

PRESS RELEASE

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SMS group to build pilot plant for generation of syn-gas from sewage sludge for fuel production

Value-adding processing of waste as a technology for the future. With a project in Vienna, SMS group is taking the next step in its New Horizon initiative



In Vienna, SMS group is building the first ever pilot plant demonstrating the production of a syn-gas mixture from sewage sludge for fuel production.

On September 17, 2020, SMS group received the approval for the construction of a pilot plant in Vienna, Austria. The new plant is to demonstrate the feasibility

of eco-friendly and carbon-neutral production of fuels from waste. SMS group's project partner BEST – Bioenergy and Sustainable Technologies is going to implement an unprecedented process chain for the generation and use of hydrogen-rich syn-gas at industrial scale in the Vienna district of Simmering at the location of a special-waste incineration plant operated by the local utility company Wien Energie. The core element of the facility, a syn-gas generator built by SMS group is scheduled to become operational in mid-2021.

With the construction of this plant, SMS group is adding another item to its list of projects implemented in line with its New Horizon strategy. Inspired by global trends and developments, the momentum from this initiative is felt in idea finding and concept development with partners and customers. Always thinking one step ahead promotes creativity in solution finding and helps finding viable answers to the global challenges of the future. The project is supported by the Austrian Association for the Promotion of Research (FFG Forschungsförderungsgesellschaft). BEST, a K1 Competence Center in the Austrian COMET program, has taken over the project management. Other partners to the project alongside SMS group include the local utility and public transport companies Wien Energie, Wiener Linien GmbH and Wiener Netze GmbH, paper producer Heinzl Paper, and the Austrian Forest Authority. Scientific partnerships for this project have been established with the Technical University of Vienna and the Luleå University of Technology.

The “Waste2Value” project aims at advancing the reuse of waste for the production of hydrogen-rich syn-gas. Initially the focus will be on using sewage sludge, residuals from the pulp and paper industry and mixes of damaged timber as feedstock. In a further process step, the gas will be synthesized into liquid fuels. The main elements of the project, running until 2023, are the construction and the operation of the pilot plant, and thorough analysis and evaluation of the process results. The research activities within the scope of the “Waste2Value” project will cover the entire process

chain from the feedstock to the generation, purification and treatment of the gas, and the synthesis processes through to the refining and use of the FT synthetic fuel in a field trial. The facility will be the first ever of its kind in the world to demonstrate the feasibility of this technology along the complete process chain and at a near-industrial scale. The results gained during the project will provide a solid base for assessing the economic and technological viability of the overall process concept and for the planned scale-up to industrial use by utility company Wien Energie.

Versatile uses of the syn-gas generator

The technology implemented by SMS group is based on a thermal transformation process capable of generating a synthetic gas from waste. This gas mixture can be further processed into different types of energy carriers – green fuels, green gas and green hydrogen. If only renewable materials (timber, waste wood, sewage sludge and biogenic waste, for example) are used as feedstock, also the end products will be 100 percent renewable. Another conceivable process option is to add non-renewable waste - non-recyclable plastics, for example - to the feedstock. This would open up recycling opportunities also for this kind of fossil waste materials.

The new technology is extremely versatile, as the wide range of potential end products shows: fuels for those transportation sectors where batteries are difficult to use (e.g. in agriculture, long-distance haulage, and aviation) can be produced with the same technology as, for example, green gas that can be fed into the natural gas grid, or even green hydrogen for future mobility solutions and industrial applications. During the production of syn-fuel – which, by the way, releases significantly lower particulate emissions than fossil Diesel – valuable chemicals needed in the chemical industry arise as by-products. A further value-adding option is the eco-friendly production of alcohols for the chemical industry from synthetically generated gas. Using sewage sludge as input material even provides the potential for phosphorous recovery from the sludge. Phosphorous is an essential ingredient of

fertilizers used in agriculture. There are only two phosphorous mining regions worldwide and, according to estimates, the resources will last only for another few decades.

Thermochemical syn-gas generation is an extremely interesting and promising technology set to become a central element on the way towards green economies.

Statements:

Statement Wien Energie

“For decades, Wien Energie has been producing green electricity and green heat for thousands of households – and in the future maybe also green fuel! We are very pleased that our location in Vienna-Simmering will be the place where this innovative technology will be taken to the next level and that we can complement the research activities with our expertise in waste recovery. Jointly with the other partners to this project, we will deepen our understanding of syn-gas production and, in a second step, the knowhow in green Diesel, green natural gas and even green hydrogen production. These products will be essential in the creation of a future climate-neutral energy system. The pilot plant paves the way for an industrial-scale use of this technology,” said Karl Gruber, Managing Director, Wien Energie GmbH.

Statement SMS

“For SMS group, demonstrating that high-grade synthetic fuels and reducing agents can be produced in an efficient way from a wide range of biomass and residuals via syn-gas produced in a fluidized bed conversion system is another milestone in adapting our portfolio of technologies to the future requirements of customers in our core markets – requirements that are to an increasing extent driven by the need to decarbonize our industries. Especially in hydrogen production – provided that suitable structural conditions exist – we see potential for a significant competitive edge for this technology over other technological routes we are pursuing at the same time,” said Herbert Weissenbaeck, Head Strategic

Project Development, SMS group GmbH.

Statement BEST

“At our new location in Vienna-Simmering, we are establishing a world-class syn-gas research and demonstration hub. Here we are investing in a future-viable infrastructure essential for successful applied research into the decarbonization of energy production, into making biomass and residuals conversion a part of the renewable energy sector, and into enabling the production of green chemicals for the chemical industry. In the short term, the new syn-gas hub will serve as a technology lab for the city of Vienna to test under realistic conditions the feasibility of its decarbonization strategy,” said Walter Haslinger, CEO / CSO, BEST – Bioenergy and Sustainable Technologies GmbH.

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 2.9 billion. The sole owner of the holding company SMS GmbH is the Familie Weiss Foundation.