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RWE and John Cockerill to build German test facility for Dutch circular and green hydrogen project FUREC

- *Test facility will optimise key process step in the production of hydrogen from municipal waste*
- *The optimised process will be key to the fuelling of the Dutch hydrogen project, FUREC*
- *€3 million test facility at the RWE innovation centre at Niederaußem is expected to be operational in autumn 2022*

RWE and its partner John Cockerill are to jointly build a testing facility in Germany, which will enable to optimize a key stage in the process of turning household waste into hydrogen. The facility – called a torrefaction plant based on the MHF/100/0™ technology patented by John Cockerill – will be built at RWE's innovation centre in Niederaußem (Germany) and will test the production of feedstock pellets made from waste, to be used in the company's innovative FUREC waste-to-hydrogen initiative. RWE is going to invest €3 million in the pilot plant, which is scheduled to be operational in July 2022.

At the heart of the new pilot plant in Niederaußem is John Cockerill Environment's specifically designed Multi Hearth Furnace, the MHF/100/0™ has been developed and will be supplied under the company's brand 'The Nesa Solution©'. In this furnace, waste pellets will be roasted (torrefied) to improve their grindability. The torrefied pellets will then be pulverized and subsequently gasified under the exclusion of air into a syngas rich in hydrogen and CO, both of which are major components used in the chemical industry.

The pilot plant is being built at the RWE Innovation Centre in Niederaußem because the company already has the technology for generating and storing gases there. The facility is the next step in the development of RWE's FUREC project (Fuse Reuse Recycle) – a large-scale chemical recycling plant at the Chemelot industrial park in Limburg, in the Netherlands.

There, RWE plans to produce circular and green hydrogen and CO₂ for the chemical industry from municipal waste. In the process, FUREC will process waste streams and convert it into H₂ and CO₂ instead of generating CO₂ that normally escapes into the atmosphere when waste is incinerated or landfilled. Because much of the waste used as feedstock will be of organic origin (e.g., textiles, paper), 50 % of the hydrogen recycled in this way will be green. The rest is considered circular hydrogen because it is recovered from plastic waste and further used for industrial applications.

By using waste streams as a substitute for natural gas in the production of hydrogen, FUREC will reduce the use of natural gas at Chemelot by more than 200 million cubic metres per year. This is comparable to the annual gas demand of approximately 140,000 households and results in an annual CO₂ reduction of 380,000 tons. The CO₂ released in the process can in the future be stored via CCS, resulting in negative emissions. In addition, it can be used as a raw material (green carbon) at Chemelot or shipped via pipelines to the seaport of Rotterdam or the German Ruhr area.

Currently, RWE is further developing its Dutch FUREC project and has already started with the necessary licensing procedures. The company aims to make a final investment decision for FUREC in 2023.

Roger Miesen, CEO of RWE Generation:

„Hydrogen is crucial for the decarbonization of industry. There is a growing demand for it, because many companies can only achieve their climate targets by switching their processes to green hydrogen. In our new pilot plant in Germany, we will optimize a key step in an innovative process for generating hydrogen. The findings from these operations will feed into our FUREC project in the Netherlands. There, we plan to recycle circular and green hydrogen as well as CO₂ in an economically sustainable way from municipal waste. By making the recycled raw materials usable for industry, we will contribute to creating a recycling hub in the Limburg region. At the same time, we will help our industrial partners to reduce their carbon footprint.”

Christophe Cassant, CEO John Cockerill Environment:

“This project is an example of how John Cockerill Environment’s technologies respond to the challenges of tomorrow. We are proud to participate in RWE’s FUREC project because it will help decarbonise the industry and meet the needs of our clients in both the Netherlands and Germany. Our MHF furnace technology will be used in future applications which will make an active contribution to reducing carbon emissions.”

CIRCULAR ECONOMY

A new NESA furnace for the torrefaction of solid waste pellets for RWE's Pilot Plant

John Cockerill will supply the Multi Hearth Furnace (MHF) for one of Europe's major electricity provider's innovative FUREC project that is to use **waste streams for the production of hydrogen.**

John Cockerill



RWE Generation SE

With its power plants in Germany, the UK and the Netherlands, RWE Generation's approximately 3,000 employees produce electricity primarily from gas, hydropower and biomass. With its gas-fired power plants, the company ranks second in Europe. The Group bundles its hydrogen activities in RWE Generation. RWE is driving forward more than 30 hydrogen projects with partners from industry and science.

John Cockerill Environment

Supported by the Group's solid financial strength and its 5,500 employees located in over 80 locations around the world, John Cockerill Environment itself counts more than 350 engineers and specialized technicians. This business sector develops environmental solutions and sustainable and innovative technologies for the treatment of water, air and waste, destined to both municipalities and all kind of industries. Under its brand "The Nesa Solution®", John Cockerill Environment offers a full range of thermal treatment technologies for minerals, biomass, waste, and sludge.

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John Cockerill, enabler of opportunities

Driven since 1817 by the entrepreneurial spirit and passion for innovation of its founder, the John Cockerill Group develops large-scale technological solutions to meet the needs of its time: preserving natural resources, contributing to greener mobility, manufacturing sustainably, combating insecurity and facilitating access to renewable energy.

Its offer to businesses, governments and communities consists of services and associated equipment for the sectors of energy, defence, industry, the environment, transport and infrastructures.

With over 5200 employees, John Cockerill achieved a turnover of 1.01 billion euro in 19 countries on 5 continents in 2020.

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