

Project ID:	700359
Call topic:	FCH-02.1-2015 - Improved electrolysis for Off-grid Hydrogen production
Project total costs:	€ 2,315,217.5
FCH JU max. Contribution:	€ 2,315,217
Project start - end:	01/04/2016- 31/09/2019
Coordinator:	FUNDACION PARA EL Desarrollo de las nuevas Tecnologias del hidrogeno En Aragon, es
Website:	www.ely4off.eu

ELY40FF PEM ELECTROLYSERS FOR OPERATION WITH OFFGRID RENEWABLE **INSTALLATIONS**



BENEFICIARIES: COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES, EPIC POWER CONVERTERS SL, INSTRUMENTACION Y COMPONENTES SA, ITM POWER (TRADING) LIMITED

PROJECT AND OBJECTIVES

The main goal of the ELY40FF proposal is the development and demonstration of an autonomous off-grid electrolysis system (PEMWE, 50 kW) linked to renewable energy sources (solar PV), including the essential overarching communication and control system for optimising the overall efficiency when integrated in a real installation.

NON QUANTITATIVE OBJECTIVES

- Study covering specific national requirements and how to overcome barrier's in four different countries (Denmark, Scotland, Sweden, France) has been elaborated
- The objective is to see under which conditions is possible to consider an off-grid hydrogen cycle instead of the current technologies used nowadays.

PROGRESS & MAIN ACHIEVEMENTS

- First Hydrogen production on 13 September 2018
 Demonstration period started on 11 March 2019
- Quick and efficient response of the prototype DC/DC conversion and stack to solar variability.

FUTURE STEPS & PLANS

Project finished.



QUANTITATIVE TARGETS AND STATUS

TARGET SOURCE	PARAMETER	UNIT	TARGET	ACHIEVED TO DATE By the project	TARGET ACHIEVED?	SOA RESULT ACHIEVED To date (by others)	YEAR FOR SOA Target
Project's own objectives	Efficiency at system level	kWh/kg	50	N/A	×	48 @100kg/day	<48 @100kg/day (Neptune)
	Efficiency degradation	%/8,000h	2	Can't be measured until stack returns to lab conditions	☓	1.5%	1% (Neptune)
	CAPEX	M€/(t/d)	6	4.5 @ 100 kW scale	🗸 © 100 kW scale	3 @ 1MW scale	2.4 @10MW scale
	H ₂ production flexibility (degradation <2%)	%	5-150	5-100	 ✓ 	20-300	10-400 (BEIS)
	Hot start (min to max power)	seconds	2	<2 seconds	v	<1 second (for frequency control)	1 second





