Green energy

The province of Groningen has provided the country with natural gas for the last 60 years. Now, the Northern Netherlands can lead in the transition to green energy, crucial for a sustainable economy, as it is well connected to wind parks in the North Sea. Offshore wind energy production targets are 20 GW in 2030, with an additional 20 to 40 GW by 2050. This can power an electrified industry. For the short term, electricity producers in Eemshaven plan to incorporate capture of CO₂ emissions into their operation for usage in other sectors (Carbon Capture and Utilisation) or storage in empty gas fields or salt caverns (Carbon Capture and Storage).

Hydrogen links the energy sector with the chemical sector functioning as both energy carrier (Power2Gas) and renewable feedstock (Power2Chemicals). In a recent study, the suitability of the existing gas infrastructure was examined for the transmission of hydrogen, with a positive outcome.

2. Renewable feedstock

The agricultural setting of the Northern Netherlands provides a sizeable input of agricultural products and residual streams for the chemical industry. Indeed, there is a long tradition of processing sugar (Cosun Beet Company) and starch (Avebe) in the region. New companies in the region, like Avantium, are able to produce non-traditional products like plastics from biomolecules.

However, agricultural sidestreams are not the only feedstock. Green hydrogen and carbon capture can be used to produce a range of drop-in chemicals for many industries. And plastics can be transformed to new basic building blocks, such as aromatic compounds (BioBTX) through chemical recycling. Other options are chemical recycling of e.g. end-of-life PET (CuRe-consortium in the Emmen chemical hub).
Apart from the two main chemical hubs (Delfzijl and Emmen) and recycling facilities in Heerenveen, there are a number of facilities in the region for developing products at all TRLs, such as the Zernike Advanced Processing facility (TRL 3-6) and the Chemport Innovation Centre (TRL 6-8).

In many areas, companies are already integrating their processes to allow e.g. the use of waste heat, or residual streams.

There are plans to refurbish the existing pipeline system for natural gas for hydrogen transport. The NortH2 SURMHWZLOOXVHRTVKRHUHLQGHQHUIJWRSURGXFH 800,000 tons of green hydrogen per year by 2040.

4. Infrastructure

Apart from the two main chemical hubs (Delfzijl and Emmen) and recycling facilities in Heerenveen, there are a number of facilities in the region for developing products at all TRLs, such as the Zernike Advanced Processing facility (TRL 3-6) and the Chemport Innovation Centre (TRL 6-8). Different industrial areas offer space for production facilities.

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