



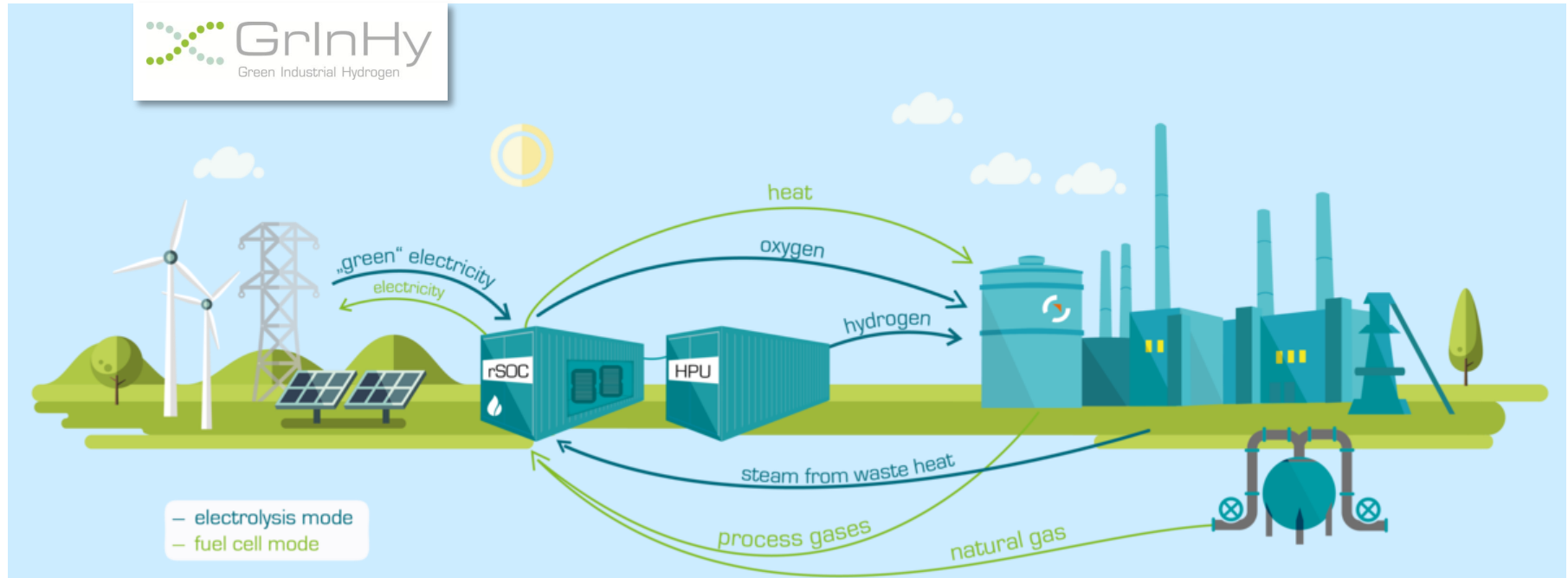
Green Industrial Hydrogen via Reversible High-Temperature Electrolysis

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*This project has received funding
under grant agreement No 700300.*





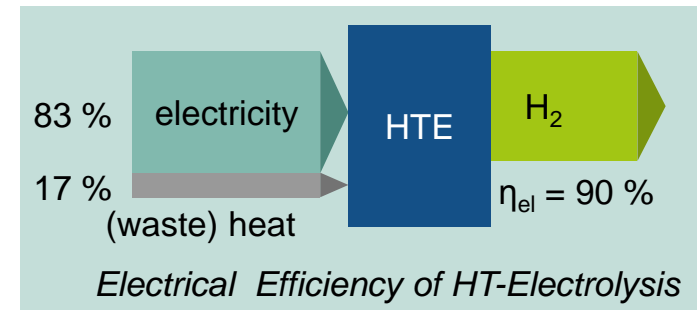
Mission Statements:

- Proof of concept in the industrial environment of an integrated iron and steel mill
- Development of a reversible high-temperature electrolyzer towards a marketable product by GrInHy’s project outcomes
- meeting the hydrogen quality standards of the steel industry

Green Industrial Hydrogen via Reversible High-Temperature Electrolysis (HTE)

- Technology

- At temperature levels of up to 900 °C, stacks of Solid Oxide Cells are producing H₂ from steam
- Highest electrical efficiency by integration of (waste) heat from production processes instead of electricity
- Possibility of operating in a reversible mode










- SZ Motivation

- Evaluation of the technology readiness level (TRL)
- Techno-economical analysis of possible business cases besides hydrogen production (e.g. load management, grid balancing)
- Experience in operating a electrolyzer and verification of meeting high quality standards

- Project Specifications (ID 700300)

- Objective Manufacturing and operation of an pilot plant of 150 kW_{el, AC}
- Duration 03/2016 – 02/2019
- Project Budget 4.5 million €

GrInHy: Objectives

	Efficiency	proof of reaching an overall electrical efficiency of at least 80 %LHV
	Upscaling	SOEC unit to a power input of 150 kW _{AC} and production of 40 Nm ³ _{H₂} /h
	Operation	at least 7,000 h of operating the system
	Lifetime	greater than 10,000 h with a degradation rate below 1 %/1,000 h
	Reversible Operation	higher capacity utilization for stronger business cases
	Costs	development of dependable data on system costs and cost reductions
	Exploitation Roadmap	reversible high-temperature electrolyzer as a marketable product

GrInHy: Who we are



 www.green-industrial-hydrogen.com

The GrInHy consortium consists of 8 partners from 5 different EU countries and is characterized by its interdisciplinary expertise.

These include a technology specialized SME, large industries, university and non-university research organizations.

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No 700300.

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