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FOREIGN AFFAIRS & TRADE
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The Netherlands looks to move from Russian Gas to Green Hydrogen

Market Report

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Summary

- Russia's invasion of Ukraine is forcing the Netherlands – among other countries – to rethink their energy supplies. This report provides a summary on the Netherlands' overarching strategy to transition from natural gas to green hydrogen and the opportunities this transition provides, including for countries such as New Zealand.

Report

Russia turns off the gas tap

- As outlined in recent reports (See: February, March, April) the Russia's invasion of Ukraine has far reaching impacts, including causing many countries to reconsider their energy supplies – and the Netherlands is no different. The Netherlands currently use about 40 billion cubic meters of natural gas a year (two thirds for energy), of which 5 to 6 billion cubic meters, or 12.5 percent, come from Russia.

- On Tuesday 31 May, Russia turned off the gas tap to the Netherlands with immediate effect. With no appetite to pay for the gas in roubles, a contract with Gazprom – an energy corporation based in Russia – that ran until October 2021 was shredded. While the Dutch Ministry of Economic Affairs and Climate Policy was quick to comment in response that the Russian decision had no consequences for the physical delivery of natural gas to Dutch households, the drop in supply of Russian gas could have consequences for EU plans to fill its gas reserve tanks to 80 percent before the winter.

An expensive rock and a hard place

- In the late fifties, the Dutch tapped into what turned out to be the biggest gas field in Europe; the Groningen field in the north of the Netherlands. For many years, this made the Dutch net exporters of natural gas and even today there are still opportunities to continue gas extraction at existing and newly found gas fields which the Dutch continue to explore. But the biggest hurdles surrounding the Dutch gas extraction in Groningen are currently political. Man-made earthquakes, caused by the extraction, in the villages in Groningen and slow reparations for the affected houses had already led to the decision in 2018 to slow down and by 2023/2024, halt Groningen gas extraction altogether.

- Commentators suggest that reversing this decision is almost politically impossible. Even with the added pressure created by Russia halting its gas exports to the Netherlands, the Dutch government is expected to first explore every other available – and expensive – option before considering fully re-opening the Groningen gas field for business.

- Given the storage locations in the Netherlands Gazprom left empty will not be replenished over the summer, we understand that measures to save energy over the winter could include the consideration of closing major energy-consuming industry sites, favouring coal powered power plants over gas powered ones, or importing more LNG (such as from the US and Norway).

Green hydrogen fueling energy transition

- As part of the Dutch government's agenda to make the Netherlands fully sustainable on energy and raw material systems by 2050, and further backed by the energy uncertainties following Russia's attack on Ukraine, the Dutch government is now actively encouraging the use of green hydrogen as an energy carrier.

- Hydrogen is not new to the Netherlands. Produced with historically-abundant cheap gas, industry already use grey hydrogen on a large scale. Over the years, the Netherlands has attracted a (grey) hydrogen dependent industry, including a large fertilizer industry. While only 10 percent of its product is sold to the domestic agriculture sector, the Dutch, as producers, must pay for the downsides of this polluting industry, equating to 8 percent of the country's total CO2 emissions.

- The Dutch government, and other governments including New Zealand, are now exploring the possibilities of using of green hydrogen – the "silver bullet" in energy transition - as a raw material for chemical products (ammonia or methanol); as a fuel for industrial processes that require a lot of heat (steel and paper); as an emission-free fuel for cars and heavy transport (trucks, buses and shipping) to contribute to better air quality; to generate electricity when little solar or wind energy is available to create flexible adjustable power; and for buildings and neighbourhoods that are difficult to heat electrically or with heat networks.

- The Netherlands National Hydrogen Programme 2022-2025 sets out the framework conditions required to scale up a hydrogen "market" in the Netherlands. As part of the programme, the Netherlands has started repurposing parts of their existing gas network to use as hydrogen transport network. By 2030, the Dutch hydrogen pipeline network could be as depicted on the below map. The yellow lines, making up 83 percent, show the repurposed gas infrastructure, while the blue lines are the new connections to factories and ports that will be connected to the hydrogen transport grid in the coming years.

Source: Gasunie, April 2022

Where to find the green hydrogen to fuel the revolution?

- Targets for the use of green hydrogen have been specified in the Netherlands' National Climate Agreement. With a goal of 50 hydrogen filling stations by 2025, 9 stations are already operational and a further 13 are being built. The goal is for approximately 75,000 tonnes of green hydrogen to be produced in the Netherlands by 2025.

- Larger scale production is of course required to swiftly move industry from gas to green hydrogen. To produce more cheap wind energy, the Netherlands have announced they will participate in the production of 150 gigawatts in windfarms with neighbours Belgium, Germany, and Denmark. The heads of government and European Commission President Ursula von der Leyen signed a deal on 18 May, in which the Netherlands pledged to build another 21 gigawatts in offshore wind capacity by 2030. For the large-scale onshore and offshore production of green hydrogen, a combined target is set of 20 gigawatts by 2030, further expanded towards 2050.

Rotterdam expects to import 20 million tons by 2050

- Aiming to become Europe's key green hydrogen trader, the Dutch plan to start importing large quantities of up to 4 million tons of green hydrogen by 2030. The largest port in Europe, the Port of Rotterdam, currently plans to start importing green hydrogen as early as 2025, with the latest calculations expecting imports through the port to hit

20 million tons by 2050.

- In the scramble for the hydrogen market, the broad participation at the World Hydrogen Summit 2022 in Rotterdam (to be repeated next year from 9-11 May 2023) demonstrates increasing interest in the market.

Opportunities for others, including companies in New Zealand

- While, like others, New Zealand is exploring how best to make use of green hydrogen, opportunities in this quickly expanding market may lie in exporting large quantities of certified green hydrogen to Europe through, for instance, the Dutch ports. Sharing expertise on the reuse of gas infrastructure is another area for future cooperation. Opportunities also arise around expertise on the transportation, storage and new techniques on the use of hydrogen. This transition will provide opportunities for companies with expertise in the fossil-fuel industry. With solutions for coating the pipelines for use with hydrogen for instance, or those developing and delivering the valves, seals and the pumps that are all needed for the shift of a fossil fuel industry towards hydrogen.

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