and transition energy.

In line with these objectives, the R&D Centre has joined the national start-up acceleration program, called FAROS, managed by Cassa Depositi e Prestiti in collaboration with major Italian industrial players, dedicated to port innovation and blue economy sector.

After the process of selection and evaluation of candidate start-ups, the R&D Centre has selected a company that carries out scientific research, technological development and testing of innovative products in the environmental field, in addition to be owner of an international patent for

the development of an absorbent product capable of removing hydrocarbons and reducing the environmental damage caused by oil spills at sea.

The R&D Centre and the start-up conducted a pilot-scale experiment in which the developed product, called “**FoamFlexx200**”, was tested in an industrial setting in order to evaluate the operating capabilities in applications relating to the treatment of industrial process water characterized by a major presence of oil (for example from rolling) and by continuous cycle operation.

The activity was carried out by the Research and Development Centre of Acciaierie d'Italia in collaboration with the production area of the hot strip mill of the Taranto plant, the chemical laboratory of the plant (LAB ECO) and the experts of Water Treatment and Distribution Technologies.



R&D working group





Appendix

Appendix










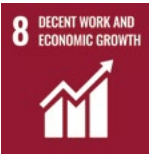


Impact Analysis















As part of the materiality analysis performed, the main potential/actual positive and negative impacts associated with the identified material issues were found.

According to the Global Reporting Initiative (GRI), impacts are all the effects that the Organization has or could have on the economy, the environment and people, including their human rights, which in turn can show the relative (negative or positive) contribution to sustainable development. The table below shows the reconciliation between the material topics identified, the related impacts and the SDGs.

PRIORITY ISSUES	IMPACT TYPE (potential/actual and/or positive/negative)	IMPACT TYPE	RELATED SDG
Health and safety at work	Increase in the rate of occupational diseases among the employees/workers of the Organization	potential	
	Reduction of the rate of occupational diseases among the employees/workers of the Organization	potential	
	Increase in the occurrence of accidents at work among employees/workers of the Organization	potential	
	Reduction of the occurrence of accidents at work among employees/workers of the Organization	potential	
	The Organization contributes to increasing workers' awareness, knowledge and sensitivity regarding health and safety at work, through training, information and awareness-raising activities and partnerships with specialized companies, with the consequent enrichment of human capital	actual	
Human resources management and enhancement	Increase of profiles/levels of expertise within the Organization	potential	
	Reduction of profiles/levels of expertise within the Organization with respect to operational/market needs	potential	
	Following the use of social redundancy funds (CIGS), application of economic logics which also involve the loss of valuable people for business management	actual	
	The Organization, thanks to the establishment of the Technical Academy and setting up of a dedicated training centre in Taranto, promotes the development of new talents and strategic skills for the business	actual	



PRIORITY ISSUES	IMPACT TYPE (potential/actual and/or positive/negative)	IMPACT TYPE	RELATED SDG
Engagement of local communities	Increase in the level of pollution produced with consequent worsening of the health of people belonging to the local communities of reference	 potential	
	Increase in the level of employment/economic support to local communities (social economic development of communities)	 potential	
	The Organization has invested in action plans on the industrial side and in innovation to reduce the levels of pollution produced	 actual	
	The Organization employs thousands of people from the Territory where it operates with positive effects on the relative families, both with reference to employees and suppliers	 actual	
	The Organization has strengthened the tools for dialogue and listening towards its stakeholders and for engaging them	 actual	
	The Organization, by using social redundancy funds and interrupting the employment relationship with companies, has a negative impact on the lives of people (employees and suppliers) and their families, belonging to the local communities of reference	 actual	
	The Organization does not require the inclusion of ESG criteria in the supplier qualification and assessment processes	 actual	
Economic sustainability and generated value	Increase in the generated and distributed value in the territory	 potential	
	Reduction in the generated and distributed value in the territory	 potential	
	In carrying out its activities, the Organization generates value by adopting initiatives and behaviours that allow to operate successfully in the market, obtaining sustainable results over time and contributing to the creation of wealth and the economic growth of the area in which it operates	 actual	

PRIORITY ISSUES	IMPACT TYPE (potential/actual and/or positive/negative)	IMPACT TYPE	RELATED SDG
Technological innovation	Increase of the innovative profile of the Organization in terms of efficiency of its production processes	 potential	
	Reduction of the Organization's innovative profile in terms of efficiency of its production processes with consequent increase in air consumption and pollution levels	 potential	
	Through R&D activities, dedicated investments and its own Research Centre, the Organization promotes the digital transition process and, consequently, the efficiency of its processes	 actual	
Quality service and customer satisfaction	Increase in the level of customer satisfaction	 potential	
	Reduction in the level of customer satisfaction	 potential	
	The Organization promotes an increase in the level of customer satisfaction thanks to initiatives carried out to guarantee the safety of its products (e.g. controls on production processes, checks on devices that contain radioactive sources, declarations of conformity obtained, etc.), corrective actions implemented following the analysis of the judgments reported in the questionnaires delivered to customers and the monitoring and careful management of claims	 actual	
Energy consumption and efficiency	Increase of emissions into the atmosphere due to consumption deriving from the purchase of electricity from non-renewable sources and the purchase and use of fossil fuels in production activities	 potential	 
	Increase in the energy efficiency of production plants	 potential	
	Reduction of emissions into the atmosphere thanks to the purchase of electricity from renewable sources	 potential	
	Reduction of energy efficiency of production plants	 potential	
	As part of its business activities, the Organization promotes the reduction of air pollution deriving from its activities thanks to the purchase of electricity from renewable sources and R&D activities related to energy efficiency and technological innovation projects	 actual	

PRIORITY ISSUES	IMPACT TYPE (potential/actual and/or positive/negative)	IMPACT TYPE	RELATED SDG
Circular economy and waste valorisation	Increase in non-recoverable waste and soil pollution level	potential	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
	Reduction of non-recoverable waste and soil pollution level	potential	
	The Organization promotes the reduction of waste sent to disposal and the development of circular economy programs and initiatives for the recovery of waste from production route and the use of recycled products	actual	13 CLIMATE ACTION
Emissions and air quality	Increase of air pollution	potential	13 CLIMATE ACTION
	Reduction of air pollution	potential	
	Despite compliance with all the emission parameters established in the Environmental Plan, the Organization contributes to the emission of polluting substances into the atmosphere	actual	
Management of water resources	Increase in misuse of water resources	potential	14 LIFE BELOW WATER
	Reduction in misuse of water resources	potential	
	In order to limit the exploitation of water resources, the Organization promotes the sustainable use of water through initiatives for the reuse of industrial water (for example, a contract stipulated with the consortium purifier of Novi Ligure for the reuse of water treated by the purifier, as a replenishment of industrial water)	actual	
Ethics and Compliance	Increase in brand reputation, thanks to compliance with the laws/regulations in force in the conduct of its activities	potential	16 PEACE, JUSTICE AND STRONG INSTITUTIONS
	Reduction in brand reputation, deriving from the failure to comply with the laws/regulations in force in the conduct of its activities	potential	
	The Organization operates in compliance with the laws and regulations in force and in accordance with the provisions of its Code of Conduct and favours collaboration with the supervisory and control Authorities/Bodies during the inspections to which it is subjected	actual	

Environmental Plan projects

Below is a detailed description of some investment projects of the Environmental Plan.

CATEGORY 1 – SINTER PLANT

Project: MEROS® filters

Objective: Reducing dust and dioxins on the two lines of the sinter plant.

Expected benefits: Reduction of dioxin emissions and reduction of dust to comply with new and stricter emission limits.

Description: The two sintering lines in Taranto (Line D; Line E) have a total of four collectors to convey off-gases from the sintering process which, before being emitted into the atmosphere from the emission point E312, are purified through injection of lignite coke and two stages of electro-filtration (the first being a static stage, ESP; the second a dynamic stage, MEEP). Electro-filtration, associated with injection of lignite coke, makes it possible to remove from the gas particulate matter – and therefore also the particles of lignite coke that has adsorbed the molecules of dioxins – ionizing and capturing the particles in the flow with electrodes with high potential difference before they are emitted into the atmosphere. To comply with the new regulatory limits, it was decided to replace the four dynamic electro-filtration MEEP filters with four *MEROS® fabric filters*. The textile filtering technology, associated with the injection of activated carbon and sodium bicarbonate, makes it possible to clean gas from the particulate matter with a high filtration yield thanks to the physical interposition of a bag filter in the gas flow.

Due to the complexity of the project and restricted spaces, the first two *MEROS® filters* [EM1 and EM2] were installed to service Line E, which will make it possible to filter 100% of the gas from this line; since January 2022, 50% of the process off-gases emitted from stack E312 are being filtered using the *MEROS® fabric filters technology*.

In May 2022 the third *MEROS* filter [EM4] was installed making it possible to filter 50% of the gas from Line D; since June 2022, three of the four *MEROS® fabric filters* for gas treatment have been operational. The project is expected to be completed by August 2023: the longer installation timing is due to the demolition of the MEEP electro-filter [MEEP-D81] for the construction of the fourth *MEROS* filter [EM3], so that 100% of process off-gases from Line D will be filtered using the *MEROS® fabric filters technology*.

The environmental objective is to reduce certain pollutants (dust and dioxins) in emissions channelled to stack E312 and comply with new limits, according to the following timetable:

Starting from 1 January 2022:

- Dust < 10 mg/Nm³
- PCDD/F < 0.15 ng I-TEQ/Nm³

Starting from 23 August 2023:

- Dust < 10 mg/Nm³
- PCDD/F < 0.10 ng I-TEQ/Nm³



Meros® filters

CATEGORY 2 – COKE OVEN BATTERIES

Project: SOPRECO system on Batteries 7 - 8 - 9 - 12

Objective: Possibility of adjusting the pressure of each coke oven to a predefined value according to the gas produced.

Expected benefits: Reduction of fugitive emissions during distillation, reduction of BaP and other polycyclic aromatic hydrocarbons.

Description: During distillation of the coal mixture within each oven of a battery, the raw gas, with a temperature of around 820°C, goes into the ascension pipe and after being cooled, into collectors called collecting mains. Two half-collecting mains are present for each turbine. The raw gas is conveyed to the treatment plant through a transverse pipe. The insertion of a valve (SOPRECO system) for each oven makes it possible to adjust the pressure in the oven at a predefined value, changing the position of each valve depending on the gas produced in the oven.



SOPRECO system installation comprising 'collecting main' suction system for raw coke oven gas and transversal suction pipes

The expected benefits from the installation of the SOPRECO system are the following:

- the SOPRECO system ensures automated adjustment of pressure for each oven in the battery, preventing fugitive emissions during distillation;
- emissions of BaP and other polycyclic aromatic hydro-carbons are reduced to the lowest possible level;
- suction into the collecting main makes it possible to charge the coke without an additional suction system, improving emissions during this phase.

Project: Coke quenching towers 5 - 4bis - 6

Objective: Reduction of dust content in the steam from wet quenching of coke.

Expected benefits: Reducing dust content to comply with the new and stricter limit.

Description: The upgrading of coke oven batteries involved the construction of related new wet quenching installations, called Quenching Tower 5 (servicing Batteries 9-10), Quenching Tower 4bis (servicing Batteries 7-8) and Quenching Tower 6 (servicing Battery 12). Red-hot coke, pushed from the battery and transferred to the quenching tower, is cooled and quenched by a large volume of water stored in two piezometric tanks. The coke temperature rapidly goes from ~1000-1050 °C (temperature at tower entry) to 80-100 °C at the end of the process. Following this abrupt heat exchange, part of the quenching water vaporizes, bringing with it coke dust that is captured by the collection systems installed in the stack of the quenching tower. The remaining water from quenching is transferred after the quenching cycle to the sedimentation tank. While water is inside the tank, the coke dust, transported by the water current, deposits as sediment on the bottom of the tank and is then removed by a mechanical system made of a chain scraper operating in a continuous cycle.

The water, cleaned of its dust content, through natural sedimentation and filtering through a system of filtering boxes, is pumped into the tower storage tanks and reused for the next quenching cycle.

The dust collection systems in the stack are installed on 3 different levels:

- First level, a dust collecting system made of stainless steel shutters to prevent the risk of fire. This system is cleaned through the nozzles of the second level;
- Second level, a system for counter-washing the steam flow with industrial water through spray nozzles;
- Third level, a dust collecting system made of shutters equipped with its own cleaning nozzles.

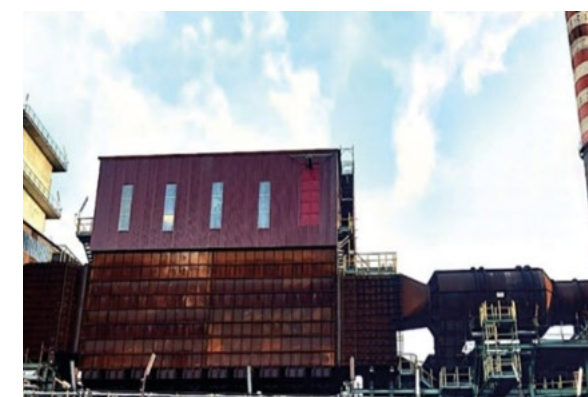
Through the use of the three levels of collection it is possible to reduce the dust content below the imposed limit of 25g/tonne of coke produced.

Project: Suction system at coke pushing - Batteries 7 - 8 - 9 - 10 and 12

Objective: Improve the collection and filtration system at coke pushing phase on coke side of Batteries 7-8-9-10 and 12.

Expected benefits: Reduction of fugitive emissions during coke pushing phase.

Description: In 2021 activities and works were completed thus allowing the improvement of the collection and filtration system related to the pushing phase on the coke side of Batteries 7-8-9-10 and 12, as prescribed by the DPCM dated 29 September 2017.



Suction system at coke pushing phase - batteries 7-10

The objective was achieved through the separate installation of the following equipment:

- New coke guide cars (machines that transfer coke from the oven to the quenching car);
- New hoods suitable to cover the entire length of the quenching car, connected with the coke guide cars;
- New "trav-l-vent", i.e. a duct for the suction and channeling of emissions to the suction-filtering unit;
- New suction-filtering unit.

The new suction system concentrated and intensified the suction capacity of the newly designed dust collection system throughout the coke pushing process, from the opening of the oven door to completion of filling of the quenching car, including cleaning of the door before it is placed back onto the oven.

Project: Dedusting systems at coke oven stacks E424 (Bat 7-8), E425 (Bat 9-10), E428 (Bat 12)

Objective: Installation of new filters for dedusting combustion fumes from heating of coke oven batteries.

Expected benefits: Reduction of dust emissions from combustion fumes to comply with the new and stricter limit.

Description: Installation has been completed of new filters for dedusting combustion fumes from heating of coke oven batteries.



New fume dedusting installation on stack E424

Combustion fumes from heating of the batteries, before being channelled as such directly to the related stacks, are collected and conveyed by pipelines to the new filtration systems made of bag filters that reduce the dust content in the fumes below 8 mg/Nm³. The fume dedusting installations mounted on the coke oven batteries at the Taranto plant are one of the first applications in Europe.

Project: Construction of a new coke oven gas desulphurization line

Objective: Construction of a new coke oven gas desulphurization line (Claus plant) and construction of a new cooling system called “chilling water”.

Expected benefits: Keeping the value of H₂S below the AIA limits even during maintenance stops of the existing line.

Description: During distillation of coal in the coke oven batteries, the sulphur content in the coal is transformed into hydrogen sulphide (H₂S). The content of H₂S ranges from a minimum of 4 to a maximum of 8 gr/Nm³ and must be reduced to maximum 0.5 gr/Nm³ in order to comply with the AIA requirement, in the subsequent phases of use of the gas as fuel in the plant. The original configuration of the plant had a single redundant treatment line and therefore was not able to ensure continuously the emission values required during periodical ordinary and extraordinary maintenance activities.

Moreover, the system, was undersized in case of a possible increase in the volume of gas to be treated. The key objective of the project was the construction of a new desulphurization line for coke gas (Claus plant) and the construction of a new cooling system called “chilling water” that optimizes the proper operation of the process also during the summer months, which are critical due to the significant increase in temperature.



New coke oven gas desulphurization line

CATEGORY 4 – BARRIER ENCLOSURES

Project: Windbreak barriers at the BF slag stockyard and the GRF (ferrous scrap recovery yard)

Objective: Construction of perimeter barriers and wetting systems at the BF slag storage yard and the ferrous scrap recovery yard.

Expected improvement: Reduction of possible diffuse emissions due to the erosive action of wind on the BF slag stockpiles and ferrous slag recovery yard.

Description: Environmental protection activities under way within the Taranto plant also include two perimeter barriers erected at the blast furnace slag stockyard and at the ferrous scrap stockyard used by the steel mills. The intervention aims at a significant reduction of diffuse emissions due to wind erosion on the slag piles and on ferrous scrap recovery yard. The barrier is composed of 21-metre high special anti-dust nets supported by wire ropes. The wire ropes are in turn fixed to a series of columns consisting of single-pole elements and to lattice elements placed at regular intervals, both made of carbon steel profiles. At the BF slag yard, a new wetting system has been erected to support the barrier system.



Windbreak barriers

Project: Enclosing of conveyor belts – Prescription No.6 of DPCM dated 29 September 2017

Objective: Reduction of possible dust emission points due to the transport and transfer of raw materials and by-products.

Expected improvement: Elimination of dust emissions due to wind and material handling.

Description: The Taranto plant is an integrated cycle plant, which means that starting from the raw materials, coal and iron ore, the finished product, i.e. steel, is obtained. All movements of raw materials and by-products take place through a network of conveyor belts and connection towers at ground level and at height. The presence of numerous belts and towers involves several points of transfer from one belt to another and therefore the possible emission of dust due to transport and transfer. On the existing conveyor belts, it was decided to install new structures to eliminate dust emissions from the material during transfer. Indeed, the wind makes an erosion effect on the material travelling on the upper and lower part of the belt, which causes material dispersion in the form of dust. Enclosing panels have therefore been installed on all sides of the belts.



Enclosing of conveyor belts

The types of enclosure used are:

- Covers;
- Side fences;
- Pipe conveyors.

On the existing connection towers, it was decided to install new structures and devices, such as stoppers and wetting systems, to confine the material during transfer from one conveyor belt to another through discharge hoppers. Expected environmental benefits: Elimination of dust emissions due to wind and material handling.

Project: Coverage of stockyards – AIA prescription no.1

Objective: Installation of two megastructures to cover the raw materials stockyards with a size of 476x254x77 meters each.

Expected benefits: Elimination of wind erosion on material stockpiles, also avoiding the raising of dust when material is stacked into and reclaimed from the stockyards.

Description: Among the environmental protection activities carried out within the Acciaierie d'Italia plant in Taranto, as part of the environmental remediation project of the plant, one of the most significant projects completed is certainly the coverage of primary stockyards, which allows to reach a substantial reduction in diffuse emissions essentially due to wind erosion on the stockpiles, in addition to containing any dust dispersed into the atmosphere due to stacking and reclaiming of dusty materials. Because of the extension of the areas to be covered and the size of the stacker-reclaimer machines that stack the materials and reclaim them from the stockyards for transfer to the plants where they are used, two enclosures have been built (one for the iron ore stockyard and one for the coal stockyard) that are one of a kind due to their size.

The two enclosures are practically twins and each one is 476 metres long, 254 metres wide and 77 metres high. They are built with a single span and without intermediate supports to allow the movement of machines that run on rails. The enclosures are made entirely of tubular steel and covered with corrugated sheets separated by polycarbonate sheets for natural lighting. To service the enclosures, technological systems have been built to allow rainwater collection, lighting and ensure the natural exchange of air inside. An



Coverage of primary stockyards

automatically operated misting system captures and brings back to the ground any dust particles that may be lifted during the handling of materials, preventing them from escaping outside. The project is completed by the related re-greening of the areas adjacent to the enclosures.

Project: Enclosure of secondary stockyards – AIA prescription no.4

Objective: Erection of a vaulted roof with load-bearing metallic structures, leaning on concrete walls and with roofs made of corrugated sheets separated by polycarbonate sheets.

Expected benefits: Elimination of wind erosion on the material stockpiles, also avoiding the raising of dust when material is stacked into and reclaimed from the stockyard.

Description: Secondary stockyards include the limestone, ore blend, and north and south sinter stockyards. The objective, as for the coverage of primary stockyards, is to eliminate wind erosion on the material stockpiles, also avoiding the raising of dust when material is stacked into and reclaimed from the stockyard. For the sinter south stockyard and sinter north stockyard two enclosures have been built with double pitched roof, with load-bearing metallic structures, leaning on concrete walls. The structures have been covered with corrugated sheets separated by polycarbonate sheets for natural lighting.

The enclosure of the sinter south stockyard is 74 metres wide, 84 metres long and 26 metres high; the enclosure of the sinter north stockyard is 73 metres wide, 58 metres long and 27 metres high. For the ore blend stockyard, a vaulted enclosure has been built with load-bearing metallic structures, leaning on concrete walls and a roof of corrugated sheets separated by polycarbonate sheets. The ore blend yard enclosure is 384 metres long, 110 metres wide and around 42 metres high at the outer curve of the roof.

For the limestone stockyards two enclosures have been built with double pitched roof, with load-bearing structures in laminated wood, also leaning on concrete walls and a roof of corrugated sheets separated by polycarbonate sheets.

The enclosures are, respectively, 171 metres long, 73 metres wide and around 37 metres high, and 143 metres long, 80 metres wide and around 27 metres high.



Enclosure of ore blend stockyard



Enclosure of sinter south stockyard



Enclosure of limestone stockyard

To service the all the above mentioned enclosures, technological systems have been built to allow rainwater collection, lighting and ensure the natural exchange of air inside. An automatically operated misting system captures and brings back to the ground any dust particles that may be lifted during the handling of materials, preventing them from escaping outside.

CATEGORY 6 – DEMOLITIONS

Project: prescriptions no. 16.e) 42-49 of DPCM dated 14 March 2014 – Demolition of batteries 5/6

Objective: Decommissioning of Batteries 5-6 and subsequent clean-up.

Expected benefits: Reduction of the environmental impact risk and clean-up of the area.

Description: The area of intervention, called Batteries 5-6, comprises the batteries themselves and the related stack (stack no. 3). Those plants ceased operating in 2013. The batteries are part of the ADI plant in Taranto, specifically in the department known as ironmaking area. Each of the batteries comprises a series of 45 ovens and 46 supports. The two series of ovens are separated by an intermediate area. The decommissioning of batteries 5-6 took place in distinct and/or overlapping phases. In the first phase the auxiliary plants were demolished/dismantled, the second phase involved the demolition of the ovens, and the third and last phase consisted in the demolition of the stack. The intervention, as already explained, substantially comprised three operating phases; preliminary activities apply to all phases of the project (e.g. operations to prepare the specific construction site), and served as preparation of the dismantling/demolition activities. All waste materials from the various phases of remediation and demolition were in any case sorted by type and analysis, since it is clear that in most cases it was not be possible to demolish only ferrous parts, and even less only bricks. Therefore, demolition was always selective, so as to separate metallic structures from refractory material and identify possible recovery actions. Based on the characterization of the waste reported above, and to the related waste code, the generated waste was transported to suitable temporary storage areas and subsequently sent to recovery/disposal facilities inside or outside the plant.



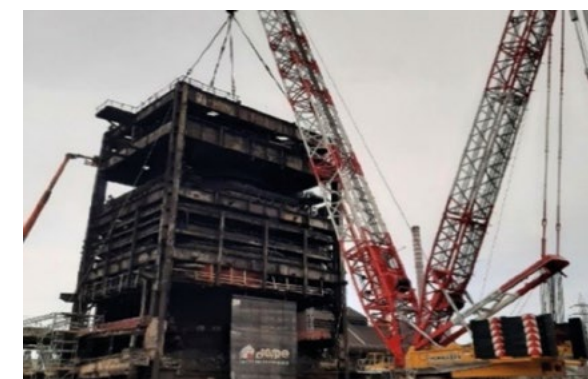
Batteries undergoing demolition

Project: Prescription No. 18 of the 2012 AIA – Demolition of Blast Furnace 3

Objective: Decommissioning of Blast Furnace no. 3.

Expected benefits: Reduction of the environmental impact risk and clean-up of the areas.

Description: Blast Furnace 3 (BF 3) is located in a central position within the ADI plant; it occupies an area of around 22,000 m², whereas the surface covered by structures is around 5,000 m². Blast Furnace 3 has been disconnected from the other plants and is also isolated from the fluids and electricity grids of the plant. The demolition of the blast furnace involved the following key units:



BF 3 under demolition

- raw material loading system (charging belt, hopper, chute);
- blast furnace;
- air heating system (Cowper hot stoves + stack + gas control and adjustment valves in the supply pipes – fuel and comburent – and “hot blast” in the supply pipe);
- gas scrubber system (consisting of a dust bag and gas washing stages – “Venturi” and clariflocculation tanks);
- machines in the cast house floor (clay gun, drilling machine, tilting);
- blast furnace slag tanks (dry and/or wet granulation).

All the generated waste was sent to appropriate recovery/disposal facilities in accordance with the preliminary analysis and classification and consequent attribution of appropriate waste codes.

CATEGORY 7 – DENITRIFICATION (DE-NO_x) ADI ENERGIA

Project: Gas treatment system for the thermoelectric power plant CET/2

Objective: Installation of a gas treatment system for each of the three units at the power plant CET2 of ADI Energia plant.

Expected benefits: Reduction of NO_x, SO_x and dust from boiler exhaust gases.

Description: Taranto's CET2 is a conventional thermal power plant with condensation process, with total installed capacity of 480 MW, composed of three independent units MB 1, 2 and 3 with a capacity of 160MW each. With a view to complying with the AIA requirements applicable from 1 January 2023, concerning limits to the pollutants emitted into the atmosphere by thermal power plant CET2 of Acciaierie di Italia



ADI Energia DE-NO_x system

Taranto plant (in terms of NO_x , SO_x and dust), a gas treatment system installation is planned for each of the 3 monoblocs that make up the power plant. This will include:

- A denitrification (DE- NO_x) section, comprising two Selective Catalytic Reduction (SCR) systems, inclusive of the related storage and devices for injecting an ammonia solution, to be installed on each gas line leaving the boiler of each monobloc;
- A dry desulphurization (DE- SO_x) section, comprising two systems for the injection and accumulation of sodium bicarbonate, to be installed on each pipe leaving the boiler of each monobloc;
- A dedusting section, comprising a fabric filter, for the treatment of the entire volume of off-gas leaving the boiler of each monobloc.

CATEGORY 9 – COMPREHENSIVE PLAN

Project: environmental improvement comprehensive proposal

Objective: various environmental improvement activities, spread over several operational areas of the plant.

Expected benefits: Reduction of emissions into the atmosphere, better efficiency of wastewater treatment.

Description: The project is designed to comply with the environmental requirements set out in article 6, paragraphs 1 and 2 of the DPCM dated 29 September 2017. The involved plants are arranged as follows:

1. TN-1: Installation of fabric filter on the leveller of FNA/2 (Strip Finishing Line no. 2)
2. PL-3: Suction and filtration of fumes from the oxygen-cutting line in the SOITAAB area of the OLP
3. PL-4: Suction and filtration of fumes from the oxygen-cutting line in area 1 of the OLP
4. LF-3: Modification of the acid fume reduction system of the pickling plant at the cold rolling mill (LAF)
5. LF-2: Feasibility study for air capture and treatment in the decoiler area of pickling-plant 1 and plant at the cold rolling mill (LAF)
6. PG-1: Reconstruction of collection tanks of the oil units of compressors at the technical gas production unit (PGT)
7. PG-2 - Recovery of oil fumes from oil units of compressors at the technical gas production unit (PGT)
8. EN-1 - Clean-up and demolition of the fire pump room located on the third pier in the sea shipping facilities area (IMA)
9. EN-3: Clean-up and demolition of the former OCD fire pump room located on the third pier in the sea shipping facilities area (IMA)
10. EN-4: Clean-up of tank S1 containing OCD in the sea shipping facilities area
11. TU-1: fume capture and reduction system in the CUT-OFF 1-2 and tab removal station areas of longitudinal pipe mill no.1 (TUL-1)
12. Tu-2: New emissions suction plant for tack welding machines at RIPI/CUT-OFF/1 station of longitudinal pipe mill no.2 (TUL-2)
13. Rv-2: Construction of a new “peeling” and “brushing” plant at coating mill no. 2 (RIV/2).

The above projects involve a series of interventions designed to achieve the following environmental benefits:

- reduction of diffuse emissions through suction, purification and channeling into the atmosphere
- reduction of water consumption and wastewater discharges into the sewerage system
- reduction of emissions of oil vapours
- preventing possible oil spills into the sewerage system and/or contamination of the soil
- removal of chemical substances and materials on decommissioned plants that are a potential source of contamination for the environment.

CATEGORY 10 – WASTE PLAN

Project: Prescription UP2 of ILVA waste and by-product plan

Objective: Removal of an old pile of dust from cleaning activities made in the primary stockyard area.

Expected benefits: Disposal of this material at external plants authorized for such activities.

Description: The project complies with Prescription UP2 of ILVA's Waste and By-Products Plan, referred to in article 4 of Law Decree no. 1 dated 5 January 2015, converted with amendments into Law no. 20 dated 4 March 2015. The heap in question is predominantly composed of an accumulation of raw materials (iron ore and coal), with a volume of around 131,000 m^3 , originated from material falling from the conveyor belts that transfer materials from the piers inside the steelworks. Near this heap, hereinafter identified as the dust heap, was a heap of mill scale, with a volume of around 14,000 m^3 , which over time laid over the edges of the dust heap, creating a total volume of around 145,000 m^3 . Prescription UP2 relates to two heaps located in different stockyards, specifically the dust heap at “stockyard 4” and dust and mill scale heap at “stockyard 6/7”. Dust at “stockyard 4” was entirely disposed of after appropriate analyses at the internal landfill for non-hazardous waste called “G3”. The dust and scale heap at “stockyard 6/7” was composed of dust, mill scale and tyres on top of the heap. The tyres were fully removed and disposed of at approved external facilities. The mill scale heap, after analysis, was completely removed; dust was disposed of at approved external facilities.

Project: Prescription UP3 “zone 2” of the Waste and By-Products Plan

Objective: Removal of an old pile of blast furnace sludge and dust made in the quarry area.

Expected benefits: Recovery and/or disposal of blast furnace sludge at external plants authorized for such activities.

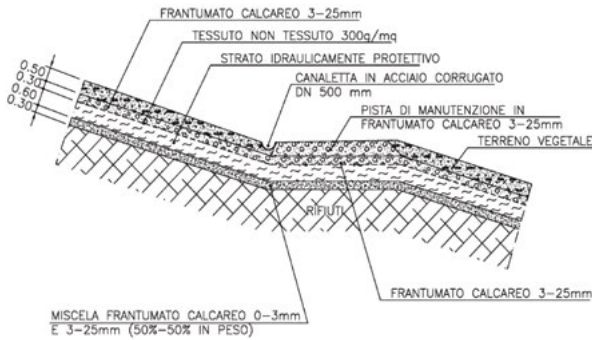
Description: Prescription UP3 “zone 2” of ILVA's Waste and By-Products Plan, referred to in article 4 of Law Decree no. 1 dated 5 January 2015, converted with amendments into Law no. 20 dated 4 March 2015. The heap in question is composed predominantly of blast furnace sludge, with a volume of around 500,000 m^3 , which is sludge deriving from scrubbing of off gas produced by each blast furnace of the plant. Prescription UP3 “zone 2” requires the recovery and/or disposal of blast furnace sludge at approved external facilities.

Project: G2 LANDFILL

Objective: Restoration of the original hill/quarry profile and monitoring of environmental conditions.

Expected benefits: Environmental recovery of the original place profile.

Description: The choice of a site for a landfill always falls on a previously cultivated quarry. ADI's landfills were created in quarry areas cultivated from the late 70's, from which the limestone used for internal production of lime has been and continues to be extracted.



Section of multi-layer cover

Once the available volume has been used up, post-operation management of a landfill requires the restoration of the original hill/quarry profile, altered by mining activities, and monitoring of environmental conditions over the following thirty years. In a sustainability perspective, a landfill, at the end of its operation, requires the environmental restoration of the area to its original state. The internal landfills are located in the quarry area called “Mater Gratiae” and include “G2” landfill, now in the post-operation phase since January 2021 after final capping and verification by the competent authorities.

The capping of a landfill consists in laying of a multi-layer cover and re-planting of vegetable soil; in particular, it is necessary to restore the areas to their original state and therefore cover the waste with several layers of natural materials so that it does not come into contact with atmospheric agents, such as rain or wind. The figure shows a section of the layers, made of natural materials, used for G2 landfill capping.

The capping phase of the landfill, preliminary to planting of native grass species, which are adapted to the area’s climate, is shown in the figure above. The result of planting of grass is shown in the next figure.

Following the grass planting on top of G2 landfill, the spread and growth of other native plant species was observed, as was the presence of fauna typical of the area of Leucaspide Ravine.



Result of multi-layer capping and vegetable soil

CATEGORY 11 – ASBESTOS REMOVAL

Project: Comprehensive Asbestos Removal Plan, “PORA”

Objective: Removal of existing asbestos from some installations.

Expected benefits: Reduction of the existing quantity of asbestos in the plant.

Description: Within the works contemplated by the environmental plan of the Taranto plant pursuant to the DPCM dated 29 September 2017, the commitment of Acciaierie d'Italia to remove the asbestos still existing in some installations is of particular importance. The Company, indeed, has submitted to the competent authorities a comprehensive plan for the clean-up of decommissioned plants, of plants in operation, as well as of old generation electrical equipment. Compatibly with production planning, the objective is to achieve the elimination of this material from the mapped installations by the environmental plan deadline, i.e. within August 2023.

CATEGORY 12 – STACKER-RECLAIMER

Project: new stacker-reclaimer machine compliant to ATEX directive

Objective: Replacement of the existing stacker/reclaimer system with a new one compliant to ATEX directive.

Expected benefits: Together with stockyard coverage, reduction of dust emissions and of ATEX risk in a closed environment such as the coal stockyard.

Description: The BF machines are combined machines (stacker-reclaimers) which operate inside a building with 4 yards about 476 meters long. Within the building, the operating machines are identified as follows:

- BF1 – Manufacturer Bedeschi
- BF2 – Manufacturer Bedeschi
- BF3 – Manufacturer Bedeschi
- BF4 – Manufacturer Thyssen

BF1 operates between yards 1 and 2 and shares the same runway with BF2 machine, whereas BF3 operates between yards 3 and 4 and shares the same runway with the existing BF4 machine.

The Stacker-Reclaimers currently installed in the yard are designed for the storage and reclaiming of coal and coke, each equipped with a trailer and capable of operating on either side of the runways. The BF1 machine, in addition to the trailer, is equipped with a tripper to allow, through a mobile drawer, to be able to alternatively feed the following BF2 machine or directly stacking. The stacker-reclaimers move on rails; the stockyard conveyor belts are installed between the rails, one of which is used for storage (stacking) and one for recovery (reclaiming). Each stacker-reclaimer is able to form heaps of material with a triangular or trapezoidal geometry on both sides of the rail. In stacking mode, the material is transferred from the stockyard conveyor belt, by means of the mobile drawer and the intermediate conveyor belt, to the stacker-reclaimer boom belt and then to the yard; the mobile drawer also allows to bypass the stacker-reclaimer. In reclaiming mode, the material is reclaimed from the bucket wheel and transferred to the boom belt and then, via the central hopper and a vibratory feeder, to the yard reclaiming conveyor. In order to minimize dust emissions into the environment, all machines are equipped with a water wetting system; each machine is also equipped with a 10,000-litre tank made of painted steel located in the lower part and a hose reel to feed the wetting system. The function of the tank is to compensate for any interruption in the water network.

CATEGORY 13 – STEEL SHOP

Project: Ekoplan filter for suction and secondary dedusting at Converters of Steel Shop no. 1

Objective: Improved suction of fumes during converter process phases (charge, blowing, tapping, deslagging).

Expected benefits: Reduction of fumes coming out of the steel shop building and compliance of filter with emission limits at stack.

Description: The system serves the converters of Steel Shop no. 1 and is also connected with the 3 hoods closing the roof over the 3 converters. The system is mainly made of:

- Bag filter with raised support structure;
- Dust collection, transport and storage system;
- Centrifugal fans;
- Chimney for the expulsion of fumes into the atmosphere;
- Filter outlet connection ducts to fans and from fans to chimney;
- Electrical system and instrumentation for system control and monitoring.

The bag filter is of the Pulse-Jet type complete with all the components and accessories necessary for correct operation. It is made of carbon/corten steel plates suitably reinforced with profiles in order to make it suitable for the operating conditions. The main characteristics of the filter are the maximum flue gas flow rate of 3,300,000 m³/h and maximum residual dust content in the chimney of 5 mg/Nm³.

CATEGORY 14 – PROCESS WATER TREATMENT

Project: Construction of plant for removing selenium from coking plant wastewater

Objective: Modifying the process with the installation of a stripping plant upstream of the biological treatment unit and building a new nitro/de-nitro biological plant, and installation of a section dedicated to selenium removal.

Expected benefits: Reduction of the mass flows of BOD5 and selenium in wastewater from the coking plant.

Description: During coking of coal, the moisture of the coal and the treatments to remove pollutants that can turn into gases generate an effluent characterized by numerous substances that need to be removed before the wastewater is discharged. The DPCM dated 29 September 2017 defined new limits that the Taranto plant must comply with for the wastewater from the coking plant and that originate from assessments of the parameter regulated by the BAT Conclusions 2012 and of the hazardous substances listed in table 5, annex 5, part III, of Legislative Decree No. 152/06. Treatment of wastewater from the coking plant in Taranto takes place in two phases in series, i.e. biological treatment using activated sludge and stripping of ammoniacal nitrogen; this process flow is not compliant with BAT, and the treatment does not ensure compliance with the statutory limits for BOD5, thiocyanates and selenium. The project has been designed in two phases, Phase 1 and Phase 2, referred to a maximum inflow of 100 cubic metres per hour. Phase 1 concerned activities to adapt to BAT, i.e. modification of the process flow by placing the stripping unit upstream of the biological treatment unit and building a new nitro/denitro biological plant. The plant is built above ground, with a total volume of around 7,800 cubic metres, and has monitoring and control equipment and a roof with a smell reduction system. Phase 2 concerned activities for the removal of selenium for which BAT do not provide any guidance. It was therefore necessary to test through pilot plants all the techniques considered applicable in the literature. The tests showed that the mandatory limit can only be reached through a process of concentration of the selenium, chemical precipitation and adsorption. It was decided, accordingly, to install downstream of the Phase 1 plant, a plant comprising the following treatment units:

- ultrafiltration under pressure;
- softening;
- concentration by reverse osmosis;
- chemical precipitation;

- sand filtration;
- neutralization;
- adsorption on iron-based material.

The project, in general, minimizes the concentrations of pollutants discharged into the sea. With reference to BOD and selenium with a discharge flow of 100 m³/h, the following reduction of mass flows are expected:

- BOD5 = 17,520 kg/year (BOD5in = 40 g/m³; BOD5out = 20 g/m³)
- Selenium = 412 kg/year (Sein = 0.5 g/m³; Seout = 0.03 g/m³)

Project: Water treatment plant for the blast furnaces

Objective: Installation of a BF gas scrubbing water treatment plant.

Expected benefits: Reduction of the content of suspended solids, iron, lead and zinc and of free cyanides. The intervention minimizes the concentrations of pollutants discharged into the sea.

Description: At the Taranto plant the four blast furnaces called AFO1, AFO2, AFO4 and AFO5 are equipped with the respective plants for the treatment of water used to clean blast furnace gas. The water is treated by flocculation and sedimentation and reused, which inevitably need to be continually replenished to make up for losses due to evaporation and purging that is necessary to limit the salinity of the circulating water. In order to minimize suspended solids in the wastewater discharged into the sewerage system, over ten years ago three plants for pressure filtration by granulated silica were installed to service AFO1/2, AFO4 and AFO5. The DPCM dated 29 September 2017 defined new limits for water discharges from the purification of blast furnace gas concerning the parameters regulated by the BAT Conclusions 2012 and the hazardous substances listed in table 5, annex 5, part III, of Legislative Decree No. 152/06. While the BAT is based on flocculation and sedimentation, and the BREF document (par. 6.3.6) mentions the use of formaldehyde for the removal of cyanides, it was considered appropriate to evaluate an alternative technique that compared to the BAT minimizes risks to operators' health and to the environment. Over several months a test was conducted in a pilot plant to verify performance and establish the project data of the industrial plant. Once the adequacy of the technique was ascertained, it was decided to install a centralized plant serving the four blast furnaces, in two phases:

- Phase 1 referred to AFO1/2/4;
- Phase 2 referred to AFO5.

In Phase 1 pumping stations and related interconnecting pipes were installed at AFO1, AFO2 and AFO4 and the new plant was built above ground. This has a capacity of 360 m³/h and is structured on lines in parallel that allow operational flexibility.

The process is based on:

- controlled PH chlorination;
- flocculation;
- sedimentation;
- sand filtration;
- activated carbon filtration.

The plant has monitoring and control equipment, and a roof, for each process stage. Phase 2 will involve the installation of the pumping station at AFO5, the installation of connecting pipes and a capacity increase

of the centralized plant; the volume of the increase will be decided based on the future production of the blast furnaces.

CATEGORY 15 – RAINWATER TREATMENT

Project: Management, collection and treatment of rainwater from the hot area

Objective: Collecting and purifying rainwater falling in the hot areas and on the enclosures of the primary and secondary stockyards through dedicated plants.

Expected benefits: The environmental benefits connected to this intervention are protection of soil and reduction of pollutants (suspended solids, hydrocarbons and metals) sent to the final treatment systems at the discharge channels.

Description: Rainwater from the steel plant is currently conveyed through a collection system into the two discharge channels. The project will involve several areas of the steelworks and provides for adjusting the existing slopes, in addition to installing new waterproof flooring with the related drainage shafts, channels, curbs, underground collection tanks.

The purpose of the project is the collection and purification through dedicated plants, in compliance with the limits set out in table 3 of Legislative Decree No. 152/2006, for discharge into the sea, of:

- rainwater from the hot areas (prescription UA9);
- rainwater fall from the enclosures of the primary and secondary stockyards (prescription UA7).

Considering the extension of the hot area involved in the project, it has been divided into several collection areas whereas with regard to treatment, for optimization purposes, four water treatment plants have been foreseen to which all rainwater is to be conveyed.

The collection areas and treatment plants are arranged as follows:

- AM5 – Ferrous scrap stockyard, steel shop slag, lime kiln no. 1 and surrounding areas, WTP-AM5;
- AM6 – Steel shop no. 1 and surrounding areas, WTP-AM9;
- AM8 – Steel shop no. 2, lime kiln no. 2 and surrounding areas, WTP-AM8;
- AM9 – Blast furnace no. 1, Blast furnace no. 2, Sinter South stockyard AGL/SUD and surrounding areas, WTP-AM9;
- AM10 – Blast furnace no. 4, Blast furnace no. 5, Sinter North Stockyard AGL/NORD and surrounding areas, WTP-AM10;
- AM11 – Coking plant and by-product areas, the latter was divided into two parts for logistic reasons, AM11.1 from where water collected will be sent to WTP-AM9, whereas water collected from AM11.2 will be sent to WTP-AM10, AM11.1 from where water collected will be sent to WTP-AM9, whereas water collected from AM11.2 will be sent to WTP-AM10.



Rainwater collection areas

The treatment process comprises the following stages:

1. Equalization;
2. Clarification and thickening;
3. pH correction and de-oiling;
4. Filtration under pressure with granulated silica;
5. Filtration with activated carbon;
6. Sludge dewatering.

The environmental benefits of this project are the protection of the soil and the reduction of pollutants sent to the final treatment systems, at the discharge channels.



Blast furnace operator during hot metal check



GRI Content Index

DECLARATION OF USE	Acciaierie d'Italia Holding S.p.A. reported the information in this GRI content index for the period 1 January 2022 – 31 December 2022 with reference to the GRI standards.
GRI 1 VERSION	GRI 1: Foundation 2021

GRI STANDARD	DISCLOSURE	LOCATION
GRI 2 General disclosures 2021	2-1 Organizational details	Methodological note
	2-2 Entities included in the organization’s sustainability reporting	
	2-3 Reporting period, frequency and contact point	
	2-4 Restatements of information	
	2-6 Activities, value chain and other business relationships	Value Customers/Suppliers
	2-7 Employees	People Human resources
	2-8 Workers who are not employees	People Injury frequency rates
	2-9 Governance structure and composition	Governance
	2-10 Nomination and selection of the highest governance body	
	2-11 Chair of the highest governance body	
	2-12 Role of the highest governance body in overseeing the management of impacts	
	2-13 Delegation of responsibility for managing impacts	
	2-14 Role of the highest governance body in sustainability reporting	
	2-15 Conflicts of interest	
	2-16 Communication of critical concerns	
	2-22 Statement on sustainable development strategy	Letter to the Stakeholder
	2-23 Policy commitments	Governance
	2-24 Embedding policy commitments	
	2-25 Processes to remediate negative impacts	Value Customers
	2-26 Mechanisms for seeking advice and raising concerns	Governance
	2-27 Compliance with laws and regulations	Governance
	2-29 Approach to stakeholder engagement	Methodological note Materiality analysis
	2-30 Collective bargaining agreements	People Human resources
GRI 3 Material topics	3-1 Process to determine material topics	Methodological note
	3-2 List of material topics	
	3-3 Management of material topics	All over the document

GRI STANDARD	DISCLOSURE	LOCATION
GRI 201 Economic Performance 2016	201-1 Direct economic value generated and distributed	Value <i>Economic sustainability and generated value</i>
GRI 204 Procurement Practices 2016	204-1 Proportion of spending on local suppliers	Value <i>Suppliers</i>
GRI 205 Anti-corruption 2016	205-1 Operations assessed for risks related to corruption 205-2 Communication and training about anti-corruption policies and procedures 205-3 Confirmed incidents of corruption and actions taken	Governance
GRI 206 Anti-competitive Behaviour 2016	206-1 Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices	
GRI 301 Materials 2016	301-1 Materials used by weight or volume 301-2 Recycled input materials used 301-3 Reclaimed products and their packaging materials	Our commitment for the environment <i>Materials</i>
GRI 302 Energy 2016	302-1 Energy consumption within the organization 302-3 Energy intensity 302-4 Reduction of energy consumption 302-5 Reduction in energy requirements of products and services	Our commitment for the environment <i>Energy management</i>
GRI 303 Water and effluents 2018	303-1 Interactions with water as a shared resource 303-2 Management of water discharge-related impacts 303-3 Water withdrawal 303-4 Water discharge 303-5 Water consumption	Our commitment for the environment <i>Management of water resources</i>
GRI 305 Emissions 2016	305-1 Direct (Scope 1) GHG emissions 305-2 Energy indirect (Scope 2) GHG emissions 305-4 GHG emissions intensity 305-7 Nitrogen oxides (NO _x), sulfur oxides (SO _x), and other significant air emissions	Our commitment for the environment <i>Emissions and air quality</i>
GRI 306 Emissions 2016	306-2 Management of significant waste-related impacts 306-3 Waste generated 306-4 Waste diverted from disposal 306-5 Waste directed to disposal	Our commitment for the environment <i>Waste</i>
GRI 308 Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	Value <i>Suppliers</i>
GRI 401 Employment 2016	401-1 New employee hires and employee turnover	People <i>Turnover</i>

GRI STANDARD	DISCLOSURE	LOCATION
GRI 403 Occupational Health and Safety 2018	403-1 Occupational health and safety management system 403-2 Hazard identification, risk assessment, and incident investigation 403-3 Occupational health services 403-4 Worker participation, consultation, and communication on occupational health and safety 403-5 Worker training on occupational health and safety 403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships 403-8 Workers covered by an occupational health and safety management system 403-9 Work-related injuries	People <i>Health and safety of workers</i>
GRI 404 Training and Education 2016	404-1 Average hours of training per year per employee 404-2 Programs for upgrading employee skills and transition assistance programs	People <i>Training</i>
GRI 405 Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees 405-2 Ratio of basic salary and remuneration of women to men	Governance People <i>Human Resources</i> People <i>Remuneration</i>
GRI 407 Freedom of Association and Collective Bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	People <i>The union relations systemi</i>
GRI 410 Security Practices 2016	410-1 Security personnel trained in human rights policies or procedures	Governance <i>Certification SA8000 – Corporate Accountability System</i>
GRI 412 Human rights assessment 2016	412-1 Operations that have been subject to human rights reviews or impact assessments 412-2 Employee training on human rights policies or procedures 412-3 Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Governance <i>Certification SA8000 – Corporate Accountability System</i>
GRI 413 Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	People <i>Engagement of local communities</i>
GRI 414 Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	Value <i>Suppliers</i>
GRI 416 Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories 416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	Value <i>Customers</i>
GRI 418 Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	Value <i>Customers</i>

Glossary

A	AIA	Autorizzazione Integrata Ambientale. It is the integrated environmental authorization necessary for the operation of certain categories of production plants that can cause significant damage to the environment; 'integrated' means that the related technical assessments jointly consider the various types of damage to the environment caused by the activity to be authorized as well as all conditions in which the plant may operate (not only at capacity, but also in transition periods and during decommissioning), in order to pursue optimal environmental performance. That goal is typically achieved with the identification and adoption of the BATs (Best Available Techniques), i.e. the operation, control and management techniques that, among those technically applicable in the specific context and economically viable at an industry level, ensure optimal environmental performance in an integrated perspective.
	ARPA	Agenzia Regionale per la Protezione dell'Ambiente, the Region Environmental Protection Authority.
	ASBESTOS	A naturally occurring mineral with a fibrous structure characterised by flexible threads and fire resistance. Asbestos fibres and dust are carcinogenic substances. This material is nowadays removed and disposed of with special precautions.
B	B(a)P	Benzo(a)pyrene is a polycyclic aromatic hydrocarbon, found in coal tar. It is a carcinogenic substance.
	BAT	Best Available Techniques. In Italian MTD (Migliori Tecnologie Disponibili). These enable industrial operators to comply with obligations concerning the prevention and control of pollution. "Techniques" refers to both technologies and processes related to the design, construction, maintenance, operation and decommissioning of plants. "Best" refers to effectiveness in meeting environmental requirements. "Available" means that they are developed in or for the relevant industry; also, that they have been tested, also outside EU member states, and technically suitable and economically viable, and also reasonably accessible by industry operators.
	BENCHMARK	Benchmarking is a method based on systematic comparison that enables entities applying it to compare themselves to the best in the field and also to learn from them so as to improve.
	BIR	Bureau of International Recycling. The international commercial federation that represents the recycling industry, specifically the segment of ferrous and non-ferrous metals, paper, textiles, plastics, rubber/tyres and waste of electrical and electronic equipment.
	BLAST FURNACE SLAG	A by-product of ironmaking, during which large amounts of waste are generated that are similar in composition to Portland cement. Blast furnace slag is used as a component in special and highly fire-resistant concrete.
	CAPL	Acronym of Continuous Annealing Pickling Line, i.e. continuous annealing of coils.
C	CCNL	Contratto Collettivo Nazionale di Lavoro, national collective labour agreement. In Italian legislation it is a contract entered into at a national level by trade unions and employers' associations to determine how employment relationships are to be governed in a specific industry, in terms of both regulations and remuneration.
	CHROME-PLATE	The chrome-plate is a thin steel sheet coated by electrolysis with chromium oxide.
	CO₂	Carbon dioxide. A natural component of the atmosphere and the final product of combustion, which contributes to the greenhouse effect. CO ₂ emissions are caused by the use of coal and methane, by the sintering of metal minerals and by the production process of lime.
	COILS	Hot or cold rolled steel strips, wrapped up into large coils.
	COKE	Coal-based solid residue from low-ash and low-sulphur bituminous coal, obtained by heating coal in an oven at a temperature of 1,000 °C in the absence of oxygen. It is used as fuel and a reducing agent in smelting iron ores in a blast furnace. Coke is grey, hard and porous, and has calorific value of 29.6 MJ/kg. By-products of the conversion of coal into coke are tar or pitch, ammonia, light oils and coke oven gas.
	COMPANY DOCTOR	Occupational medicine specialist or equivalent appointed by the employer to carry out health surveillance of workers and to collaborate in prevention within the company.

D	DEPRECIATION	In bookkeeping, the part of the value invested in machinery, equipment, buildings and similar assets that corresponds to their 'consumption' during the year, and which can be deducted as expenses in the income statement. The number of years of deductibility and the yearly rates are set by tax legislation, because depreciation contributes to determining the profit for the period on which corporation tax is calculated.
	DIOXINS	Dioxins are a class of chlorinated aromatic organic compounds, the structure of which consists of two benzene rings linked by two oxygen atoms and one or more chlorine atoms. Over 200 different types of dioxins and furans are known, closely related in structure and toxicity.
	2000/53/EC DIRECTIVE (ELV)	The "End of Life Vehicles" directive establishes measures to prevent and mitigate waste from end-of-life vehicles and their components, ensuring the reuse, recycling and recovery of parts. It also aims to improve the operation from an environmental perspective of all operators involved in the life cycle of vehicles.
E	ELECTROGALVANIZED PRODUCT	Flat rolled product coated by electroplating with a layer of molten zinc alloy.
	EMISSIONS INTO THE ATMOSPHERE	All physical, chemical and biological agents that are emitted in the form of gas and particulates into the air, affecting the natural characteristics of the atmosphere.
	ERW	Acronym of Electric Resistance Welding. It refers to the process of electric resistance welding applied on pipes.
	ETS	The European Union Emissions Trading Scheme - EU ETS is one of the key measures adopted by the European Union to reduce greenhouse gas emissions in the industries with major impact on climate change.
	FIXED TERM EMPLOYEE	Employee with a contract entered into for a limited period of time that ends when the specific time period expires.
	FULL TIME EMPLOYEE	Employee whose working hours per week, month or year are defined in accordance with national practices or laws regarding working time.
F	GBS	"Gruppo di studio per la statuizione dei principi di redazione del Bilancio Sociale", the working group for the issuance of the principles for the preparation of social reporting. GBS was set up to provide guidance on the purposes and procedures of the preparation of social reports.
	GDP	Gross Domestic Product. The value of all goods and services (agriculture, manufacturing and services, including the public administration) generated within a country or region or specific geographical area during a year.
	GHG	Greenhouse gases, meaning all gases capable of trapping heat into the atmosphere, causing the greenhouse effect.
G	GREENHOUSE EFFECT	In itself a natural principle, i.e. the ability of the planet to absorb into its atmosphere part of the heat coming from the sun. It takes place as a result of the presence in the atmosphere of so-called "greenhouse gases". The term is currently used to mean the effects of atmospheric pollution due to the combustion of fossil fuels, deforestation, intensive agriculture, etc. Those activities actually cause an increase in greenhouse gases in the atmosphere, in particular carbon dioxide (CO ₂), methane (CH ₄), nitrogen oxide (N ₂ O) and ozone (O ₃).
	HOLLOW SECTIONS	Hollow tubular product of different geometries (square, rectangular, circular section).
	HOT AND COLD PROCESSING	They are so called according to whether they occur, respectively, in proximity or not of the melting temperature of the treated metal. If the ratio between processing and melting temperature is lower than 0.3 the processing is "cold", if it is greater than 0.6 it is called "hot" processing.
H	HOT-DIP GALVANIZING	Flat rolled product coated by dipping into a molten bath of zinc alloy.
	IGQ	Istituto Italiano di Garanzia della Qualità, or Italian Quality Assurance Institute, was founded in 1985 with the endorsement of CNR, the National Research Centre. It is a non-profit association recognised by MISE (Ministry of Economic Development).
	I	

J	JOULE	Unit of measure of energy, work (in physics) and heat. Named after the physicist James Prescott Joule. For large measurements the Terajoule (TJ) is used that is equivalent to 1,000 billion joules.
L	LADLE	A container for molten metal. In the form of a large bucket, it is made of high strength steel plate that is lined with refractory materials on the inside.
M	LEGISLATIVE DECREE D.L.GS. 81/08	Legislative Decree No. 81 of 9 April 2008, also known as Testo Unico in materia di tutela della salute e della sicurezza nei luoghi di lavoro ("TUS"), the Consolidated Act on Health and Safety at Work. It replaced Law No. 626/94, adopting and broadening its principles and extending its scope of application. The Decree has radically modified the regulatory framework and allocated new resources to the relevant authorities to carry out inspections and apply new and more strict penalties.
	LEGISLATIVE DECREE D.LGS. 231/2001	Legislative Decree No. 231 of 8 June 2001, which introduced into Italian law administrative liability for legal persons, corporations and associations for criminal offences committed by individuals with representation, administration or management responsibilities. It establishes penalties such as the suspension or revocation of licences and concessions, the prohibition to contract with the public administration, ineligibility for or revocation of loans and grants, etc. It requires the implementation of models, procedures and controls designed to reduce the probability of criminal offences being committed.
	LEGISLATIVE DECREE D.LGS. NO. 105/2015	The Italian framework law for the prevention of major accidents. Its purpose is to prevent major accidents connected with hazardous substances and to limit the consequences for workers and for the environment. It establishes specific obligations and precautions for operators of warehouses and facilities where hazardous substances are stored and/or used, as well as generated.
	MATTM	Ministry of the Environment and of Protection of the Land and the Sea.
N	MEEP ELECTROFILTERS	Devices for dedusting fumes from the sintering process, equipped with movable capturing plates and continuously cleaned by rotating brushes (MEEP: Moving Electrode Electrostatic Precipitator).
	MICRON	Measure of length equal to one thousandth of a millimetre (symbol: µm).
	MISE	Ministry of Economic Development.
	MTD	Migliori Tecniche Disponibili. See BAT (Best Available Technologies).
O	NO_x	NO _x identifies nitrogen oxides and their mixtures that are generated as by-products during combustion in the air (from fireplaces to vehicle engines to thermal power stations). The quantity and quality of the NO _x mixture depends on the substance being burned and on the conditions in which combustion takes place.
P	OSMOTIZATION	In the case of water, filtering through a selective membrane enabling the removal of dissolved substances (salt).
	OXYGEN-CUTTING	Process for cutting metal that uses an oxy-acetylene flame composed of acetylene and pure oxygen. It is based on the principle that ferrous materials heated to red hot burn when they are in oxygen.
	PART TIME EMPLOYEE	Employee whose worked hours per week, month or year are less than those of full-time employees.
	PERMANENT TERM EMPLOYEE	Employee with a contract for an indefinite period of time, without a predefined expiration date.
	PICKLING	The elimination, through acid solutions, of the oxide layer generated on the surface of steel products during hot rolling.
	PICKLING AND COLD ROLLING TANDEM MILL	A plant that combines a pickling system in tandem with a cold rolling mill.
	PM₁₀	Particulate matter comprising particles of less than 10 micron in diameter. It is generated by emissions from motor vehicles, industrial processes, natural phenomena.
	PM_{2.5}	PM _{2.5} (Particulate Matter 2.5) refers to all particles with a diameter of 2.5 micron or less. PM _{2.5} is also called generally "fine particulate matter" and is typically generated from man-made sources (manufacturing industries, heating, vehicle traffic and combustion processes in general).

R	ROLLED PRODUCT	Product obtained by hot or cold plastic deformation aimed at reducing the thickness, through the use of a rolling mill.
S	SAW	Submerged Arc Welding process.
	SCARFING	Operation of slab repair, by means of an oxy-acetylene flame, aimed at the removal of surface defects.
	SLAB	A metal parallelepiped with width ranging between 0.8 and over 2 metres, thickness of 243 millimetres and maximum length of 12 metres.
	SO_x	The family of sulphur oxides. In general, sulphur oxides are found at greater concentrations when fuels such as coal, lignite or other fossil fuels are used, but they can also be generated by specific chemical industrial cycles.
T	STAKEHOLDER	Stakeholders are entities or individuals that can reasonably be affected significantly by the Organization's activities, products and services, or whose actions can reasonably be expected to affect the ability of the Organization to successfully implement its strategies and achieve its objective.
	STAKEHOLDER ENGAGEMENT	Stakeholder engagement is the key lever for monitoring and managing the quality of relationships and becomes an important ingredient in the formulation of organizational policies and strategies. In all organizations, it is essential to understand in depth the emerging trends (threats and opportunities) in the environment in which the organization operates and to identify accurately the issues on which investment should be prioritized to meet the expectations of key stakeholders.
	TINPLATE	Tinplate is a thin steel sheet, coated by electrolysis with a uniform and even thinner layer of tin.
	TUNDISH	An intermediate vessel between the ladle and the ingot mould that, by keeping metalostatic pressure constant, keeps constant the speed at which the ingot mould is filled.
V	TURNOVER	Turnover is defined as the personnel turnover rate which indicates the flow of personnel entering or leaving the company workforce.
	VALUE OF PRODUCTION	For an enterprise, it corresponds to the algebraic sum of the sales, the variation in product inventories, capitalized costs and miscellaneous income.



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