

Haeolus

HYDROGEN-AEOLIC ENERGY WITH OPTIMISED ELECTROLYSERS UPSTREAM OF SUBSTATION



H₂AΞLUS

Project ID:	779469
PRD 2023:	Panel 1 – H2 production
Call topic:	FCH-02-4-2017: Highly flexible electrolyzers balancing the energy output inside the fence of a wind park
Project total costs:	EUR 8 740 110.00
Clean H₂ JU max. contribution:	EUR 4 997 738.63
Project period:	1.1.2018–31.12.2023
Coordinator:	SINTEF AS, Norway
Beneficiaries:	Communauté d'universités et d'établissements université Bourgogne-Franche-Comté, École Nationale Supérieure de Mécanique et des Microtechniques, Fundacion Tecnalia Research and Innovation, Hydrogenics Europe NV, Knowledge Environment Security SRL, Università Degli Studi del Sannio, Università de Franche-Comté, Université de technologie de Belfort-Montbéliard, Varanger Kraft AS, Varanger KraftEnterprenor AS, Varanger KraftHydrogen AS, Varanger KraftMarked AS, Varanger KraftNett AS, Varanger KraftVind AS, Varanger KraftUtvikling AS

<http://www.haeolus.eu/>

QUANTITATIVE TARGETS AND STATUS

Target source	Parameter	Unit	Target	Achieved to date by the project	Target achieved?
Project's own objectives	CAPEX	M€/(t/d)	3	2.3	✓
	Efficiency	kWh/kg	52	53.8	✓
MAWP addendum (2018–2020) and AWP 2017	Degradation	%/year	1.5	2	⚙️
	Cold start	minutes	0.5	20	⚙️
	Hot start	seconds	2	30	⚙️

PROJECT AND OBJECTIVES

The project has deployed a 1 t/day electrolyser, together with a storage tank and fuel cells for re-electrification, in connection with a wind farm in the remote village of Berlevåg in Norway. The objective is to test the operation of the electrolyser in different scenarios to demonstrate algorithms for energy storage, isolated grid operation and fuel production. After significant delays due to the COVID-19 pandemic, the project received a 2-year extension and is now following a new schedule.

NON-QUANTITATIVE OBJECTIVES

The objective is to promote the 'hydrogen valley' in Finnmark. Local authorities and business stakeholders are very interested in the project. Varanger Kraft has decided to proceed with building a distribution station, and local actors are involved in multiple multimillion-euro research and innovation proposals for further development.

PROGRESS AND MAIN ACHIEVEMENTS

- Varanger Kraft made its investment decision (EUR 4 million investment).
- Fuel cells were refurbished and redeployed.
- A cloud control system was deployed and open-sourced.
- Demonstration is ongoing.

FUTURE STEPS AND PLANS

Demonstration is to be completed and results are to be analysed.

