

# aranja<sup>D-carb</sup>

## decarbonization solution

tailored to you, designed for the planet



**LIVING  
SUSTAINABILITY**  
ARANIA · GRUPO ARANIA



# How are you planning to reach carbon neutrality?

Society as well as governments in the EU demand that industries reach carbon neutrality latest by the year 2050

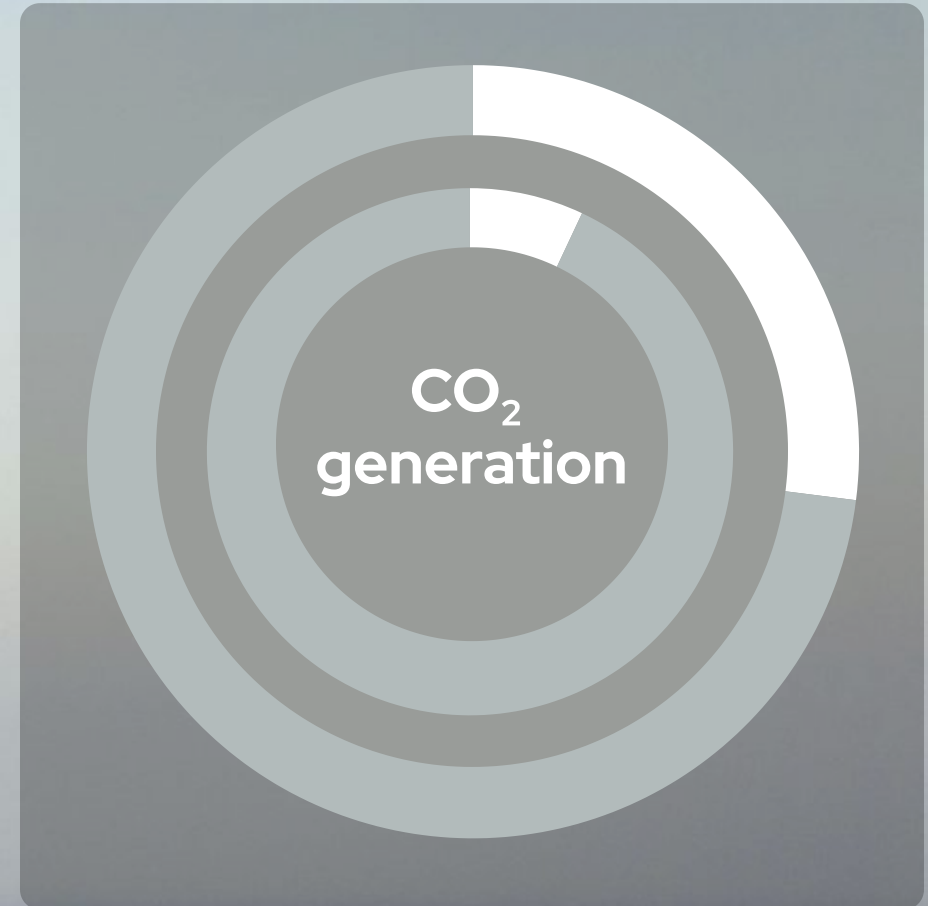
Environmental footprint starts to be another decision factor within customer's purchasing processes

Decarbonization plans have been drawn, but now, how are you planning to reach your goals?



Each year, the **steel industry generates 25%** of the **total CO<sub>2</sub>** tonnage emitted by industrial activity worldwide

That accounts for **7-9%** of **all human emissions**





## Blast Furnace

> %95

With < 30% of scrap and > 70% of iron ore, the BOF accounts for almost all the flat steel production in Europe today. It represents the **true challenge** when decarbonizing flat steel in Europe and it is the technology that will require the biggest and most cost-intensive transformation.

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≈ **2.2** Tn CO<sub>2</sub> emitted for each Tonne of steel produced

## Electric Arc Furnance

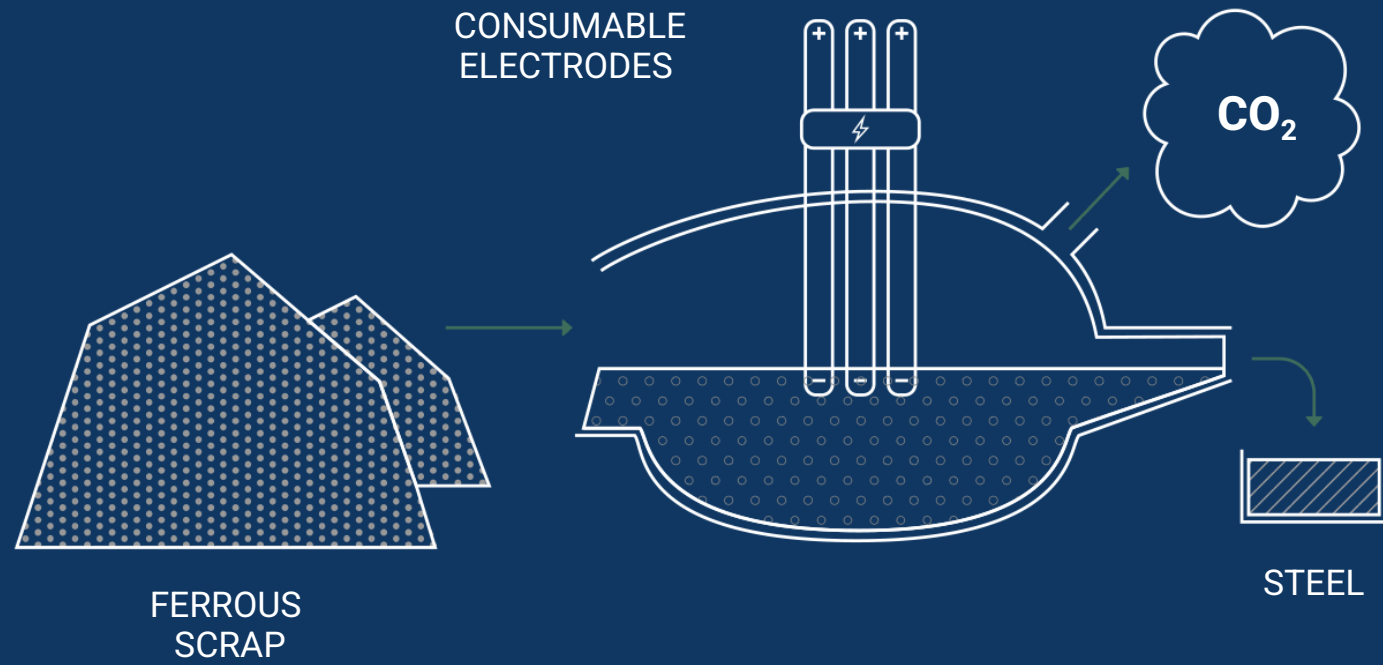
< %5

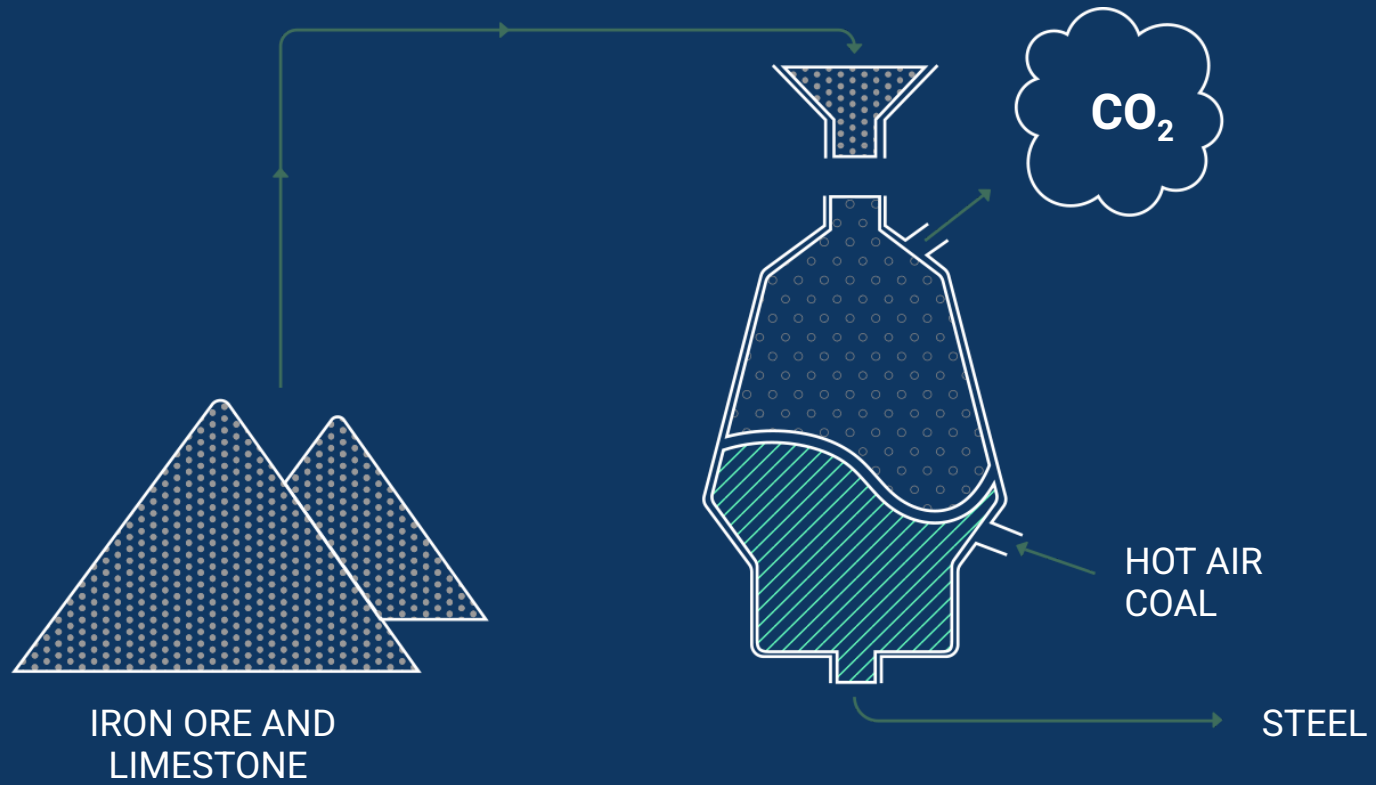
While EAF uses raw material based on scrap, it accounts for a minimal part of the flat steel production in Europe today. The various limitations and availability of scrap make steel produced this way an **non-strategic solution for decarbonization**.

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< **0.9** Tn CO<sub>2</sub> emitted for each Tonne of steel produced



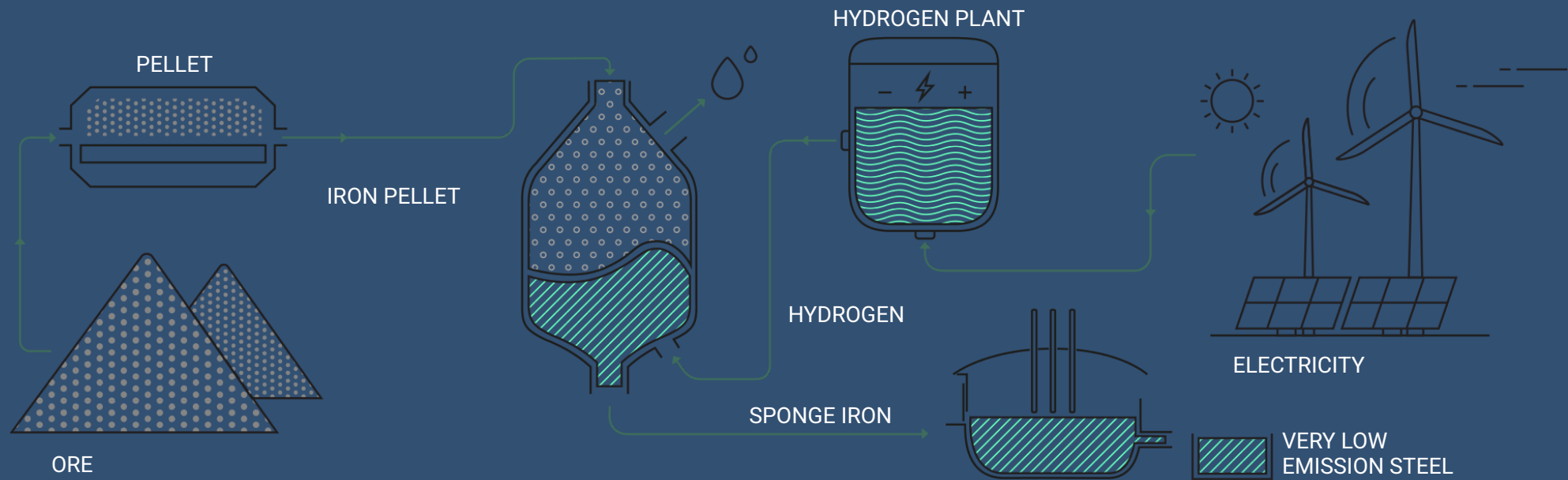




# DRI

Lowest emission steel

DRI technology, expected after at least 2026, is the **true industrial revolution** that will decarbonize the iron ore-based steelmaking, allowing the establishment of reliable supply chains for all with the lowest possible emission level through a physical way





# The true challenge | Decarbonizing iron ore-based steelmaking

## Phase 1

2023-2026

Mass balanced models that allow those customers who value decarbonizing to receive certified lower CO<sub>2</sub> emission products, and therefore, contribute to the transformation of the industry

## Phase 2

2026-2030

First and limited amounts of DRI steel will start to be available, some using natural gas and some using green hydrogen

## Phase 3

>2030

It is expected that 15%-20% of the steel produced in Europe uses green hydrogen and DRI

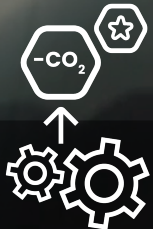




# Mass Balanced Models

Mass Balanced Models have already been tested and used in many industries before to allow the whole supply chain **co-finance the investments** necessary to decarbonize an industry. An example are the green electricity certificates of origin.

This model allows the supply chain to **support the transformation** of the industry and **promote further investments** into the decarbonization of the steel industry



1.

Real improvements are made in the steel production process that reduce CO<sub>2</sub> emissions



2.

Improvements are virtually "saved" and accumulated



3.

Customers willing to reduce their CO<sub>2</sub> footprint can purchase products with lower PCF

# Real improvements in current technology

Primary steel will continue to be required to meet 60% of steel needs by 2050. Steel mills have undergone several improvements with different measures in order to reduce CO<sub>2</sub> emissions within the existing iron ore-based steelmaking

## Renewable energy



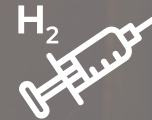
Reduces energy emissions  
Improvement up to 50%

## Top gas recycling



Reduces amount of energy and coke used  
Improvement up to 21%-25%

## H<sub>2</sub> injection



Reduces amount of coke used  
Improvement up to 10%-40%

## Use of biocoal



Reduces amount coke used  
Improvement up to 40%

These measures among others create a real CO<sub>2</sub> improvement in the steel production process. These improvements are saved and accumulated in mass balanced solutions and offered to those committed to decarbonize and promote investments in decarbonization



# arania<sup>D-carb</sup>

# our mass balanced solution



## Reliable

Supply chains can be established reliably and programs are possible



## Tailored to you

We adapt to your decarbonization plan, allowing tailored decarbonization levels



## Verified

Verified by the most demanding norms



## For all

D-Carb can adapt to all kind of processes, grades and specifications





# aranja<sup>D-carb</sup> externally verified

**LRQA**

**CERTIFIED**

**ISO 14001**

**LRQA**

**CERTIFIED**

**ISO 50001**

**LRQA**

**CERTIFIED**

**ISO 14064**

Verified product CO<sub>2</sub> footprint calculation tool by **ISO 14067**

Mass balanced method validated according to the principles of the '**GHG Protocol for Project Accounting**.'

The verification was carried out according to Assurance Engagements (**ISAE**) 3000 revised

"Assurance Engagements other than Audits and Reviews of Historical Financial Information"



# What else is ARANIA doing to decarbonize?



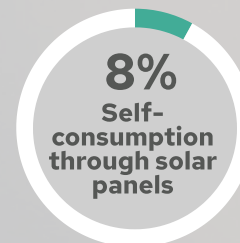
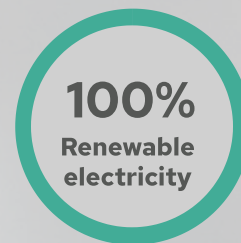
## Decarbonization of LOGISTICS

- Maximization of **intermodal** transportation
- Packaging reduction
- Pallet returning program
- Substitution of packaging materials for recycled alternatives
- Zero-packaging strategy for local deliveries



## Decarbonization of ARANIA

- Integral LED lightning
- BEV charging points
- Control and improvement of water-footprint



- Coming up: Substituting natural gas heater for office heating with electrical aerothermal system
- Coming up: Exchanging current natural gas heater for pickling for a more efficient one
- Ongoing pilot project for the use of hydrogen in heat treatment







# Let us help you

DON'T HESITATE TO ASK

ARANIA has taken the necessary steps to be the partner of choice of our customers in their journey towards decarbonization. Contact us and we will analyze your product family's footprint, specific requirements and offer you the best fitting decarbonization solution to help you fulfill your decarbonization plan as well as your own customer's decarbonization requirements.

## LET'S TALK!



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