Pre-Pilot Power to Gas Offshore

Publieke samenvatting / Public summary

Aanleiding

The accelerated deployment in the next decade of renewable offshore wind in the Dutch North Sea creates challenges to transport large amounts of energy to shore. Two alternatives are possible: to transport electrons with a cable (AC, DC) or molecules with a pipeline. Over long distances, the most cost-effective means of energy transport is through pipelines. Simultaneously, many assets in the North Sea are facing end of life and decommissioning, which means they become available for re-purposing. Some offshore trunk-lines also operate under their maximum capacity. Prior and ongoing research projects identify a win-win combination appearing from this situation: to re-use platforms for hydrogen production (P2G), pipelines for hydrogen transport and perhaps wells for hydrogen storage such that the variable nature of wind power can be exploited more efficiently. In the recently published document regarding the hydrogen economy , TKI Nieuw Gas clearly calls for tangible projects that go beyond the realm of studies sooner rather than later.

Doelstelling

The goal of the proposed project is to launch the first-in-world initiative to realize a power-to-gas pilot in an offshore O&G platform. The P2G pilot will not only serve to build experience with the production of H2 in an offshore environment, but it will also be a test center for innovative P2G technologies and integrated systems. Also practical experience will be built on the costs of installing, operating and maintaining an electrolyser system in an offshore environment. The development will in itself de-risk

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further deployment of P2G technology as a system integration mechanism in the North Sea. It also represent the first step in a scale-up process starting at 1-10 MW, continuing with 10-250 MW and finally at scales larger than > 250 MW.

Korte omschrijving

The activities to be executed in this project encompass all the necessary steps required as input to the detailed engineering and subsequent installation of a P2G installation on an offshore platform. The concept development and basic engineering is scoped in this project. First, the different technologies required and available in the market are evaluated for suitability for offshore conditions. Afterwards, a concept of the targeted P2G facility is developed. The aim of the facility is to be able to accommodate at least 1 MW of electrolyzer capacity, including its water treatment unit and auxiliary ancillaries. On the other hand, a host platform must be selected. The selection criteria for a location will be refined during the project, but include among others: manned/unmanned, power source, available space and engineering required to enable the installation of the P2G facility. Candidate platforms shall be proposed and screened for suitability according to the criteria defined. Once a platform is selected as a host, the process and layout are developed.

Resultaat

As a result, the concept development and basic engineering of the first offshore P2G pilot is completed within this project. This creates the necessary input required for a detailed engineering, procurement and construction project.

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