

# Djewels

## DELFIJL JOINT DEVELOPMENT OF GREEN WATER ELECTROLYSIS AT LARGE SCALE



<b>Project ID:</b>	826089
<b>PRD 2023:</b>	Panel 1 – H2 production
<b>Call topic:</b>	FCH-02-1-2018: Demonstration of a large-scale (min. 20 MW) electrolyser for converting renewable energy to hydrogen
<b>Project total costs:</b>	EUR 41 967 250
<b>Clean H<sub>2</sub> JU max. contribution:</b>	EUR 10 999 999
<b>Project period:</b>	1.1.2020–31.12.2025
<b>Coordinator:</b>	Nobian Industrial Chemicals BV, Netherlands
<b>Beneficiaries:</b>	McPhy Energy Italia SRL, BioMethanol Chemie Nederland BV, McPhy Energy Deutschland GmbH, Industrie De Nora SpA-IDN, Hincio SA, McPhy Energy, NV Nederlandse Gasunie

<https://djewels.eu>

### PROJECT AND OBJECTIVES

Djewels demonstrates the operational readiness of the 20 MW electrolyser for the production of green fuels (green methanol) in real-life industrial and commercial conditions. It will bring the technology from technology readiness level 7 to 8 and lay the foundation for the next scale-up step: a 100 MW electrolyser at the same site. Djewels will enable the development of the next generation of pressurised alkaline electrolysers by developing more cost-efficient, better-performing high-current-density electrodes, and is preparing for the mass production of the stack and scale-up of the balance-of-plant components.

### NON-QUANTITATIVE OBJECTIVES

**Safety performance.** The design has been finalised and the hazard and operability analysis has been completed.

### PROGRESS AND MAIN ACHIEVEMENTS

- The Djewels 1 design was finalised.
- An irrevocable permit was issued.
- Testing of the 1 MW stack has started.

### FUTURE STEPS AND PLANS

- Stack testing and optimisation will be completed.
- The investment decision is expected to be made in Q2 2023.
- Ground breaking is expected to take place in Q3 2023.
- Construction is expected to be completed in 2025.

### QUANTITATIVE TARGETS AND STATUS

Target source	Parameter	Unit	Target	Target achieved?
Project's own objectives	System nominal capacity	MW	25	
	Energy consumption	kWh/kg	< 52.8	
MAWP addendum (2018–2020)	Degradation	%/year	0.72	
	Flexibility with degradation below 2 %/year	% of nominal power	3–110	