



POSHYDON

Hydrogen
production facility

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| Pilot for offshore hydrogen production

Client

Rijksdienst voor Ondernemend Nederland (RVO)

Platform operator

Neptune Energy

Facts

Type:	PEM electrolyser
Nr. of Cell stacks:	1
Input power:	1 MW
Water consumption:	300l/h
Hydrogen flow:	246Nm ³ /hr
Hydrogen purity:	99.998%
Outlet pressure:	30 barg
Footprint:	2 x 40ft stacked containers
Lifting weight:	<20 tonnes (2 x 20ft cont)
Cable:	9 MVA, 25kV
Production:	400 kg/day

The Q13a-A hydrogen pilot project aims to demonstrate green hydrogen production offshore, on a live oil and gas production platform. The lessons learned will help enroll large scale green hydrogen production on the North Sea.



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Right off the coast of Scheveningen (The Hague), the first pilot for integration of three working offshore energy systems will take place on a working platform Q13, which is already electrified with renewable energy via a cable to shore. The power from wind and demineralized seawater will be converted to green hydrogen offshore following the wind profile of Eneco's Luchterduinen wind park. The green hydrogen will be blended with natural gas and transported via existing pipelines. Existing infrastructure thus will be co-used. The production of the platform is expected to start end 2023.

Iv-Offshore & Energy works together with several PosHYdon consortium partners to create a safe environment to handle hydrogen (and oxygen) on a live oil and associated gas platform.

Technical limitations of co-production of hydrogen and North Sea gas, sea water desalination, power fluctuation and electrolyser performance will be addressed.

Other consortium partners will identify and address requirements related to permitting, certification and entry specs. A logistic and training and competencies

gap analysis will be made. Economical calculations are made: how to maintain value of hydrogen while admixed with natural gas? Economics will be taken into account for large scale hydrogen production offshore.

Iv-Offshore & Energy is responsible for the basic and detailed engineering of the necessary adaptations to the platform to host the electrolyser system, is involved in the risk assessment and mitigation and brings offshore expertise. Iv-Offshore & Energy also provided the list of offshore requirements for the containers with the electrolyser, the seawater desalination system and power conversion system.

In order for the hydrogen production system to be tested onshore, few adaptations need to be ensured: power connection, sufficient space for the system, supply of (sea)water, disposal of brine, hydrogen use/ release, oxygen release, permits to test and permits to construct.

Iv-Offshore & Energy prepared a conceptual document describing the system interfaces and further requirements on the adaptations and modifications which need to be taken care onshore.

