

SO-FREE

SOLID OXIDE FUEL CELL COMBINED HEAT AND POWER: FUTURE-READY ENERGY



Project ID	101006667
PRR 2025	Pillar 4 - H ₂ End Uses - Stationary Applications
Call Topic	FCH-02-4-2020
Project Total Costs	2 835 807.75
Clean H ₂ JU Max. Contribution	2 739 094.00
Project Period	01-01-2021 - 30-09-2025

Coordinator Beneficiary AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE, IT

Beneficiaries INSTYTUT ENERGETYKI, KIWA TECHNOLOGY BV, KIWA LIMITED, ELCOGEN OY, KIWA NEDERLAND BV, UNIVERSITA DEGLI STUDI GUGLIELMO MARCONI - TELEMATICA, PGE POLSKA GRUPA ENERGETYCZNA SA, I.C.I CALDAIE SPA, INSTYTUT ENERGETYKI - PANSTWOWY INSTYTUT BADAWCZY, AVL LIST GMBH, FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV

<http://www.so-free.eu>

PROJECT AND GENERAL OBJECTIVES

The development and demonstration of a fully future-ready system based on solid oxide fuel cells (SOFC) for combined heat and power generation allows for an operation window of 0-100 % of H₂ in natural gas, with additions of purified biogas. Furthermore, SO-FREE will endeavour to realise a standardised stack-system interface, allowing full interchangeability of SOFC stack types within a given SOFC combined heat and power system.

NON-QUANTITATIVE OBJECTIVES

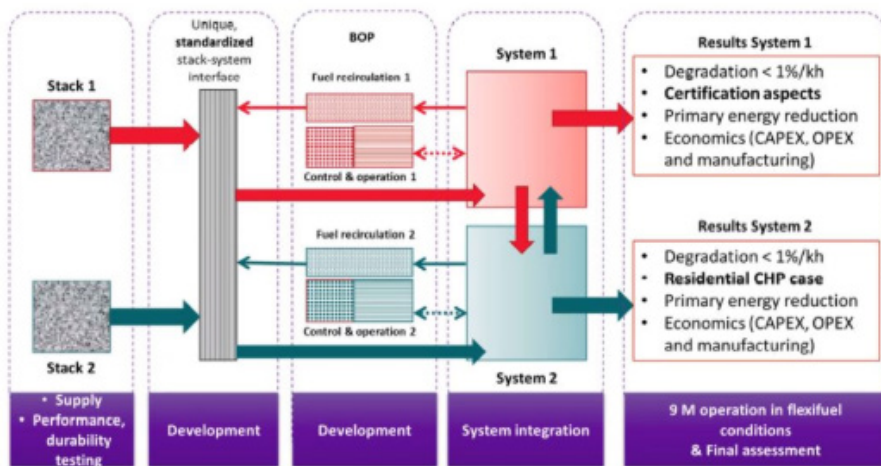
SO-FREE aims to realise a unique, standardised stack module-system interface for flexible

system integration. The initial alignment of two stack modules with a single interface has been proposed.

PROGRESS, MAIN ACHIEVEMENTS AND RESULTS

SO-FREE has made two identical test stations for independent stack validation and designed a unique stack module-system interface for flexible system integration.

Stack validation and mapping were completed in February 2023 and the final design of the system in April 2023.



PROJECT TARGETS

Target source	Parameter	Unit	Target	Target achieved?	SoA result achieved to date (by others)	Year for reported SoA result
Project's own objectives	Electrical efficiency in CH ₄	% LHV	40-55		35-55	2020
	Electrical efficiency in H ₂	% LHV	48		47	