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Cooperation Uniper and Port of Rotterdam Authority in production green hydrogen

Energy company Uniper and the Port of Rotterdam Authority have entered into an agreement for developing the production of green hydrogen at the Uniper location on Maasvlakte. These plans build on the findings of a recent feasibility study and are in line with the new hydrogen infrastructure that has been planned and the growing demand for sustainable hydrogen from the Rotterdam petrochemical industry. This agreement has been laid down in a memorandum of understanding (MOU) and is a major milestone in the further development of the hydrogen value chain in the Rijnmond region. No less than half of all Dutch IPCEI* hydrogen projects are developed in Rotterdam. This Uniper project is on the Dutch IPCEI shortlist as well.

The recently completed joint feasibility study shows that the Uniper location on Maasvlakte is ideally suitable for large-scale production of green hydrogen with the use of power generated by North Sea wind farms. The Uniper hydrogen plant is to be connected to the HyTransport.RTM pipeline that runs through the Port of Rotterdam. The pipeline also connects the Uniper plant to the national hydrogen infrastructure and the Delta Corridor pipeline bundle. The latter project is intended for delivering hydrogen to chemical clusters in Moerdijk and Geleen (Chemelot) and farther away in North Rhine-Westphalia.

Towards carbon neutrality

Hydrogen is currently produced from natural gas, the co-called grey hydrogen, resulting in CO₂ emissions that amount to 19 million tonnes in the Netherlands. Industry in the Rotterdam area annually consumes about 77PJ of hydrogen (roughly 40% of the total hydrogen consumption in the Netherlands). The transition from grey hydrogen to sustainable green hydrogen in the Rotterdam industry for producing cleaner fuels and as a raw material in the chemical sector is a major step towards carbon neutrality. In combination with importing sustainable hydrogen, sufficient storage capacity, and a national and international hydrogen transport network this may lead to phasing out the production of grey hydrogen altogether.

The next key step in the Uniper project is the FEED (front-end engineering & design) study. This ninemonth study is currently being contracted out and should yield in-depth findings for the conceptual design of the electrolysis installation (100MW initially and with a future capacity increase to 500MW), the project planning, and a realistic budget. With the help of these findings the first phase of this unique electrolysis plant can be outsourced to a number of specialist suppliers and contractors.

Soon, the first efforts will be made to apply for the permits needed, to seek (financial) support from various authorities, to enter into agreements with the relevant partners involved in the value chain, and to prepare an investment decision in 2022.



Major link in the new European hydrogen value chain

"We have the strong ambition to convert our Maasvlakte location into a major link in the new European hydrogen value chain in close collaboration with the Port of Rotterdam Authority and other partners," *says Axel Wietfeld, CEO of Uniper Hydrogen.* "There is a host of opportunities, not only for Uniper but also for other players in the chain. Together we can use sustainable hydrogen to reduce CO₂ levels in Rotterdam significantly."

The Port of Rotterdam is an energy hub for Western Europe. Today, about 13 percent of the European energy supply enters the European Union via Rotterdam. The port has the ambition to be carbon neutral by 2050 while retaining its central role in the European energy system. By then, according to expectations of the Port Authority, approximately 20 million tonnes of hydrogen will flow through the port to consumers in the Netherlands and beyond.

"The industry has to go through a massive change in making its business processes more sustainable," *says Allard Castelein, CEO of the Port of Rotterdam Authority.* "Hydrogen will play a central role in this process. We are working with partners towards the introduction of a large-scale hydrogen network across the port complex, making Rotterdam an international hub for hydrogen production and import and for the transit of hydrogen to other countries in Northwestern Europe. This explains why initiatives like this Uniper project are so important for the future of Rotterdam and the Netherlands."

 *) IPCEI is short for 'Important Project of Common European Interest', a European scheme under which countries can provide extra support for projects.
**) HyWay27 report, PwC/Strategy&, June 2021

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Port of Rotterdam Authority

The aim of the Port of Rotterdam Authority is to strengthen the competitive position of the port of Rotterdam as a logistics hub and a world-class industrial complex in terms of both size and quality. The Port Authority is able and willing to make an impact and so it is focusing on accelerating sustainability in the port and it is a partner in the digitalisation of the port and logistics chains. The Port Authority's core tasks are the sustainable development, management and operation of the port, the maintenance of the smooth and safe handling of shipping and supporting the future-resilience of the port of Rotterdam.

Facts and figures for the Port of Rotterdam Authority and the port of Rotterdam:





Port of Rotterdam Authority: approximately 1,270 employees, revenue approximately € 750 million. www.portofrotterdam.com

Port area: 12,500 hectares (land & water, including approximately 6,000 hectares of industrial sites). The port area is more than 40 kilometres long.

Employment: (direct and indirect) 385,000 jobs in the Netherlands. Goods throughput: approximately 440 million tonnes of goods a year.

Shipping: approximately 30,000 seagoing vessels and 100,000 inland vessels annually. Added value: (direct and indirect) €45.6 billion, 6.2% of Dutch GDP.

About Uniper

Uniper is an international energy company with around 12,000 employees in more than 40 countries. The company plans to make its power generation CO₂-neutral in Europe by 2035. With about 35 GW of installed generation capacity, Uniper is among the largest global power generators. Its main activities include power generation in Europe and Russia as well as global energy trading, including a diversified gas portfolio that makes Uniper one of Europe's leading gas companies. In 2020, Uniper had a gas turnover of more than 220 bcm. Uniper is also a reliable partner for municipalities, public utilities, and industrial companies for developing and implementing innovative, CO₂-reducing solutions on their way to decarbonizing their activities. As a pioneer in the field of hydrogen, Uniper has set itself the target of operating worldwide along the entire value chain in the future and implementing projects that will make hydrogen the mainstay of the future energy supply.

The company is headquartered in Düsseldorf and currently the third-largest listed German utility. Together with its main shareholder Fortum, Uniper is also the third-largest producer of CO₂-free energy in Europe.

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