Aalborg Energie Technik a/s

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Aalborg Energie Technik a/s secures Order for a Biomass-fired 65 MWt Boiler in France

Aalborg Energie Technik a/s (AET) will assist NOVAWOOD in achieving cleaner air and preventing soil contamination in addition to providing a commercial income from waste wood and railway sleepers, which were previously seen as a waste product.

By building a biomass-fired cogeneration plant, Novacarb aims to improve its environmental performance while maintaining its competiveness. In partnership with ENGIE Solutions a dedicated company has been created: NOVAWOOD.

The high-efficient cogeneration plant, NOVAWOOD, will produce steam for the Novacarb site in Laneuveville-devant-Nancy and power for the grid by combusting waste products. ENGIE Solutions will, as main contractor, arrange fuel collection from two sources: Railway sleepers from the French national railway company (SNCF) and waste wood from SOVEN.

The plant is in accordance with ENGIE Solutions' strategy to support industries by providing them with solutions to the challenge of the energy transition. Their goal is to achieve: Optimised use of resources, increased supply and use of local, green energy as well as a more environmentally friendly production.

Photo of SEQENS site in Laneuveville-devant-Nancy (courtesy of ENGIE Solutions).

Novacarb is part of the Mineral Specialties division of the SEQENS group and specialises in the production and marketing of sodium carbonate and bicarbonate. Production has taken place for more

than 160 years at this site and the products are made from two natural raw materials: Limestone extracted from its quarry in Pagny-sur-Meuse and salt from its Lénoncourt salt farms.

Novacarb's goal with NOVAWOOD is to reduce the site's dependence on the highly polluting coal by approx. 40% and reduce the CO_2 emissions by 150,000 tonnes per year. With an investment of 80 mEUR, the biomass-fired cogeneration plant will supply steam for their production plant and it will also supply 115 GWh of green electricity per year to the national electricity network, corresponding to an annual consumption at around 65,000 households.

Energy will be produced from combusting two fuels: waste wood and railway sleepers. Waste wood, which is sourced through collection centres, consisting of e.g. scrapped furniture, floors, doors, windows and pallets and is handled by SOVEN. By combusting old railway sleepers a new business area is being created and the modernisation of the National Rail Network owned by SNCF can be made in an environmentally friendly way.

The fuel transformation is also an economic aspect for Novacarb, as the gradually increasing carbon tax price affects the competitiveness of the company. As a major local work place, it directly employs 300 people and 150 people from outside companies, who are permanently on site. Novacarb's activity generates 900 local jobs, or a total employment pool of around 1,350 people. The NOVAWOOD project will help develop the region's economy and attractiveness through the creation and sustainability of local jobs. The project will be a benchmark in terms of energy transition, circular economy and local job creation.

The NOVAWOOD project began in 2014 with talks between the parties (Novacarb, ENGIE Solutions and SNCF), followed by discussions at local and national levels. The operating authorisation was obtained in MAR 2018, and the project was announced as a winner of CRE 5 in DEC 2019.

The plant will annually combust around 130,000 tonnes of railway sleepers and waste wood, which would otherwise have been disposed of, and instead produce 55 tonnes steam/hour to Novacarb and 14,6 MW_e of green electricity for export to the grid.

The railway sleepers contain creosote, PAH compounds and other chemicals from trains and are classified as hazardous waste. The creosote, which is tar containing phenolic compounds, can evaporate from the surface and/or be released into the soil. The waste wood in this case, includes Chromated Copper Arsenate treated wood, and therefore has, amongst other things, a high content of Copper. However, the combination of AET Combustion System, AET Biomass Boiler and flue gas cleaning ensures very low emissions, which comply with the European emission limits as a minimum. The plant is designed in accordance with WID.

The AET Biomass Boiler will be designed for a fuel heat input of 65 MW_t, a boiler efficiency of 92% and a steam temperature of 522 °C, which ensure a high overall plant efficiency. To protect the boiler against corrosion it is equipped with Inconel cladding and special alloy steel for the superheaters.

AET is responsible for engineering, procurement and construction of the AET Biomass Boiler, including AET Combustion System, AET SNCR DeNOx System, boiler house, flue gas treatment, tail-end heat exchanger and PLC control system. The tail-end heat exchanger, which is positioned after the flue gas treatment, cools the flue gas temperature by more than 30 °C. The regenerated energy is, amongst other things, used at an ORC plant, which produces power. It thereby increases the overall plant efficiency further.

The in-house power consumption for the boiler plant is only approx. 1,6% of the fuel heat input and thereby increases the net power production.

The plant is planned to start power generation in the second half of 2022.

Alain Guillerme, Project Realization Director, NOVAWOOD: *"As every industrial customer, NOVACARB requires a reliable steam supply and a high boiler availability. ENGIE has several AET Biomass Boilers in its portfolio, being operated for years. The experience from these sites is very good with low maintenance issues. In addition, the AET design offers high efficiencies, which is a critical criteria for an industrial plant operating all along the year. Lastly, the good experience we had with the AET project management has convinced ENGIE Solutions to sign with them for the NOVAWOOD project."*

"We are pleased to continue the cooperation with ENGIE Solutions and now with combustion of railway sleepers and waste wood; waste wood is an up-coming fuel in France. The high steam temperature, with combustion of railway sleepers and waste wood in this case, is essential to make a viable business case for ENGIE Solutions and Novacarb. At AET, we are very happy to take a new step with Novawood, which will reduce CO_2 emissions by 150.000 tonnes per year", says CEO of AET Lars Kristensen.

AET has previously supplied plants, which burns waste wood/railway sleepers in Germany, Austria and United Kingdom.

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SEQENS
MINERAL SPECIALTIES

About SEQENS:
Novacarb is part of the Mineral Specialties division of the SEQENS group, an integrated global player in pharmaceutical synthesis and specialty ingredients, with a wide range of products, services and technologies. The SEQENS group offers its customers contract manufacturing services for the pharmaceutical and specialty markets as well as a large portfolio of active ingredients, pharmaceutical intermediates and specialty products. The Mineral Specialties Division brings together the activities of the companies, Novacarb (La Madeleine site), Novabion (Nogent-l'Artaud site) and Novabay (Singapore site).

www.seqens.com

About ENGIE Solutions:
ENGIE Solutions supports towns, industries and companies in the tertiary sector, providing them with solutions to the challenges posed by the energy transition in the form of turnkey and bespoke packages. ENGIE Solutions' experts apply all their expertise in pursuit of three aims: optimising the use of energy and resources, greening energies and reinventing living and working environments.

ENGIE Solutions guarantees its clients a single point of contact and a combination of complementary offerings that go beyond energy. The company is committed to achieving results and its 50,000 employees which operate throughout France (900 sites) have expertise in an extremely diverse number of areas, ranging from the design and operation of infrastructure & services, to funding, installation and maintenance.

ENGIE Solutions is part of the ENGIE Group, one of the world's leading low-carbon energy and services groups whose purpose is to act to accelerate the transition towards a carbon-neutral world.

www.engie-solutions.com

About Aalborg Energie Technik (AET):
AET is a leading engineering and contracting company supplying biomass-fired boiler plants, power plants, and combined heat and power plants in the size range of 25 to 170 MWt. The business comprises design, engineering, delivery and service of plants fired with all types of biomass. The well-proven AET Biomass Boiler and AET Combustion System are based on long-term hands-on experience with industrial processes, steam generation and biomass combustion.

The company is recognised for supplying biomass-fired boilers and plants with exceptionally high efficiencies, high availabilities, high fuel flexibility and low emissions. Moreover, with very low maintenance costs, the AET biomass-fired plants ensure the investor a viable business case.

www.aet-biomass.com