



European  
Commission



# INNOVATION FUND

Deployment of net-zero and innovative technologies

H2GS: H2 Green Steel

The Innovation Fund is 100% funded by the EU Emissions Trading System

## | Project Factsheet

The H2 Green Steel (H2GS) project aims to build a greenfield integrated steel plant in Boden, northern Sweden, for the large-scale production of renewable hydrogen, green iron and green steel. Production is expected to start in 2025. The green steel produced will reduce greenhouse gas emissions by 33.4 million tonnes CO2 equivalent over the first ten years of operation, or by 87.3% (vs. relevant Emissions Trading System (ETS) benchmarks), and the volume produced would equal 5% of the total flat steel production in the EU.

Electrolysis will be an integrated part of the plant, using fossil-free electricity to produce the renewable hydrogen needed to bring 5 million tonnes of green high-quality steel to the market by 2030. The direct reduction reactorrefines iron ore into direct-reduced iron (DRI). This is done by exposing iron ore to hydrogen, which reacts with

### COORDINATOR

H2GS AB

### LOCATION

Sweden

### CATEGORY

Energy intensive industries (EII)

### SECTOR

Iron steel

### AMOUNT OF INNOVATION FUND GRANT

EUR 250,000,000

### EXPECTED GHG EMISSIONS AVOIDANCE

33,594,396 tonnes CO2 equivalent

### STARTING DATE

01 April, 2023

### ENTRY INTO OPERATION DATE

31 December, 2026

### FINANCIAL CLOSE DATE

30 April, 2024

the oxygen in the ore, forming steam as a residual product. Using the renewable hydrogen for this process instead of coal, which is typically used in integrated steel plants, allows the project to reduce CO2 emissions from the reduction process by more than 95%. The majority of DRI is transported in its hot state, inside the plant to the Electric Arc Furnace, while the rest is briquetted into hot briquetted iron (HBI), for storage and later use. In the Electric Arc Furnace, fossil-free electricity will be used to heat a combination of DRI and steel scrap to a homogenous melt of liquid steel. Liquid steel is further refined via traditional ladle furnace and RH degasser and is turned into solid products in an integrated process called “continuous casting and rolling,” which enables a reduction of the energy consumption by 70% and replaces the natural gas that is typically used in the traditional process. Next, the product is further processed depending on customer requirements in our fully electrified downstream finishing lines, consisting of

cold rolling, hot dig galvanizing line and batch annealing furnaces.

The H2GS project aims to respond to the increased climate ambitions of the revised EU ETS Directive and contribute to the EU’s overall climate ambitions. By contributing to the decarbonisation of the steel sector, the project is also perfectly aligned with the EU industrial strategy.

Sweden has excellent conditions for this type of industrial project, due to abundant renewable energy sources, a solid supply of raw materials, highly skilled technical competencies, and ample land availability for large scale projects. The H2 Green Steel project will generate up to 2 000 direct jobs in the region, and a total of 10 000 including the indirect jobs. The project will also be part of a green industrial cluster in Northern Sweden, significantly contributing to a growing cluster of digital companies in the region.

## | Participants

H2GS AB

Sweden