

PRESS RELEASE
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HYBRIT: SSAB, LKAB and Vattenfall to start up the world's first pilot plant for fossil-free steel

Today, SSAB, LKAB and Vattenfall are taking a decisive step toward fossil-free steelmaking with the start-up of HYBRIT's globally unique pilot plant for the production of fossil-free sponge iron. Swedish Prime Minister Stefan Löfven started up the plant together with Isabella Lövin, Minister for Environment and Climate and Deputy Prime Minister, Martin Lindqvist, President and CEO of SSAB, Jan Moström, President and CEO of LKAB and Magnus Hall, President and CEO of Vattenfall. SSAB, LKAB and Vattenfall aim to create a complete value chain for fossil-free steel.

"Right now we have a historic opportunity to do things that provide jobs here and now – but also hasten the climate transition that everyone realises is necessary. Today, you are laying the foundations that will enable the Swedish steel industry to be entirely fossil- and carbon dioxide- free in 20 years. Together we can rebuild Sweden as the world's first fossil-free welfare nation," says Swedish Prime Minister Stefan Löfven.

"This inauguration concretizes that the industrial transition is taking place as we speak, and that a fossil-free society is within reach. This unique project has generated a lot of international attention for Sweden. Through the Leadership Group for Industry Transition, which the UN has asked Sweden to lead, this has the opportunity to reverberate around the world," says Isabella Lövin, Deputy Prime Minister and Climate Minister.

"I'm incredibly proud that our globally unique pilot plant has now been completed. It is a milestone in the transition to fossil-free steel. We aim to be the first to market, in as early as 2026, with fossil-free steel. HYBRIT technology will enable us to eliminate carbon dioxide emissions in steelmaking and at the same time help our own customers to reduce their climate footprint. We have the chance to revolutionize the entire steel industry and show that net-zero emissions is possible. We must seize this chance," says Martin Lindqvist, President and CEO of SSAB.

"I am delighted that today we can start up the plant together with the realization that Swedish industry is leading the global transition to sustainable development and lower climate impact. For LKAB, HYBRIT is a step on our journey towards our goal of being a leading carbon-free actor in a fossil-free value chain in 2045. The pilot plant will play a decisive role before we can ramp up the technology for use on an industrial scale. The oxygen in the iron is the great challenge and we need to eliminate it," says Jan Moström, President and CEO of LKAB.



“A partnership like this shows how we can take the lead in the transition to innovative, fossil-free products. Vattenfall seeks to enable a fossil-free life within a generation, not just through fossil-free production but also through partnerships like HYBRIT, where we can use electricity as a source of innovation for a fossil-free future. Our fossil-free electricity and its conversion to hydrogen are key components here, not just for the steel but also because the storage of hydrogen can balance an electricity system with more weather-dependent power generation and increased capacity challenges. I am proud that everyone involved has made it possible to start up this plant today and I look forward to seeing fossil-free steel on the market,” says Magnus Hall, President and CEO of Vattenfall.

Just over 2 years ago on June 20, 2018, the ground was broken to mark the start of building the pilot plant for fossil-free sponge iron (DRI/HBI) with financial support from the Swedish Energy Agency. At the plant, HYBRIT will perform tests in several stages in the use of hydrogen in the direct reduction of iron ore. The hydrogen will be produced at the pilot plant by electrolyzing water with fossil-free electricity. Tests will be carried out between 2020 and 2024, first using natural gas and then hydrogen to be able to compare production results. The framework for HYBRIT also includes a full-scale effort to replace fossil oil with bio oil in one of LKAB’s existing pellet plants in MalMBERGET in a test period extending until 2021. Preparations are also under way to build a test hydrogen storage facility on LKAB’s land in Svartöberget in Luleå, near the pilot plant.

The HYBRIT initiative has the potential to reduce carbon dioxide emissions by 10% in Sweden and 7% in Finland, as well as contributing to cutting steel industry emissions in Europe and globally. Today, the steel industry generates 7% of total global carbon-dioxide emissions. With HYBRIT, SSAB, LKAB and Vattenfall aim to create a completely fossil-free value chain from the mine to finished steel and to introduce a completely new technology using fossil-free hydrogen instead of coal and coke to reduce the oxygen in iron ore. This means the process will emit ordinary water instead of carbon dioxide.

About HYBRIT

Hybrit Development is a jointly owned company formed by the steel manufacturer SSAB, the mining company LKAB and the energy company Vattenfall. The purpose of the collaboration is to develop the world's first fossil-free ore-based steelmaking process. The by-product obtained by using fossil-free electricity and hydrogen instead of coke and coal in steel production is water instead of carbon dioxide. The project has the potential to reduce Sweden's total carbon dioxide emissions by ten percent. The HYBRIT project has been granted financial support from the Swedish Energy Agency.

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