BiLOG 2022
Logistics and Maritime Forum

Hydrogen and renewables: the opportunity of proximity energy communities for ports and logistics

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Agenda

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Idrogeno come soluzione di propulsione alternativa

Hot topic

2

Idrogeno nella logistica

Ostacoli e opportunità

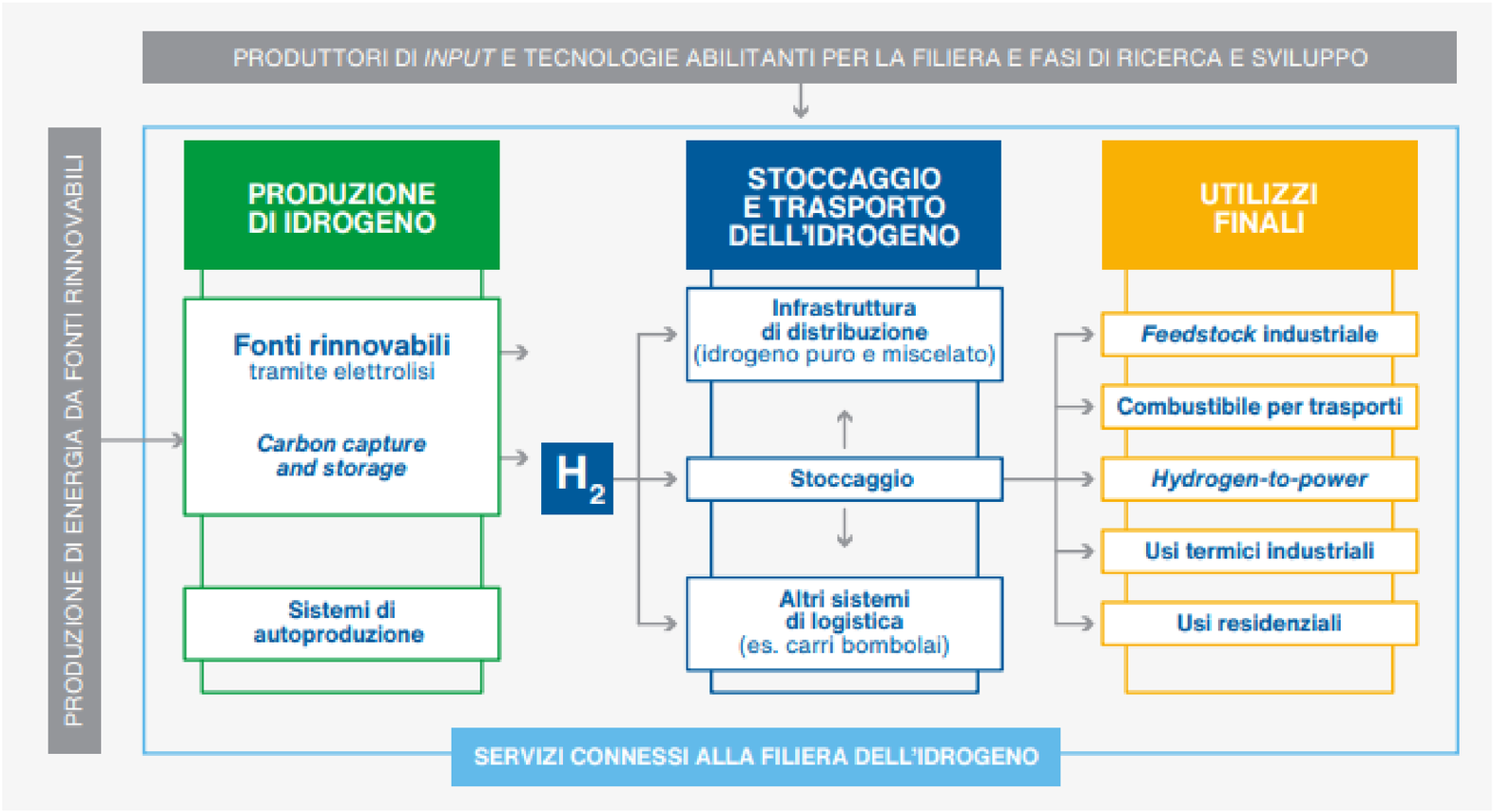
3

Key speakers

LOGISTICS & MARITIME FORUM

Idrogeno come soluzione di propulsione alternativa

La catena del valore



Idrogeno come soluzione di propulsione alternativa

Stato dell'arte in Italia

1%

Penetrazione dell'idrogeno nella domanda energetica

17 bcm

Capacità di stoccaggio

32.500 km

Rete di trasporto di idrogeno

Fonte: European Hydrogen Backbone, 2022

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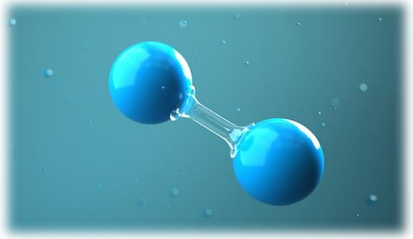
Readiness level

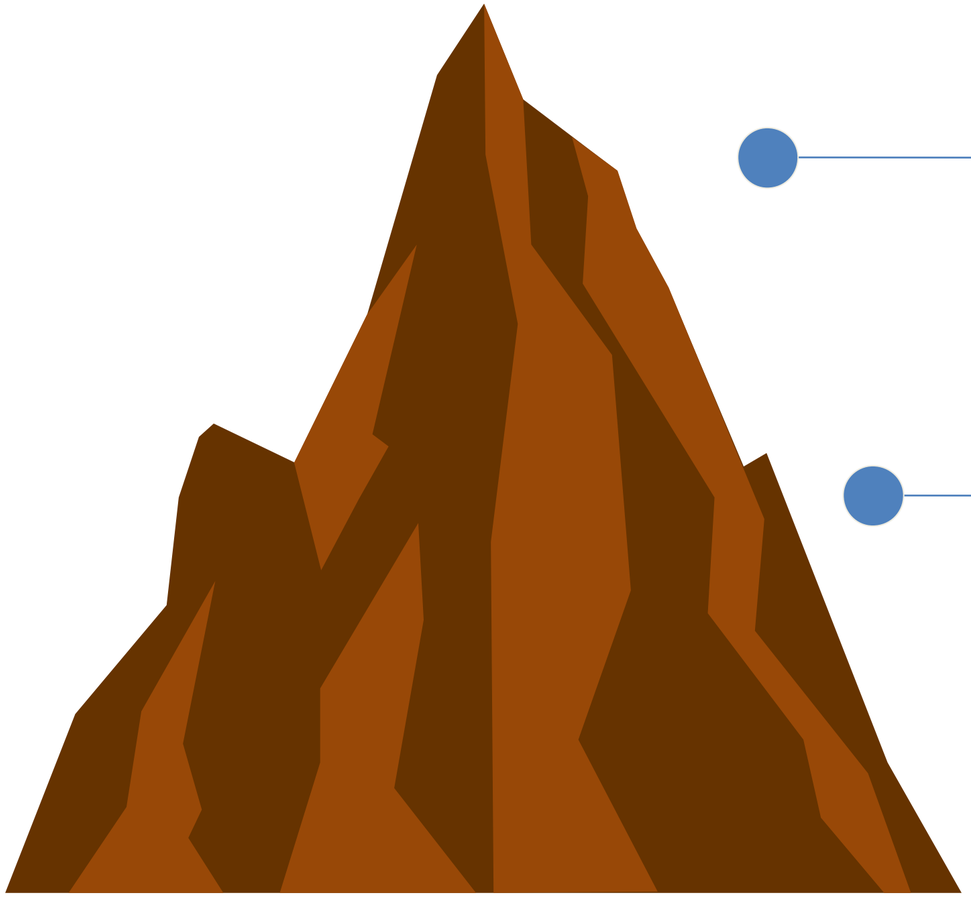
Readiness level of shipping fuels (High – Medium – Low), IRENA 2021

	FUEL TECHNOLOGICAL READINESS	ENGINE TECHNOLOGICAL READINESS	SCALABILITY & TIME TO MARKET	ENERGY DENSITY	GHG REDUCTION	ENGINE TECHNOLOGY	ADVANTAGES	CHALLENGES
Fuel Oil						ICE	Already used globally, has high efficiency and is low cost in comparison to alternative fuels.	HFO has high carbon emissions and particulate emissions from production and use in vessels.
LNG						ICE	Well-established supply infrastructure, high energy density and is currently used in vessels globally. Has a lower sulphur content than HFO.	LNG has fewer emissions compared with HFO but still significantly more emissions than low-carbon alternative fuels. Uses non-renewable resources.
Advanced Liquid Biofuels						ICE	Biofuels have an established infrastructure due to use in multiple sectors. Easy integration into current engines. Can be used as a drop-in fuel.	Growth of feedstock used in biofuel production may affect land use, which could impact global food security. High demand from multiple sectors makes scaling difficult.
Renewable Gaseous Fuels						ICE	Bunkering in ports can use LNG infrastructure, making implementation cheaper. Ships that use LNG can switch to liquefied biogas (LBG) as a drop-in fuel.	Limitations with storage capacity required for LBG. Can only be considered for short-distance vessels. Long-distance vessels would require large storage capacity.
Hydrogen						ICE FCs	Employing green H_2 would lead to nearly zero carbon emissions. A main option as an energy carrier in FCs. Multiple applications across sectors, which can increase the rate of research.	H_2 production and storage is costly, requiring cryogenic storage. Still an immature technology in the shipping sector but has high potential as an alternative fuel.
Ammonia						ICE FCs	Ammonia has existing production and transport infrastructure due to the agricultural industry. Green ammonia is carbon neutral and has one of the highest efficiencies when compared to alternative fuels.	Global demand for ammonia across multiple sectors can cause scalability issues. Ammonia has a high production cost and is highly toxic, requiring special storage and safety measures.
Methanol						ICE FCs	Currently used in a multitude of sectors and can be implemented within the shipping sector with relative ease. Using e-methanol and bio-methanol is 100% renewable.	Difficulties in acquiring sustainable and cost-effective carbon sources. Green methanol has high production costs.

Idrogeno nella logistica: ostacoli e opportunità

Principali sfide





Stoccaggio

Densità estremamente bassa → compressione o liquefazione per garantire competitività a livello economico.

Trasporto & Distribuzione

Costi elevati per la costruzione di infrastrutture di linea (es. Pipelines)

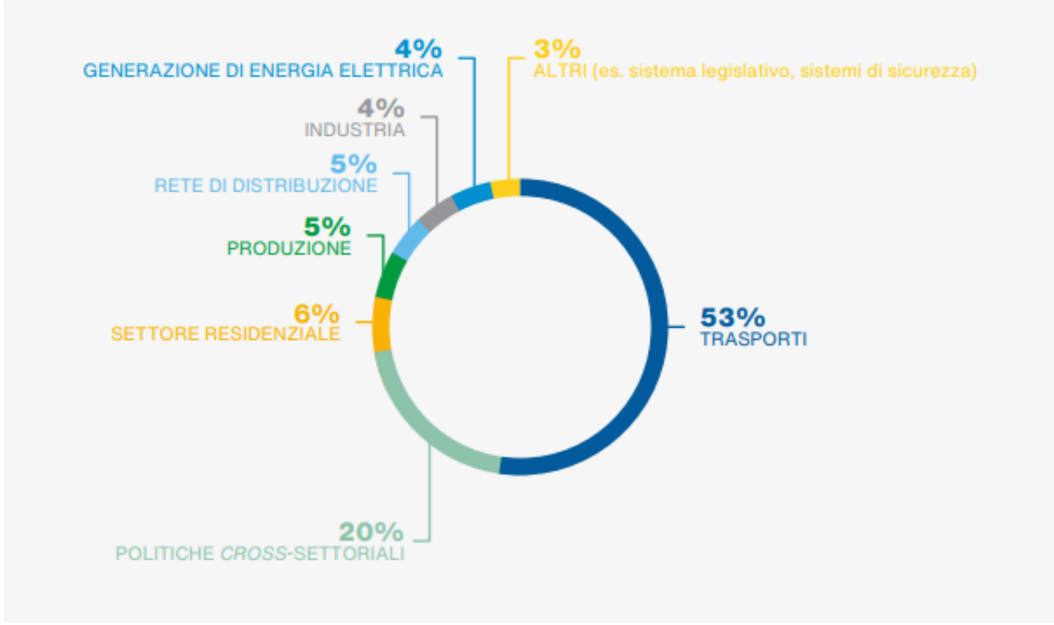
Idrogeno nella logistica: ostacoli e opportunità

Opportunità di sviluppo

Soluzioni prioritarie per carriers e shippers

Fonte: KLU, 2022

Ambito di destinazione delle policy a supporto dell'idrogeno mappate in tutto il mondo



Fonte: H2 ITALY 2050, 2020

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Andrea Condotta
Public affairs & Innovation Manager Gruber Logistics

"Hydrogen and Alternative fuels: available solutions and potential opportunities for the transport sector"

Carles Rua
Head of Innovation Port of Barcelona

Marcello Romagnoli
Professor at Department of Engineering 'Enzo Ferrari' University of Modena and Reggio Emilia, Director of H2 Mo.Re Center

"The H2 beyond the H2: the need for an industrial chain"

Grzegorz Pawelec
Director Intelligence Hydrogen Europe

"Hydrogen's big opportunity in the maritime sector"