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ABB helps maximize energy efficiency at future fossil-free steel pilot

New order supports SSAB, LKAB and Vattenfall project HYBRIT in becoming the world's first large-scale, fossil-free method of steel production.

Technology leader ABB has been selected to supply a full electrification and automation package for the unique HYBRIT pilot plant in Luleå, northern Sweden, whose main energy source is fossil-free electricity.

HYBRIT (Hydrogen Breakthrough Ironmaking Technology) is a ground-breaking effort to reduce CO₂ emissions in the steel industry by replacing coal with hydrogen in the steelmaking process. The initiative, started in 2016 by the steel, mining and energy companies SSAB, LKAB and Vattenfall, has the potential to reduce Sweden's total carbon dioxide emissions by ten percent.

Three pilot projects have been launched, paving the way towards the world's first large-scale fossil-free means of steel production. The pilot plant in Luleå is expected to be in place in 2020 and SSAB will be able to produce the first fossil-free steel from 2026. By 2035, the goal is to sell fossil-free steel on a broad front.

To maximize the pilot plant's energy efficiency, ABB will supply dry-insulated Resibloc transformers which combine low environmental impact with high personal safety and intelligent, low-voltage Universal Motor Controller (UMC) switchgears, together with ABB frequency converters. The pilot plant will be integrated into the latest version of ABB Ability™ 800xA with Select I/O solutions for greater flexibility in design and increased scalability. ABB will also deliver the ABB Ability™ System 800xA Simulator, a software simulation solution that allows operators to learn and test processes in a disconnected, safe and offline environment to enable swift commissioning and reduce the risk of unplanned shutdowns.

"HYBRIT is a milestone for the Swedish steel industry and a crucial step in Sweden's

transition to a more sustainable society,” said Björn Jonsson, Hub Business Line Manager, North Europe, Process Industries, ABB. “We are extremely proud that ABB technology can make such a valuable contribution to creating fossil-free steel production.”

Electrification and automation from ABB will be delivered as an eHouse solution. This involves the location of three containers outside the pilot plant, for power distribution, low-voltage switchgears and frequency converters, and control systems. The eHouse solution offers an efficient use of space. In addition, since all equipment has been tried and tested before delivery, commissioning will be faster than traditional solutions.

“All of us working with the HYBRIT project want to take our responsibility seriously and contribute to a fossil-free future. The goal for the SSAB, LKAB and Vattenfall project is to develop fossil-free iron and steel production and this order is a step towards this,” said Martin Pei, chairman of Hybrit Development and vice president and technical director SSAB. “We need high-quality solutions and products—which is why we have chosen ABB’s electrification and automation solution—and we have high expectations of delivery to the pilot plant.”

For more information on the HYBRIT initiative:

www.hybritdevelopment.com



Caption: HYBRIT’s pilot plant in Luleå, Sweden, is expected to be in place in 2020.

Photographer: Susanne Lindholm.

ABB (ABBN: SIX Swiss Ex) is a technology leader that is driving the digital transformation of industries. With a history of innovation spanning more than 130 years, ABB has four, customer-focused, globally leading businesses: Electrification, Industrial Automation, Motion, and Robotics & Discrete Automation, supported by the ABB Ability™ digital platform. ABB's Power Grids business will be divested to Hitachi in 2020. ABB operates in more than 100 countries with about 144,000 employees. www.abb.com

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