Photography: Dick Sellenraad

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Rotterdam CCUS

Project Porthos: CO_2 transport and storage

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Port of Rotterdam ebn gasunie

Climate agreement

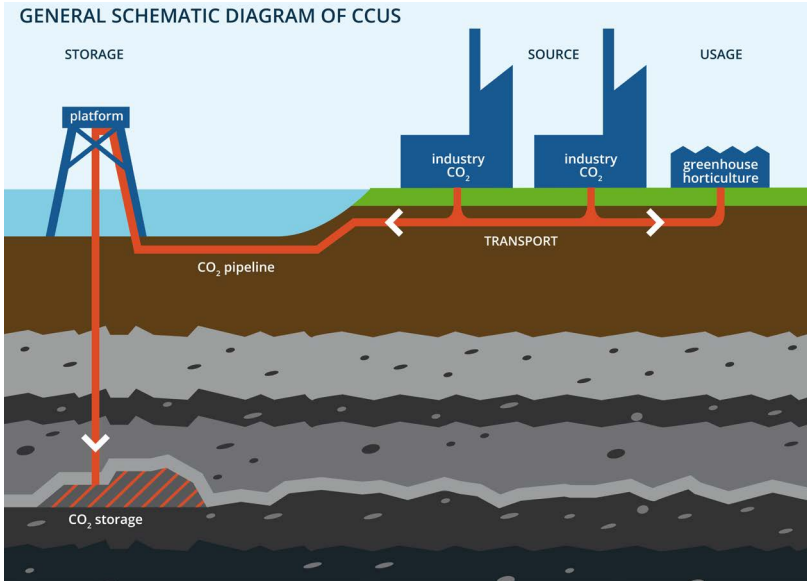
The Netherlands has clear climate objectives: the emission of greenhouse gases must be reduced by 49% in 2030 and by 95% in 2050 compared with 1990. One way to achieve the climate objectives is to capture CO_2 for use or for storage underground (Carbon Capture Utilisation and Storage, CCUS in short). The Dutch coalition agreement and the National Climate Agreement underline the importance of CCUS for the energy transition.

Porthos is preparing a project to transport CO_2 from industry in the Port of Rotterdam and store this in empty gas fields beneath the North Sea. Porthos is a partnership between the Port of Rotterdam Authority, Gasunie and EBN, and stands for **P**ort **o**f **R**otterdam CO_2 **T**ransport **H**ub and **O**ffshore **S**torage.

The project

Porthos focuses on transporting and storing CO_2 that is captured by various companies. The companies will supply their CO_2 to a collective pipeline that runs through the Rotterdam port area. The CO_2 will then be pressurised in a compressor station. The CO_2 will be transported through an offshore pipeline to a platform in the North Sea, approximately 20 kilometres off the coast. From this platform, the CO_2 will be pumped in an empty gas field. The empty gas fields are situated in a sealed reservoir of porous sandstone, more than 3 kilometres beneath the North Sea.

It is expected that, in its early years, the project will be able to store 2 to 2.5 million tonnes of CO_2 per year.



Energy transition

The National Climate Agreement contains a broad package of measures for CO_2 reduction. Examples include a sharp increase in renewable energy, use of residual heat and geothermal energy, increased insulation for buildings, electric vehicles, process industry efficiency and recycling. A choice was also made in the Climate Agreement to develop capture, transport and storage of CO_2.

For a section of the industry, CCUS is currently the fastest way to substantially reduce CO_2 emissions into the atmosphere for relatively low costs. CCUS is an important technique for the chemical sector, hydrogen producers and refineries to significantly reduce their production process impact in the short term, while working on innovations to their production processes. The long-term objective continues to be sustainability.

Over 16% of CO_2 emissions in the Netherlands take place in the Rotterdam port area, making the region's contribution to the national climate objectives extremely important. As well as CCUS, the options of putting CO_2 to good use will also be examined. A relatively small amount of CO_2 from Rotterdam industry is already being used by greenhouse horticulture in South Holland, where it enables plants to grow faster. The Porthos infrastructure will also be suitable for transporting CO_2 for use by industry, if there is demand for this in the future.

Planning

In 2020, Porthos will focus on three main issues. These issues must be concluded so that a final investment decision can be taken in 2021:

- Technical development of the transport and storage infrastructure;
- Environmental Impact Assessment and permits;
- Agreements with companies to supply CO_2 and with the government to enable CCUS.

As soon as the investment decision has been taken, the construction of the infrastructure will start. It is expected that the system will be operational by the end of 2023.