

## Visit to SSAB / Hybrit (Luleå)

10.15-12.45

Venue: SSAB, Svartövägen 20, Luleå

Welcomed by: [4.1.B] of steel producer SSAB; [redacted] of iron ore company LKAB; [redacted] at energy provider Vattenfall (and [redacted] Hybrit Board). You will travel to Luleå on the same flight as Karl-Petter Thorwaldsson, Minister for Industry.

Format: all will have to change into protective shoes, helmet and vest. The visit will include a blast furnace and the Hybrit pilot plant. Transports at the venue will be organised by SSAB. A light lunch will be served before leaving SSAB.

Note: A few major Swedish newspaper will be present: Dagens Industri ([redacted]), Dagens Nyheter ([redacted]), [redacted] (freelance EU Affairs journalist), Miljömagasinet ([redacted])

Topics: with Hybrit technology, SSAB aims to be the first steel company in the world to bring fossil-free steel to the market already in 2026. Together with its partners and customers, SSAB aims to create a fossil-free value chain, from the mine to the end-product.

**EC delegation (same throughout the visit):**

- Frans Timmermans, Executive Vice-President
- Mr Christian Danielsson, Head of EC Rep. in Sweden
- Daniel Mes, Member of Cabinet
- Estela Pineiro-Kruik, Member of Cabinet
- [redacted], DG CLIMA
- [redacted], Security officer

**SE delegation:**

- Karl-Petter Thorwaldsson, Minister for Industry
- [redacted] SSAB
- [redacted] LKAB
- [redacted], Vattenfall ([redacted] Hybrit Board)
- [redacted], SSAB
- [redacted], LKAB
- [redacted], Vattenfall
- [redacted], SSAB
- [redacted], SSAB

**Objectives**

- Highlight that the European Innovation Fund is contributing to this project. In fact, the Innovation Fund is financing two large-scale and four small-scale projects in Sweden.
- Highlight the strong innovation eco-system in Sweden.

## Main messages

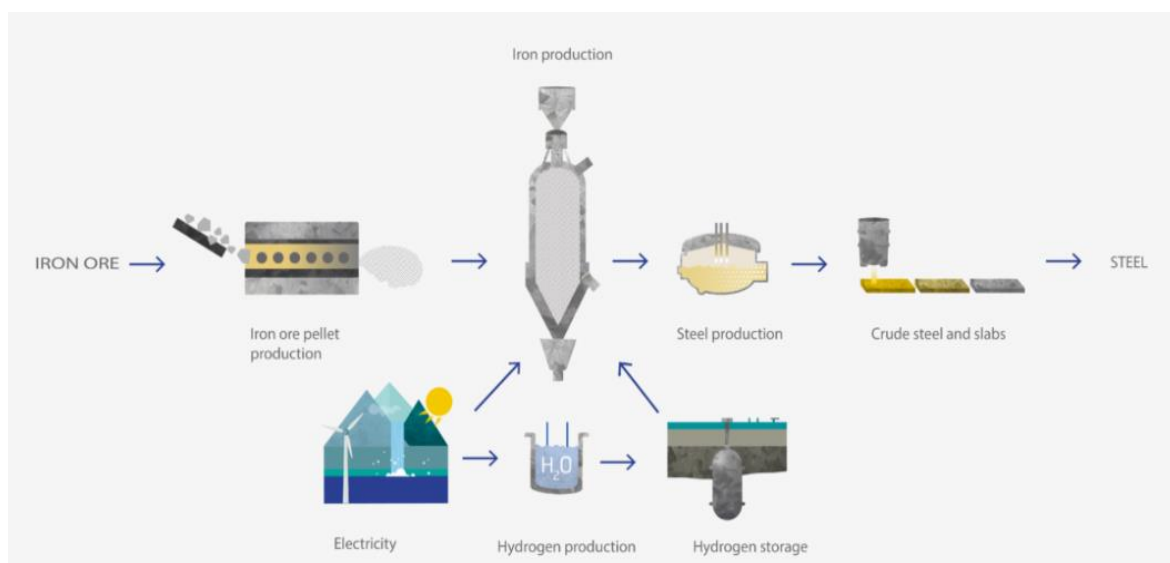
- We welcome your investments in highly innovative fossil-free steel to develop green ironmaking technologies that are not yet widely distributed.
- Green steel is an alternative variant of steel that can be produced using green hydrogen generated from renewable energy sources rather than natural gas.
- We also encourage the EU automotive industry to use green steel for building cars and decarbonising them further to reach our objective of climate neutrality.

## Background

Hybrit (Hydrogen Breakthrough Ironmaking Technology) is a Swedish joint venture owned by SSAB (global leader in high strength steels), LKAB (Europe's largest iron ore producer) and Vattenfall AB (one of Europe's largest electricity producers). Its mission is to revolutionise the steelmaking technology by replacing the coal-based blast furnace process with a direct reduction process, based on fossil-free hydrogen. In fact, the new technology replaces coking coal, traditionally needed for ore-based steel making, with renewable electricity and hydrogen. [NB. Steel production using coal accounts for around 8% of global GHG emissions].

Hybrit started test operations at its pilot plant for green steel in Luleå in 2020. Hybrit recently did the world's first delivery of green steel to truck-maker Volvo AB as a trial run, before full commercial production in 2026. The project will produce approximately 1.2 Mt crude steel annually, representing 25% of Sweden's production. This will reduce GHG emissions by 14.3 Mt CO<sub>2</sub> over the first 10 years of operation. The Hybrit technology has the potential to reduce Sweden's total carbon dioxide emissions by at least 10%. The ambition is to be the first fossil-free steel producer already in 2026 and to create a fossil-free value chain, from the mine to the end-product.

The Hybrit project received funding from the EU Innovation Fund as well as from the Swedish government. Furthermore, the project ambition is to expand further in the value chain by including hydrogen storage. In May 2021, construction of a storage facility for fossil-free hydrogen started on a pilot scale, next to Hybrit's pilot for direct reduction. The large-scale hydrogen facility aims to operate a 500 MW fossil-free electrolysis in Gällivare. The project is currently on the list of Hydrogen IPCEI. Furthermore, two blast furnaces are replaced by an electric furnace in Oxelösund.



**Other green steel projects in Sweden**

Another green steel venture, created in 2020, is H2 Green Steel. The company is planning to build a fossil-free steel plant in the north of Sweden, including a sustainable hydrogen facility, with production starting in 2024. H2 Green Steel will manufacture green flat carbon steel products targeting mainly the automotive, construction, white goods, industrial equipment and energy sectors. It has attracted major European steel off-takers (i.a. Maersk, Marcegaglia, Mercedes-Benz AG, Scania, SMS Group, Stena Metall). The start of construction is planned in 2022 and the start of operation in 2025. The project in northern Sweden will create 3,000 job (direct 1,800, indirect 1,200). Note that the [redacted] of H2 Green Steel reached out for a meeting but this was impossible to schedule so he might see Diederik in his upcoming visit to Brussels.

**CV of Karl-Petter Thorwaldsson,  
Minister for Business, Industry and Innovation of Sweden**

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