OUR DECARBONIZATION PLAN 2030-2050

SEPTEMBER 2024

ACCIAIERIE VENETE SPA

INDEX

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If you know where you come from, you know where you're going.

ACCIAIERIE VENETE SPA

1. INTRODUCTION

Steel production plays a significant role in contributing to greenhouse gas emissions and climate change.

Today, steelmaking represents between 7% and 9% of global CO_2 emissions, with a total value of about 2.6 billion tons per year. For this reason, the industry is taking concrete measures to gradually reduce its carbon footprint.

In this regard, national and international trade associations have identified several macro-areas of action, focusing on process efficiency, circular economy, and all other possible solutions for a sustainable steel production.

Nevertheless, it is important to note the steel-making impact on climate change varies depending on the specific production process adopted.

The two most common processes are the Integrated Route and the Electric Arc Furnace (EAF).

THE INTEGRATED ROUTE

The integrated steelmaking route typically involves a Blast Furnace and a Basic Oxygen Furnace (BOF) or equivalent converter.

In the blast furnace, iron ore is reduced with coke to produce hot metal (pig iron) through a highly energy-intensive process, releasing substantial amounts of CO_2.

The hot metal is then transferred to the BOF or similar, where it is further refined into steel by removing Carbon through Oxygen injection, emitting more CO_2 as a result.

THE ELECTRIC ARC FURNACE PRODUCTION PROCESS

The Electric Arc Furnace route, the one that we adopt at Acciaierie Venete, is by definition a much more efficient production process. In an EAF, electricity is used to melt metal scrap as a primary raw material, significantly limiting the need for iron ore and coke. In addition to that, the EAF process generates notably lower amounts of direct emissions. By sourcing renewable energy, GHG emissions can be furtherly reduced, resulting in an even lower carbon footprint.

As a consequence, the Carbon intensity of the EAF process is much lower than the one of Blast Furnace steelmaking.

2. AN ESG BUSINESS IDENTITY

With a production capacity of 2,000,000 tons of steel per year, Acciaierie Venete is one of the largest and most qualified producers of Engineering Steel in the European long products market.

In our eight manufacturing plants, a wide range of products are made, such as billets, continuous casting blooms and rounds, flats and other rolling profiles.

The steel produced is sold to the major automotive brands, employed in agricultural and earthmoving machinery, or used in several industries, such as energy, mechanical, oil & gas, construction and more.

Our company is the result of the perfect combination of technology and ingenuity.

A reality of nearly 1,500 employees that has been innovating and growing steadily for 65 years, taking care of the environment and the people who live in it.

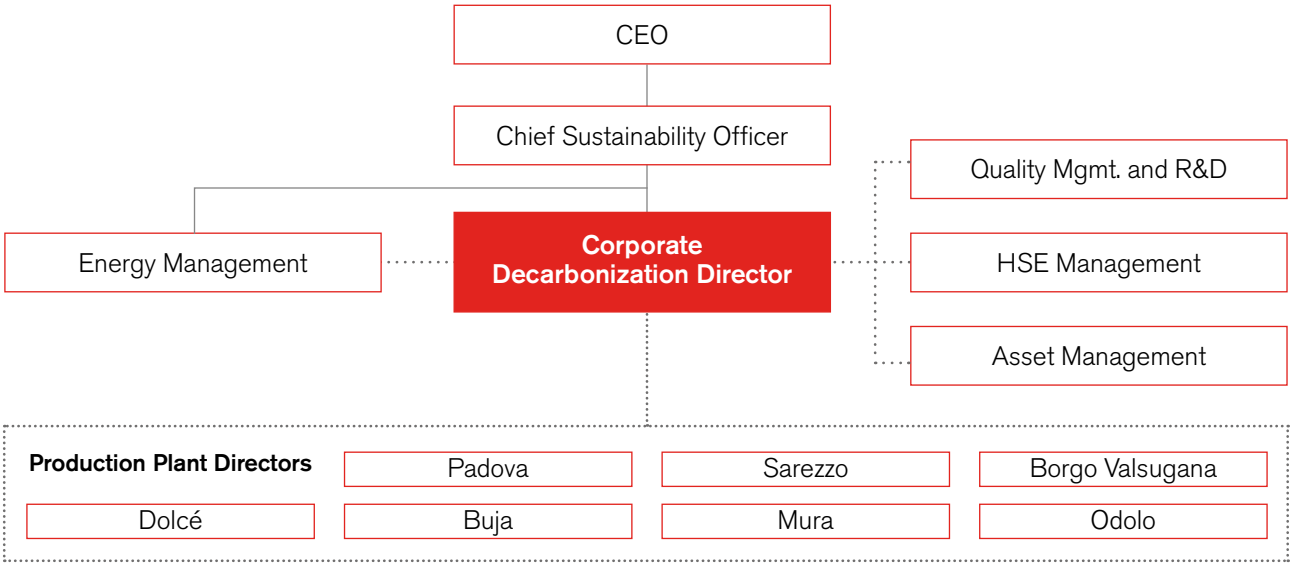
This commitment has been recently strengthened by the introduction of a new ESG concept.

For this purpose, the company's governance has been enriched with specific functions, such as the Chief Sustainability Officer, the Decarbonization Director and the Sustainability Committee - a newly formed Corporate Board reporting directly to the CEO.

This new structure is in charge of defining the decarbonization strategy, identifying the initiatives to be executed, monitoring their implementation, and verifying the overall plan effectiveness.

In this perspective of sustainable growth, Acciaierie Venete is launching the present Decarbonization Plan, with the aim of reducing our carbon footprint across all production stages, from steelmaking to cold-finishing.

Figure 1: The new ESG governance



3. OUR DECARBONIZATION PLAN

The key points of our Decarbonization Plan are:

1. Establishing a new ESG Governance.
2. Determining our emissions baseline through the analysis of GHG generated in 2022, performed in compliance with the ISO 14064-1 standard and certified in 2023 by RINA, an accredited certifying body.
3. Setting clear and ambitious targets for the reduction of GHG emissions over the medium term (2024-2030), with the aim of becoming a net-zero company by 2050, in accordance with the Paris Agreement and SBTi (Science Based Targets Initiative) principles.
4. Defining a Decarbonization Strategy as a set of actions aimed at reducing greenhouse gas emissions, and addressing climate change by:
   - I. Promoting the transition to clean and renewable energy sources and the use of carbon neutral energy carriers, such as green hydrogen and biomethane.
   - II. Improving the energy efficiency of the production process through the installation of brand new equipment and the adoption of innovative procedures.
   - III. Investing in state-of-the-art, lower CO_2 emission technologies.
5. Measuring emission savings and implementing monitoring and reporting systems to continuously assess progress towards decarbonization targets.
6. Making changes to the plan, based on the results achieved and the set targets.

3.1 EMISSIONS ASSESSMENT

This journey started in 2022, with the assessment of the reference emissions baseline that led to the obtainment of the ISO 14064-1:2019 certification.

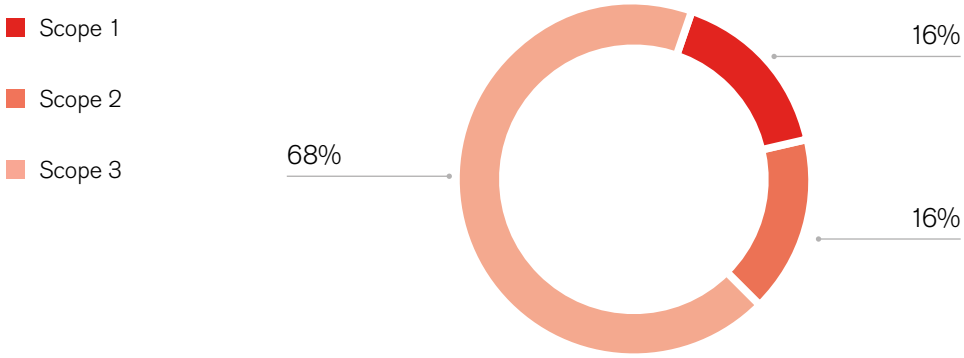
As defined by the standard, our emissions were measured in accordance with the widely recognized three carbon accounting categories, as per following:

- SCOPE 1
  GHG emitted directly by Acciaierie Venete, such as emissions resulting from the production process and gas combustion taking place inside the plant perimeter.
- SCOPE 2
  Indirect emissions from the generation of purchased energy from a utility provider, such as the electricity used to operate the EAF.
- SCOPE 3
  Indirect GHG emissions outside of our direct control, such as those related to the transportation and delivery of goods, and the raw materials employed in steel production and the subsequent transformations along the value chain.

Figure 2: Absolute Acciaierie Venete CO_2eq emissions in 2022, according to ISO 14064-1 standard, against a total steel production of 1.539.000 tons

Distribution of GHG Emissions		tCO_2eq	%
Scope 1	Direct emissions	**264,107**	**16%**
Scope 2	Indirect emissions from imported energy	**261,290**	**16%**
Scope 3	Indirect emissions from transportation	**216,668**	
	Indirect emissions from raw materials used in steel production	**867,110**	**68%**
	Indirect emissions associated with the use of Acciaierie Venete products down the value chain	**24,253**	
Total		**1,633,428**	**100%**

Figure 3: Breakdown of Acciaierie Venete GHG Emissions in 2022 according to Scope



3.2 STRATEGIC GUIDELINES

Our Decarbonization Plan is based on six strategic guidelines.

1.	2.	3.	4.	5.	6.
ENERGY EFFICIENCY AND PROCESS OPTIMIZATION	CIRCULAR ECONOMY AND RECYCLING	TRANSITION TO LOW-CARBON ENERGY SOURCES	PRODUCT AND MATERIAL INNOVATION	CARBON CAPTURE STORAGE (CCS) / UTILIZATION (CCU)	CARBON OFFSETS MANAGEMENT

For each of these strategies, our management team identified several initiatives that will be implemented according to the following criteria , in order of priority:

- The impact on safety and product quality
- The potential to reduce the carbon footprint and consequently the environmental impact
- Technology maturity level
- The cost-to-benefit ratio

1. ENERGY EFFICIENCY AND PROCESS OPTIMIZATION

Adopting improved process solutions and investing in advanced low-carbon technologies to minimize energy consumption and contain greenhouse gas emissions.

2. CIRCULAR ECONOMY AND RECYCLING

A further expansion of our current circular economy practices to limit the need for primary raw materials, including their extraction and transformation. Increasing waste recovery and recycling, and reducing the energy intensity level associated with steel production.

3. TRANSITION TO LOW-CARBON ENERGY SOURCES

Increasing the reliance on low-carbon and possibly carbon-free sources, such as renewable energy, green hydrogen and biofuel, and, wherever feasible, electrifying production equipment and processes.

4. PRODUCT AND MATERIAL INNOVATION

Studying and employing innovative low-carbon raw materials, such as DRI/HBI produced from green hydrogen, and recycled polymers as alternate carbon additives in the melting process.

5. CARBON CAPTURE

The adoption of CCS and/or CCU technologies[1] to capture, store and potentially utilize CO_2 emissions generated during steel production.

6. CARBON OFFSET MANAGEMENT

Investing in in-house and off-site projects to generate the carbon credits needed to offset those emissions that cannot otherwise be removed.

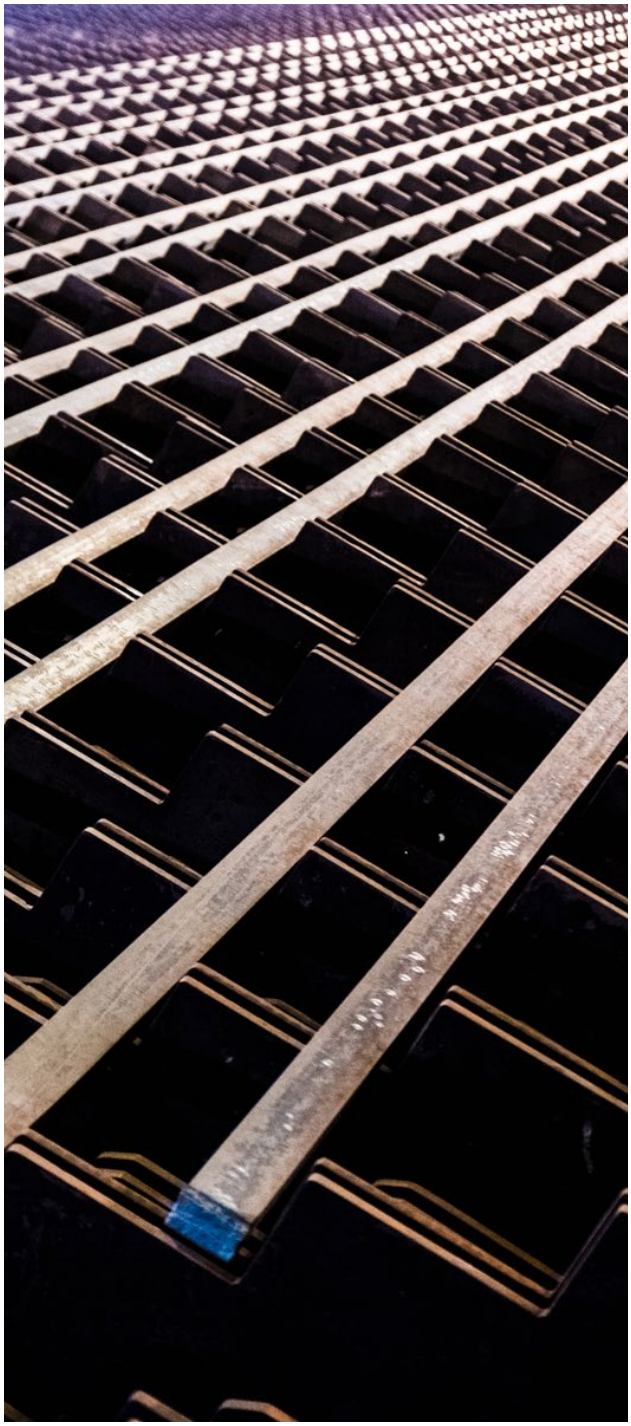
1. CCS involves capturing and storing CO_2 emissions, whereas CCU focuses on converting CO_2 into products like chemicals or construction materials.

3.3 PROJECTS & INITIATIVES

At Acciaierie Venete we decided to shape our decarbonization strategy following a step by step approach.

1. **Baseline Definition**: frame the operational context, determine the perimeter of intervention and measure emissions.
2. **Strategy Development**: in this phase, emission reduction initiatives are identified, actions are planned and timeframe to completion established. Activities such as techno-economic feasibility study, risk assessment, and verification of constraints are executed.
3. **Roadmap Formulation**: establish a detailed plan of the selected initiatives, prepare the operating model, and evaluate necessary investment to complete the projects.
4. **Implementation**: strategy execution, as defined by the roadmap. The entire Acciaierie Venete structure is involved in this phase, under the direct supervision of the Decarbonization Director.
5. **Monitoring & Reporting**: monitor the progress of projects and adopt all necessary countermeasures that might be needed.
6. **Communication**: share with internal and external stakeholders the progress of the work, including all potential corrective actions adopted.

To bring to completion the present Decarbonization Plan, more than 40 projects were identified until 2030. As technologies in this field are ever-evolving, as are standards and regulations, the execution plan must be flexible and adaptable. Every possible opportunity to perfect the plan and its realization will be considered and, whenever possible, implemented.



3.4 MAIN PROJECTS

We present below the main decarbonization projects that we identified at Acciaierie Venete.

They are divided into two distinct groups, based on how much they influence the steel production process. The first group includes *direct*, process-specific projects that are strictly related to steel-making. The second group includes *indirect*, non process-specific projects not necessarily related to steelmaking.

Additionally, we present a list of supporting initiatives that will serve as complement to the main list of activities.

DIRECT, PROCESS-SPECIFIC PROJECTS

This project category refers to interventions in the pipeline directly associated to specific phases of steel production.

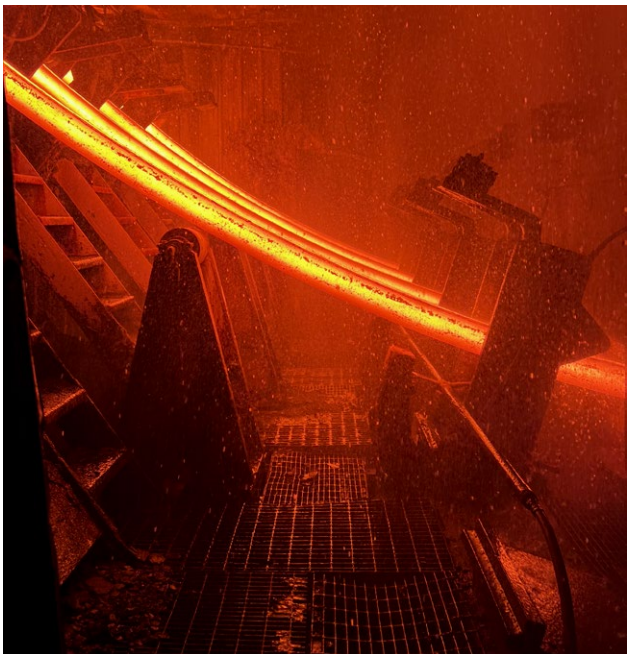
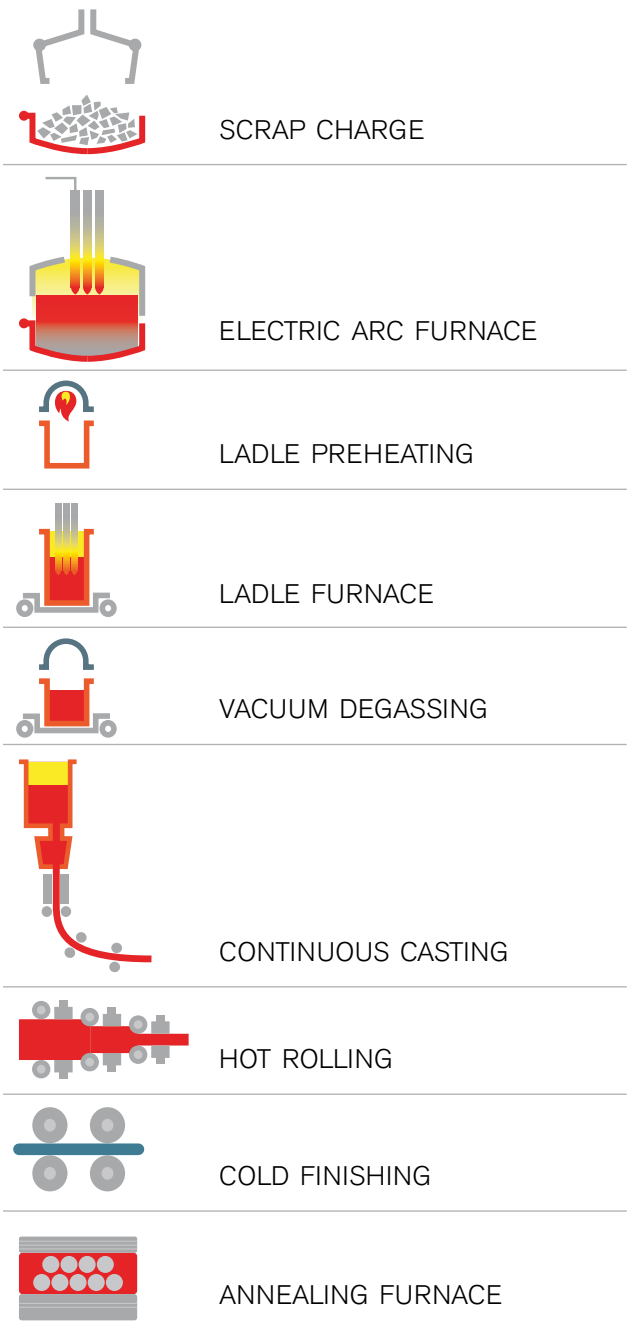


Figure 4: Our steel production process



DECARBONIZATION INITIATIVES	
A	**SCRAP CHARGE** ▪ Recovery of iron units from black slag and direct recycling into the EAF.
B	**ELECTRIC ARC FURNACE** ▪ In order of priority, replace all three Electric Arc Furnaces with highly energy-efficient units. ▪ Test the use of plastic pellets and other recyclable polymers as alternate carbon additives. Previously conducted trials in this filed showed encouraging results, pushing Acciaierie Venete to continue exploring the use of low-carbon coke alternatives. ▪ Use the latent heat of exhaust gases to produce electric power. ▪ Heat recovery from process exhaust gases for internal use (workplace heating). ▪ Reuse of white slag in the Electric Arc Furnace as a lime substitute, taking advantage of the slag's hot temperature. This will have a positive impact on the energy balance, as well as limit the amount of fresh lime additions.
C	**LADLE PREHEATING** ▪ Replace ladle preheating burners, improving the efficiency of all ladle preheating stations. State-of-the-art, regenerative oxy-fuel burners allow an energy saving of about 30%.
D	**HOT ROLLING REHEAT FURNACE** ▪ Optimization of bloom and billet preheat temperature, leading to gas consumption reduction. ▪ Complete or partial substitution of natural gas with hydrogen. ▪ Adoption of highly energy efficient combustion technologies.
E	**ANNEALING FURNACE** ▪ Revamp annealing stations to improve efficiency. ▪ Complete or partial substitution of natural gas with hydrogen. ▪ Optimize gas consumption introducing advanced temperature control systems.

INDIRECT, NON PROCESS-SPECIFIC PROJECTS

These are project aimed at boosting the use of low-carbon energy sources. They include:

- Installation of PV Power Plants inside our production sites perimeter (between 2 and 3 MW in total).
- Evaluating investing in off-site Renewable Energy Power Plants.
- Purchasing renewable energy, through Guarantees of Origin and PPA contracts.
- Use of biomethane as a natural gas substitute.
- Use of green hydrogen in preheating and annealing furnaces.

Figure 5: Breakdown of major projects by production site

Projects

	EAF	LADLE	ROLLING FURNACE	ANNEALING FURNACE	ORC/HEAT EXCHANGE	BILLET TRANSFER	INDUSTRY 4.0	RUBBER/ POLYMER	ON SITE PV PLANT	BIO METHANE	H2
Padova	●	●	●	●	●	●	●	●	●		●
Sarezzo	●	●	●		●		●	●		●	
Borgo Valsugana	●	●					●	●			
Dolcé			●				●		●		
Buja			●				●		●		
Odolo			●				●			●	
Mura			●				●				

All sites

Guarantee of Origin and PPA for renewable electrical energy

Off Site PV Plant

Process Digitalization

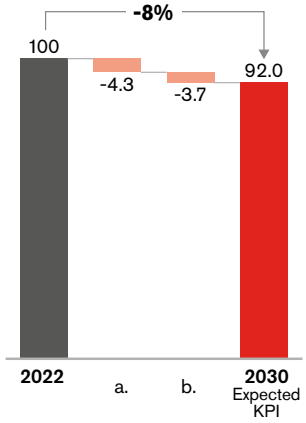
PROJECTS SUMMARY AND EMISSIONS IMPACT

The highest GHG emission reduction is expected to be at the EAFs, rolling mills, and annealing furnaces.

The graphs below show the contribution to emissions reduction for each of the main projects.

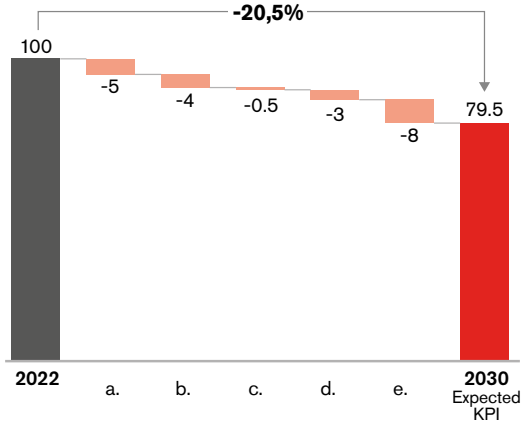
Figure 6: Expected CO_2 reduction from each project, per plant

Padova, Sarezzo, Borgo Valsugana



a. Replacement of the Electric Arc Furnace (Top Charge technology, 3 baskets)
b. ORC system - energy recovery from process exhaust gases

Padova, Sarezzo, Mura, Dolcé, Buja, Odolo

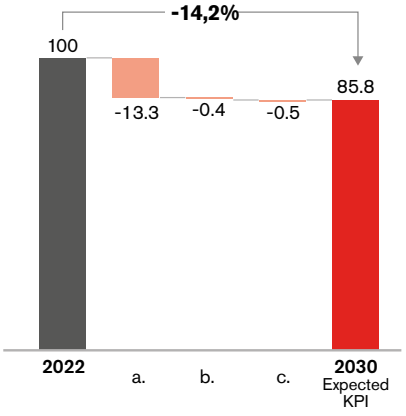


a. Rolling Mill Reheat Furnaces
b. Annealing Furnaces
c. PV Power Plant On/Off Site
d. Biomethane
e. Green Hydrogen

Figure 7 shows the expected CO_2 reduction using recycled plastic pellets and other polymers as carbon substitute, as well as the CO_2 reduction related to the use of white slag as fresh lime replacement, and the contribution of black slag metal recovery.

Figure 7: Emissions reduction originating from circular economy practices

Padova, Sarezzo, Borgo Valsugana



a. Rubber and Polymer as carbon substitute
b. Black Slag / recycled iron
c. White Slag / recycled lime

3.5 SUPPORTING INITIATIVES

By definition, these initiatives will support and complement the projects implemented by Acciaierie Venete at our production sites. The actual feasibility of their execution, however, does not depend directly on our efforts alone, but is subject to external factors such as technological maturity, the availability of resources and the regulatory framework and how these aspects evolve. These supporting initiatives include:

- Carbon Capture and Storage (CCS), which can significantly reduce carbon emissions and, at the same time, create new business opportunities when carbon utilization (CCU) is considered.
  A practical example is the participation in the Ravenna hub CCS inititive, where depleted offshore gas fields in the northern Adriatic Sea will be reused to store captured CO_2 of industrial origin.
- Zero-emission materials, such as green DRI/HBI. Originated from the use of green hydrogen as reductant, Green DRI/HBI is preferred to conventional DRI/HBI, produced with natural gas. Its demand will become increasingly stronger, in particular for Electric Arc Furnace steel production, due to the growing risk of ferrous scrap scarcity. However, production of green DRI/HBI will depend on the availability of green hydrogen at competitive prices, which currently is a long-term assumption.

We also believe that digitization is essential for the success of all the initiatives mentioned above.

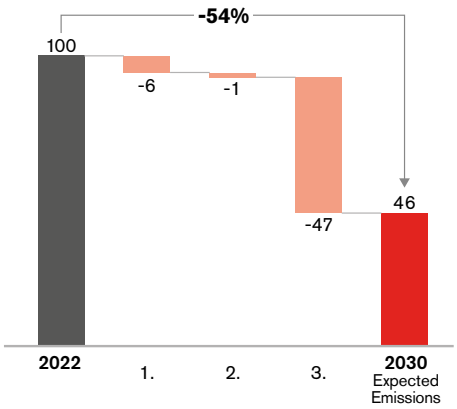
In this regard, we are considering several technologies and data analysis solutions to assist both operations and maintenance. One such example is the extensive employment of IOT technologies for real-time decision-making.

3.6 EXPECTED EMISSIONS REDUCTION

BY 2030

By including all major projects and supporting initiatives, and with the objective of sourcing 100% of our electricity from renewable energy sources by 2030, we count on reducing our overall Scope 1 and 2 emissions by up to 54%.

Figure 8: Reduction of Scope 1 and 2 emissions by 2030



1. Energy efficiency and Circular Economy activities
2. Biomethane & Hydrogen
3. Low Carbon energy transition

BY 2050

Our ultimate goal is to become a *net-zero* company by 2050.

However, long-term planning implies a progressive level of uncertainty and we will need to take into account the many aspects affecting the possible success or failure of a given strategy.

The long-term horizon will strictly depend on ongoing factors that, today, are beyond our control. For this reason, we have decided not to present in this document initiatives that extend beyond 2030, as their implementation will largely rely on future technological advancements and regulatory framework evolution.

These aspects represent the main driving forces necessary to enable the transformation towards sustainable steelmaking.

Therefore, although we are already evaluating our involvement in new areas of intervention, we prefer not to go into further details at this stage, maintaining our commitment to share new developments as soon as circumstances allow.

This choice is in line with our desire to continue a transparent approach towards our stakeholders, which has always been the trademark of Acciaierie Venete.

4. CONCLUSIONS

For us, the Decarbonization Plan 2030-2050 represents a concrete commitment.

Through accurate planning we decided to define a detailed strategy aimed at reducing carbon emissions in all our production sites, investing extensively in low-carbon solutions.

The journey presented in this document, comes from the strong belief that we must play a leading role in limiting climate change, with our commitment to meet the Paris Agreement objectives, drawing inspiration from the principles that govern the SBTi guidelines.

In conjunction with the implementation of more efficient technologies and the introduction of sustainable practices, additional, more rigorous measures will be introduced to improve safety at corporate level. In this regard, Acciaierie Venete has already launched an important project, involving all production sites.

Additionally, being an EAF-based Engineering Steel producer, in the following years we will face several challenges linked to quality assurance, such as the decline in scrap availability.

This will inevitably lead to the implementation of new operating procedures, due to the increasing use of DRI/HBI.

Based on what presented above, it should be pointed out that for an EAF steel producer, further reductions of carbon emissions are going to be less significant than for a BF-BOF producer, such as some of our competitors, since the margins for improvement of the former are much smaller than those of the latter.

It is with this ambition in mind that, with the tools described in this document and the ultimate objective of sourcing exclusively from renewable energy suppliers by the end of the decade, we expect to achieve a reduction of more than half of our Scope 1 and 2 emissions by 2030 (see Figure 8), and to become a net-zero company by 2050.

To conclude, although the presented Decarbonization Plan does not encompass Scope 3, Acciaierie Venete would like to mention that we will also be active in this sector. We will adopt targeted and conscious purchasing policies that will reduce emissions related to the production and transportation of steel and the raw materials necessary for its production.

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