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Industrial Net-Zero Technology Gateway for Real-world Application and Transition Enablement

Integrating solid oxide electrolysis cells
into energy intensive industries

In a nutshell

INDTEGRATE is a Horizon Europe-funded project aiming to accelerate the decarbonisation of energy-intensive industries through the integration of Solid Oxide Electrolysis Cell (SOEC) technology, renewable electricity and industrial waste heat recovery.

Objectives

Efficient hydrogen production

Efficient with the development of thermophysical and techno-economic reduced-order models, process and electrolyzer digital twins, and an advanced energy management system.

Industrial SOEC demonstration

Design, integrate, and validate a modular 220 kW SOEC system in operational ceramic and glass manufacturing facilities.

Waste heat recovery

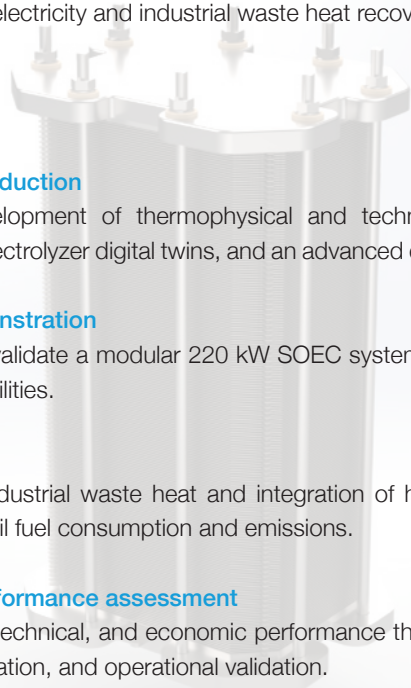
Efficient utilisation of industrial waste heat and integration of hydrogen-based combustion solutions to reduce fossil fuel consumption and emissions.

Sustainability and performance assessment

Assess environmental, technical, and economic performance through life cycle assessment, techno-economic evaluation, and operational validation.

Skills development and industrial uptake

Workforce training, safe system operation, and adoption of SOEC technologies across energy-intensive industries.



What is INDTEGRATE

INDTEGRATE develops and demonstrates innovative green hydrogen solutions for energy-intensive industries by combining SOEC technology, renewable energy, industrial waste heat recovery, and advanced digital tools.

Why industrial decarbonisation matters

Industries such as ceramics and glass manufacturing are among the most difficult sectors to decarbonise due to their high energy demand and reliance on high-temperature processes.

Integrating green hydrogen into industry

INDTEGRATE enables the efficient production and use of green hydrogen by integrating SOEC technology with renewable electricity and industrial waste heat, improving overall system efficiency.

Digital twins for smarter operations

INDTEGRATE develops process and electrolyser digital twins to optimise hydrogen production, improve operational performance, and support informed decision-making in industrial environments.

Demonstrating solutions in real conditions

INDTEGRATE validates its technologies through industrial pilot demonstrations, generating evidence for future deployment.

Supporting wider industrial uptake

INDTEGRATE promotes knowledge sharing, skills development, and stakeholder collaboration to facilitate the adoption of hydrogen technologies across the European industry.

At a glance

Project name **INDTEGRATE**

Grant Agreement ID **101294637**

Call **HORIZON-CL4-2025-01**

Topic **HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-34**

Type of action **HORIZON Innovation Action (IA)**

Project duration **36 months**

Partners

