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EFFICIENCY, PROJECTS AND ENERGY NEWS

Turboden to supply a 10 MW heat recovery ORC unit for Arvedi's steel plant in Cremona, Italy

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Turboden, a group company of Mitsubishi Heavy Industries (MHI), leader in Organic Rankine Cycle (ORC) turbogenerators for distributed power generation employing renewable sources and waste heat, signed an order with Acciaieria Arvedi for a new waste heat recovery ORC unit to be installed at the Arvedi Steel Plant in Cremona, Italy. Arvedi Group is one of the leading European steelmaking companies.

The Turboden 100 HR ORC unit, designed for 10 MW nominal capacity and operated at 7.5 MW for the first years, will convert the off-gas waste heat from the steel melting Electric Arc Furnace (EAF) to electric power. The heat recovery system configuration includes a saturated steam heat carrier circuit to convey the heat from the furnace exhaust gas to the ORC unit.

This new system will be coupled to the existing Tenova Consteel® system, which heats and feeds metallic charge to a 250-ton Electric Arc Furnace (EAF), one of the largest in the world, for a combination of heat recovery and environmental sustainability. The heat recovery system will be put in operation at the beginning of 2017.

The waste heat boiler, to be supplied by Tenova, will be installed on the primary EAF off-gas line in parallel to the existing quenching tower and will produce saturated steam.

During the EAF process, the saturated steam (heat carrier) will transfer thermal power to the ORC turbogenerator working fluid, which then expands in the turbine to convert incoming thermal energy into electric power by means of an electric generator.

The main drivers for this project are the energy production valorization, with a consequent reduction in CO_2 emissions of approximately 23,300 t/y, and the access to White Certificates.