



IJverGas
a multifunctional energy island

Objective IJverGas project

To make an inventory of the opportunities, the challenges, the costs and the planning of the production of **hydrogen** on an artificial island (IJver) with the electricity of the wind farms that are foreseen in the **IJmuiden Ver** area.

Location IJver:

Partners:

OFFSHORE
SERVICE
FACILITIES



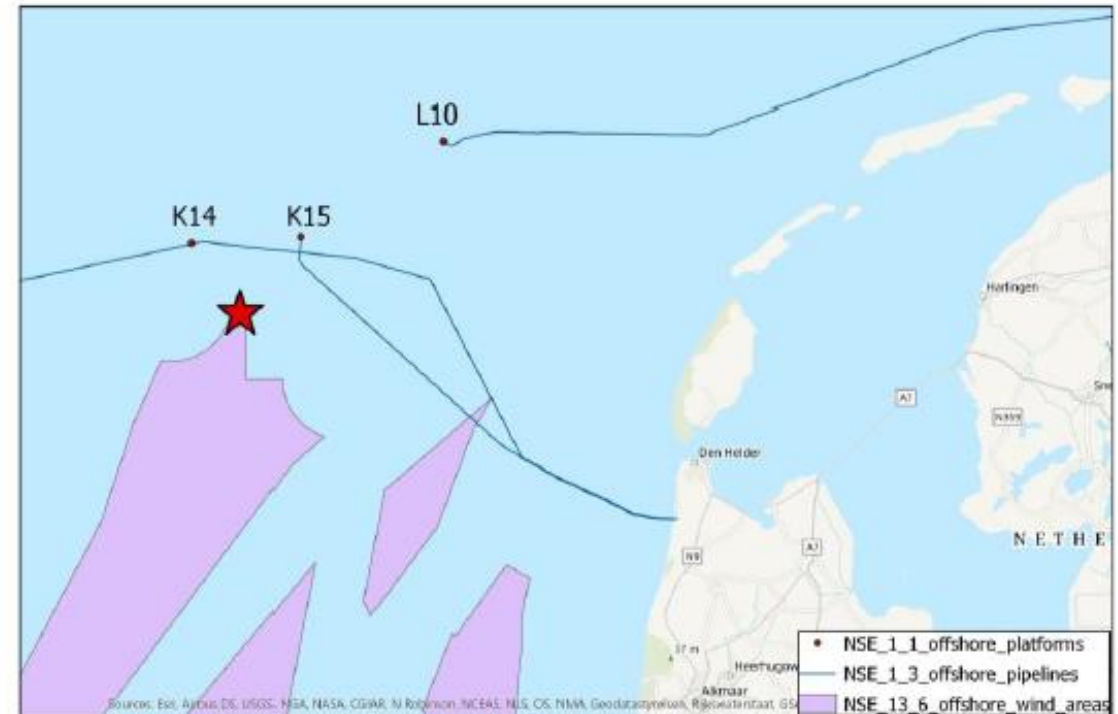
New
Energy
Coalition

TNO innovation
for life

INTECSEA
WorleyParsons Group

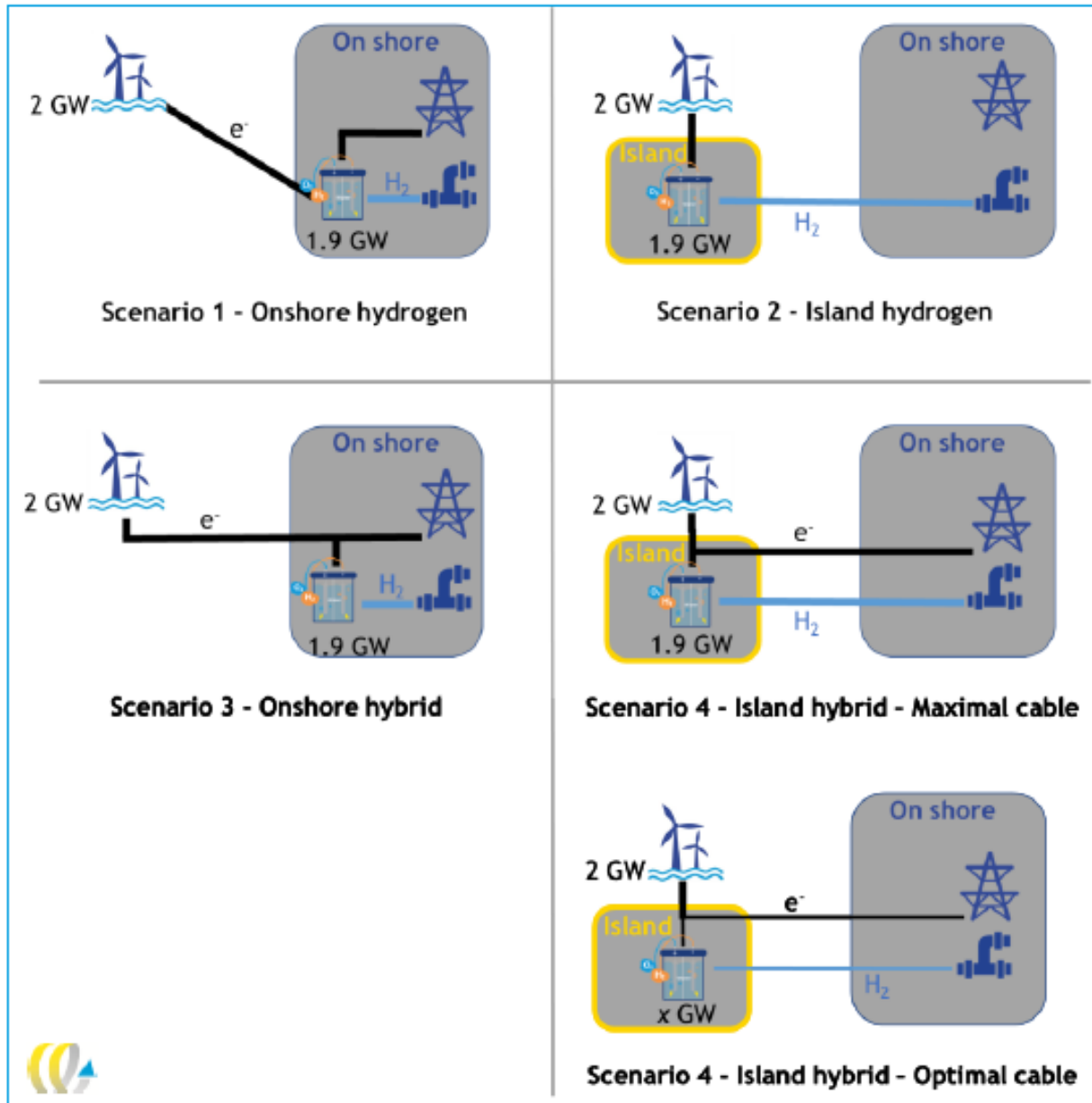


Hogeschool van Arnhem en Nijmegen
HAN University of Applied Sciences

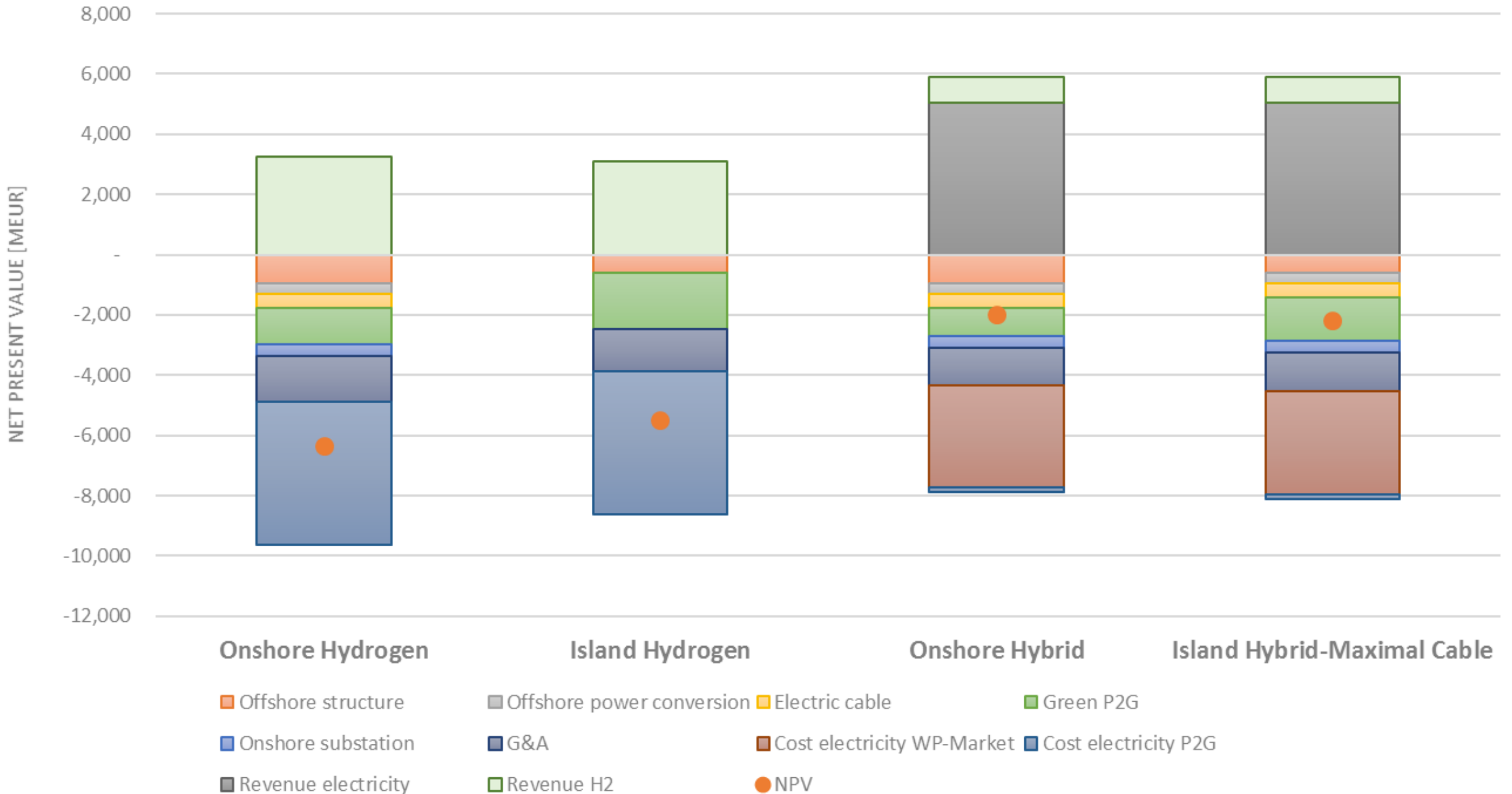


Source maps: (North Sea Energy, 2020b)

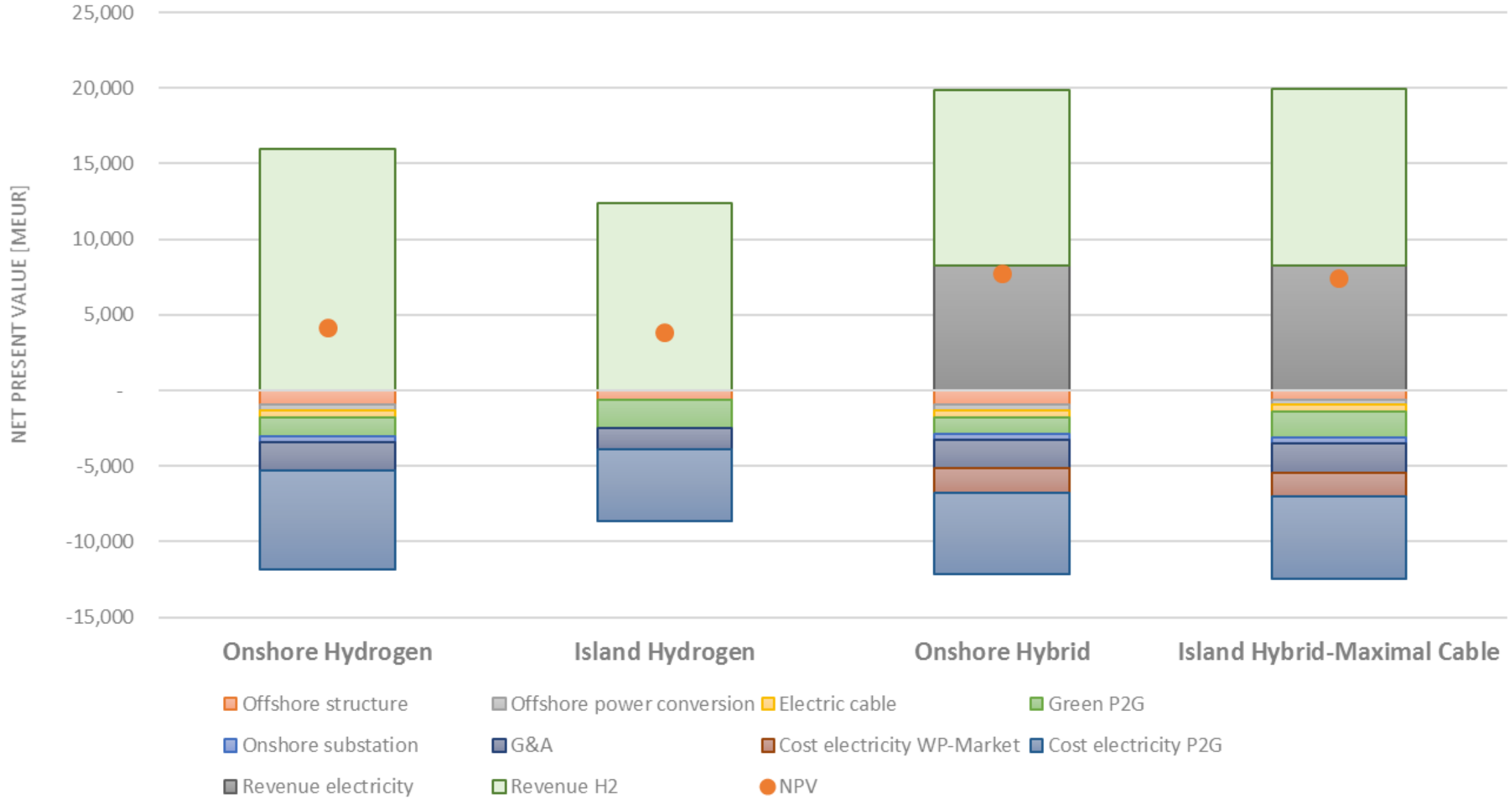
4 scenarios studied



NPV comparison of various scenarios at Hydrogen price 1.5 euro/kg



NPV comparison of various scenarios at Hydrogen price 6 euro/kg



Main conclusions

- The benefits of offshore hydrogen production are in the savings of power conversion and transport cables and potential reuse of pipelines, however a positive NPV requires a significant value for the green hydrogen produced.
- Combining offshore hydrogen production and power conversion on an energy island will increase the economic value of the island.
- A positive NPV of an integrated energy system of hydrogen and electricity generation from offshore wind on an energy island is realised at a green hydrogen price of 4,3 euro/kg H₂.
- The capacity of pipeline transport of H₂ (> 5GW) allows a larger scale of offshore P2G to enable larger NPV after optimisation of power <> H₂ transport.
- There are still large uncertainties on the cost of offshore hydrogen production as the technology is not yet available at scale.