



International Partnership
for Hydrogen and Fuel Cells
in the Economy

Italy Update

38th IPHE Steering Committee Meeting
29 – 30 November 2022
San José, Costa Rica

Announcements / New Initiatives *Italy*

2016

With the legislative decree of **16 December 2016, n. 257** - Italy transposes **Directive 2014/94 / EU on the development of an infrastructure for alternative fuels** - AFID

2018

The "**Technical rules for fire prevention for the design, construction and operation of hydrogen distribution systems for automotive**"
DECREE OF THE MINISTRY OF THE INTERIOR is published OCTOBER 23, 2018

2019

Hydrogen is included in the **National Energy and Climate Plan** in all the dimensions, in particular it is expected **1% of the RES target for transport**. Ministry of Development (MISE) launches **HYDROGEN TABLE** for companies in the sector.

2020

Mise publishes preliminary guidelines for an **Italian hydrogen strategy with investments of up to 10 billion:**

2021

3,64 billion for Hydrogen in **National Resilient and recovery Plan** on hydrogen will be funded

Italian Support Schemes for Hydrogen



Announcements / New Initiatives *Italy*

Guidelines by the Italian Ministry of Economic Development



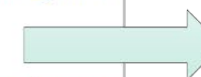
- Hydrogen will make up 2% of Italy's final energy demand
- Up to 8 million tons of CO₂
- About 5 GW of electrolysis capacity would be introduced to 2030, to help boost production of "green" hydrogen
- Up to 10 bn€ of investments, 50% from public funding

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Recovery and Resilience Plan

INVESTMENT 3.1	0.5 B	INVESTMENT 3.2	2.0 B	INVESTMENT 3.2	0.16 B
PRODUCTION OF HYDROGEN IN BROWNFIELD SITES		HYDROGEN USE IN HARD-TO-ABATE INDUSTRY		HYDROGEN RESEARCH & DEVELOPMENT	
Promotion of local production and use of green hydrogen in industry, SME's, and local transport, thus creating new Hydrogen Valleys in abandoned industrial areas , with 1-5 MW of electrolyzers to be increased up to 10 MW, mainly located in the south of Italy with local production from RES and the creation of the necessary supply-chain		Supporting projects that aim at the progressive decarbonisation of hard-to-abate industries , mainly in the chemical and oil refining sector and in the steel industry and promoting the transition from methane to green hydrogen through specific tenders for the proposal of sustainable and innovative projects and to boost the hydrogen adoption in the industrial production cycle		R&D of hydrogen in all its phases: production, storage and distribution . Four lines of R&D activities will be developed: <ol style="list-style-type: none"> Green & clean hydrogen production; Innovative technologies for hydrogen storage, transport and transformation into derivatives and e-fuels; Fuel Cells for stationary & mobility application; Integrated smart management systems to increase the resilience and reliability of intelligent hydrogen-based infrastructures 	
STATUS: Publication of regional tenders for the selection of areas & projects by the regions of Sardegna, Puglia, Piemonte, Lombardia, Emilia Romagna, Veneto, Basilicata		STATUS: Will be launched a call for proposal for the selection of projects that will be financed through the Development Contract. By June 2026 decarbonization of an industrial plant.		STATUS: 90 projects have been submitted to the MITE for evaluation. The winning projects will be announced on June 2022.	



Strategic Agreement with the Italian **Ministry of the Ecological Transition** aimed at the strengthening of ENEA's research and technology transfer activities in the following thematic areas: **production of green and clean hydrogen**, innovative technologies for the **storage and transport of hydrogen** and its transformation into derivatives and e-fuels, **fuel cells for stationary and mobility applications**, **intelligent integrated management systems** to improve the resilience and reliability of **hydrogen-based intelligent infrastructures**

INVESTMENT 5.3	0.45 B
HYDROGEN	
Funds are set for the creation of a national supply chain based on the potential user basin, economic impact in terms of employment and social growth, specialized jobs (technical, contribute to the decarbonisation of the economy), reduction of dependence on oil, reduction of energy imports, spillover of new specialized companies, projection on international markets, creation of turnkey service formulas for the industrial sector. The goal of the investment is to expand the hydrogen market by building a large industrial plant in Italy for the production of electrolyzers . The Governments estimates reaching approximately 1 GW of electrolysis capacity by 2026 .	
STATUS: By June 2022 identification of the companies that will carry out the construction of the industrial plant for the production of electrolyzers. By June 2026 commissioning of the plant for a capacity of 1 gw per year. The incentive measure will be managed by Invitalia with the Development Contract.	

INVESTMENT 3.3	0.23 B	INVESTMENT 3.4	0.3 B
HYDROGEN TESTING FOR ROAD TRANSPORT		HYDROGEN TESTING FOR RAILWAY MOBILITY	
Increase the diffusion of hydrogen in street transport , promoting the creation of distributors for trucks and cars and reaching at least 5-7% of the internal market within 2030 . At least 40 petrol stations will be developed giving priority to strategic areas for heavy street transport: along the highways, close to ports, and near logistical terminals.		The conversion to H2 of non-electrified railway lines in regions characterised by high passenger traffic with a strong use of diesel trains such as in Lombardy, Puglia, Sicily, Abruzzo, Calabria, etc. The most advanced projects in Valcamonica & Salento envisage the experiment in an integrated manner of production, distribution and purchase of H2 trains.	
STATUS: Will be launched a tender for the for the construction of 9 refueling stations for hydrogen trains along 6 railway lines. Award of the tender by march 2023.		STATUS: Selection of applications and allocation of resources for the development of 40 hydrogen-based charging stations by March 2023	



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Research on Hydrogen in Italy: Trends and Perspectives

- **ITALY** participates in **MISSION INNOVATION IC8**: Renewable and Clean Hydrogen. Double funds for research compared to 2018
- **ITALY** supports a first **IPCEI** - Important Project of Common European Interest on H2
- **ITALIAN Recovery and Resilience Fund** earmarks 3.6 G€ for H2 Value chain (160 M€ R&D)
- **ITALIAN players** feature prominently in the **Clean Hydrogen for Europe** P-P Partnership, over 1 G€ funding planned until 2027
- **ITALIAN stakeholders** feature in the **EU Clean Hydrogen Alliance**



IPCEI



European Clean Hydrogen Alliance



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IPCEI

Commission approves up to €5.4 billion support by 15 Member States for an Important Project of Common European Interest (IPCEI) in the **Hydrogen Technology value chain** "IPCEI Hy2Tech"

Hydrogen Generation Technology	Fuel Cells Technology	Storage, Transportation and Distribution Technology	End User Technology
1s1 Energy* Advent* Ansaldo AVL Christof Industries De Nora Elcogen* Elogen Enel Genvia H2B2* Cummins John Cockerill John Cockerill McPhy* Nordex Ørsted Sener Stargate Sunfire* Synthos	1s1 Energy* Advent* Alstom Ansaldo Arkema Bosch DE Daimler Truck De Nora EKPO Elcogen* Fincantieri Genvia HYVIA Iveco Nedstack* Plastic Omnium AT Symbio	Arkema B&T Composites* Daimler Truck Enel Faurecia NAFTA Neste Ørsted Plastic Omnium FR	Alstom FR Alstom IT Bosch AT Daimler Truck Fincantieri HYVIA Iveco CZ Iveco ES Iveco IT Neste Ørsted Plastic Omnium AT Plastic Omnium FR

*SME

Hy2Tech
 ENEL
 Ansaldo
 De Nora
 IVECO
 Fincantieri
 Alstom
 (ENEA*, FBK*)

Hy2Use
 NextChem
 RINA-CSM
 SardHy Green Hydrogen
 South Italy Green Hydrogen

Commission approves up to €5.2 billion support by 13 Member States for an Important Project of Common European Interest (IPCEI) in the **Hydrogen value chain** "IPCEI Hy2Use"

Hydrogen Infrastructure	Hydrogen applications in Industry
Air Liquide France Air Liquide Netherlands - Curthyl Air Liquide Netherlands - ELYgator Bay of Biscay Hydrogen (Petronor/Repsol) Bondalti Cartagena Hydrogen Network (Repsol) ENGIE Belgium ENGIE Netherlands Fluxys H2 Aboño (EDP) H2-Fifty H2 Los Barrios (EDP) HyCC Iberdrola MassHyllia (TotalEnergies and ENGIE France) Ørsted P2X Solutions* PKN Orlen Shell Uniper	Borealis Enel Green Power/Endesa ENGIE Belgium Everfuel* Hybrit Development IAM Caecius NextChem RINA-CSM RONA SardHy Green Hydrogen Solar Foods* South Italy Green Hydrogen TECforLime TITAN Cement VERBUND

Competition *SMEs

*OdR - finanziamento 100% MiTE

Thank you



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