E2P2

ECO EDGE PRIME POWER

Project ID	101007219
PRR 2024	Pillar 4 – H_2 end uses: stationary application
Call topic	FCH-02-9-2020: Fuel cell for prime power in data-centres
Project total cost	EUR 3 576 409.45
Clean H_2 JU max. contribution	EUR 2 499 715.50
Project period	1.1.2021–28.2.2025
Coordinator	Research Institutes of Sweden AB, Sweden
Beneficiaries	Equinix Netherlands BV, InfraPrime GmbH, Snam SpA, SolydEra SpA, TEC4FUELS GmbH, Vertiv, Vertiv Croatia d.o.o.

https://e2p2.eu/

PROJECT AND GENERAL OBJECTIVES

The main objectives of E2P2 are to define the concept of fuel cells for prime power for data centres and create an authoritative open standard for the adaptation of fuel cells to power data centres. E2P2 will demonstrate and validate a proof-of-concept fuel-cell-based prime power module for data centres, and evaluate the opportunities for improved energy efficiency and waste heat recovery. The project strongly anticipates opportunities for European fuel cell suppliers to increase the uptake of their fuel cells across multiple markets, with improved energy efficiency and cost-effectiveness.

NON-QUANTITATIVE OBJECTIVES

- Define the concept of fuel cells for prime power for data centres.
- Create an authoritative open standard for adapting fuel cells to power data centres.
- Demonstrate and validate a proof-of-concept fuel-cell-based prime power module for data centres.
- Collect extensive operational data to support the use of fuel cells as a prime power source for data centres.
- Analyse the combined social, environmental and commercial impacts on the European market.
- Evaluate opportunities for improved energy efficiency and waste heat recovery.
- Generate effective market uptake and create a business strategy.

PROGRESS AND MAIN ACHIEVEMENTS

Vertiv, TEC4FUELS, and SolydEra have successfully developed their modules for the E2P2 project, with meticulous attention to detail. Comprehensive drawings and installation plans have been meticulously crafted. The location has been carefully selected as the Equinix ML 5 site outside Milan, Italy. Substantial data have been gathered for the life-cycle assessment, ensuring thorough analysis.

FUTURE STEPS AND PLANS

The subsequent phase involves conducting factory acceptance testing for the modules, followed by their shipment to Milan for installation. Research Institutes of Sweden will facilitate network connectivity to enable seamless data collection. Once all modules are installed, site acceptance testing will be performed. Subsequently, the E2P2 proof of concept will undergo rigorous testing under full operational conditions for 1 year.

PROJECT TARGETS

Target source	Parameter	Unit	Target	Target achieved?
MAWP (2014–2020)	CAPEX	€/kW	3 500–6 500	
	Availability	% of available plant power	97	
	Electrical efficiency	% (LHV)	42–62	
Project's own objectives	Tolerated H_2 content in natural gas	%	0.2	
	Land use / footprint	m^2/kW	0.11	

Clean Hydrogen Partnership
Co-funded by the European Union