

PRESS RELEASE

Düsseldorf, January 21, 2021

SULB and SMS digital join forces in optimizing energy efficiency in integrated steelworks in Bahrain

A further step towards energy-efficient and low-GHG steel production enabled by digitalization



SMS supports SULB on the path to energy-efficient steel production with a holistic optimization project.

SULB and SMS digital, a company of SMS group, cooperate in identifying and tapping potentials for energy savings in SULB's integrated steelworks in Bahrain. Alongside SMS group, Brazil-based SMS

group company Vetta and Midrex Technologies, Inc., based in North Carolina, USA, are partners to the project.

SULB operates an integrated steelworks in Hidd, Bahrain. This steel complex covers the complete production chain from direct reduction to finish-rolled products. A key asset of the mill is the flexible combi-caster, designed to produce a wide range of cast formats and sizes, ranging from billets to heavy beam blanks. In 2011, SMS supplied the complete equipment for the steelworks on a turnkey basis as a minimill with an annual capacity of 850,000 tons of steel. In 2012, a 1.5 million tons-per-year MIDREX[®] Direct Reduction Plant was added to the complex.

In 2020, SULB initiated the Energy Audit project with the support of Tamkeen, a public authority helping industries and businesses in Bahrain. The objective of the project is to improve energy efficiency through increasing plant operational efficiency and making full use of secondary energy and residual heat. The long-term strategy for reducing GHG emission will also be outlined. In order to achieve these objectives and to secure successful positioning in the global market, SULB has entered into a consulting project with the above-mentioned SMS companies.

SMS has set up a consulting team made up of its top process and metallurgy specialists from its various plant technology areas, energy experts and specialists in AI-based digitalization. Other partners in the project – alongside SMS digital and SMS group – are Vetta, an SMS group company specialized in energy management and related solutions, and Midrex Technologies, the world leader in direct reduced iron technology. Only this unique, concerted approach by all partners involved and their in-depth and highly focused expertise enables a holistic investigation and implementation of solutions that will allow SULB to tap the full scope of energy savings opportunities.

As early as in spring 2020, when the “Quick Assessment” (Module A of the cooperation agreement) was performed, SULB took a first key step in making its operations more efficient and, as a result, more cost-

effective. The aims of that first phase of the project were to identify the focus areas and specific measures to reduce the energy consumption, including natural gas, electricity and process gas. Along the complete production chain, fifty measures were identified. A full host of levers were proposed, from the use of smart management systems via adaptation of processes to an improved product mix. For every identified measure, a comprehensive and detailed description, a qualitative assessment of the underlying energy savings potential and the associated implementation effort were provided. An implementation plan was set up, including the milestones on the path to SULB's strategic energy-efficiency goal.

With Module B "Deep Dive Analysis and Implementation", the second phase of the project has been kicked off. This phase will see SULB and SMS digital draw up a strategy to achieve a fast and significant Return on Investment. Module B concentrates on four areas: direct reduction plant, electric arc furnace and ladle furnace, heavy-section mill and integrated energy management. Vetta, for example, will play a key role in the analysis and proposition of an integrated energy management system. The company will evaluate the energy-related key performance indicators (KPIs) of the complete works, derive conclusions and make recommendations as to how energy efficiency can be improved. This analysis will form a key element for the implementation of a digital solution for intelligent energy management. For the direct reduction plant, Midrex will show how the MIDREX H₂ technology can help reduce the carbon footprint via the use of green hydrogen, paving the way for a step-wise transition to emission-free steelmaking. Midrex will support SULB via remote-monitoring of the MIDREX plant via the Remote Professional Services (RPS) option to help make operation of the MIDREX direct reduction plant more energy- and cost-efficient.

All Module B activities will be performed via real-time data transfer connections by requesting data via remote access. First measures will be completed in early February 2021, while others will be implemented successively until mid-2021. After completion of all

project measures, SULB will be able to achieve significant cost savings as a result of lower natural gas and electricity consumption and will be a pioneer in the region with its smart and highly efficient steelworks.

The project cooperation combining various competence areas of SMS assures that SULB can work with a partner of broad-based competence and expertise in the technological domain, in digitalization and in energy management. This powerful combination enables SULB to meet the growing challenges of the market successfully.

SMS digital GmbH, the digital subsidiary of SMS group GmbH, a market leading supplier of digitalization for plant and equipment used in steel and NF-metals production and processing. In close collaboration with its customers, SMS digital identifies and develops innovative products for the metals industry building on most advanced development techniques, in-depth metallurgical process knowhow and technological expert knowledge. SMS digital helps its customers make their plants and machines ready for the digital age by means of digital applications and the use of AI. SMS group is a group of companies internationally active in plant construction and mechanical engineering for the steel and nonferrous metals industry. It has some 14,000 employees who generate worldwide sales of more than EUR 2.8 billion. The sole owner of the holding company SMS GmbH is the Familie Weiss Foundation.