

Integral hydrogen-based supply chain development

Publieke samenvatting / Public summary

Aanleiding

Hydrogen is expected to play a key role in the future economy as carbon-free energy carrier and feedstock. It is expected that in the coming decade significant investments in generation of renewable energy will lead to follow-up investments in generation of renewable hydrogen. In addition, conventional hydrogen produced from natural gas is the current reference. Combining this with CCS may lead to blue hydrogen supply. There is much uncertainty about the rate at which a hydrogen economy can be built. This requires investments in all stages of the supply chain - production, storage, transportation and use - and in many sectors. Supply-side investments, e.g. by installing large-scale electrolysis, may compete with import from regions such as Southern Europe with good renewable energy production potential. Also industry investments have to be made to use hydrogen. These depend on secure supply at an affordable price level, and compete with the alternatives, e.g. electrification and CCS and the required infrastructure for these. Furthermore decisions of parties in a cluster are connected through infrastructure development and have synergy potential when aligned.

Doelstelling

At this moment the decisions are generally taken on an individual basis with risks of overspending and socializing investment costs. There is a clear need to improve the investment decision making under large uncertainties and in particular in a coherent

Projectinformatie / Project information

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Algemene informatie / General information

Penvoerder / Secretariat
ISPT

Publicaties en materialen / Publications and attachments

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way in multi-stakeholder settings. Our key solution is to create a tool - consisting of a common dataset and model - that supports multi-stakeholder informed decision making to arrive at the most attractive investments needed for development of the hydrogen economy as an integral part of the energy transition challenge of the industry. In addition a sustainable service model is developed that secures long-term access and maintenance of the tools and data. This will accelerate the deployment of hydrogen value chains and implementation of the hydrogen economy in The Netherlands and across Europe.

Korte omschrijving

The HyChain-4 project will develop models and consolidated datasets for the hydrogen supply chain for The Netherlands as a whole, and in more detail for two industry clusters; the SouthWest Netherlands cluster (SWNL) and the Rotterdam region (POR). These are integrated with the NL model. The work is done in close interaction with all relevant stakeholders, i.e. the industry, the infrastructure operators and the local authorities. For SWNL this comprises about four large industries, in the Rotterdam area this may build up to more than 30 companies. Along the way a service model is developed to secure long-term availability of the models and dataset, under the management of key parties such as ISPT and Deltalinqs, enabling the parties to whom it relates to revisit the analysis and explore future developments and investments. In ISPT context it further provides a basis to analyse, quantify and guide the innovation programs.

Resultaat

The HyChain-4 project delivers the following concrete results: ? A consistent, evaluated, validated and up-to-date public and private data inventory that describes the industry state of energy and feedstock options over time up to 2050, at a National level, and at specific industries in the Port of Rotterdam and South-West Netherlands ? Industrial energy system optimization modelling suite (cluster- and NL models) ? Use case analyses on least-cost pathways for the hydrogen supply

chain in support of industrial transformation for The Netherlands as a whole, and at a refined level for South-West Netherlands and Port-of-Rotterdam regions ? A service model that comprises amongst others access to tools, data and best practices in group use of the provided tools and datasets. This will be established to facilitate future investment analysis needs for individual and/or multiple stakeholders.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

Voor meer informatie over de Topsector Energie, ga naar www.topsectorenergie.nl.

Voor meer informatie over de TSE / Energie-Innovatie regelingen die RVO aanbiedt, ga naar www.rvo.nl/tse.