



8th AIEE Energy Symposium
Current and Future Challenges to Energy Security
– the energy crisis, the impact on the transition –

Plenary session - Sustainable mobility challenges for the transition target

Development of Low Carbon Fuels in Italy and Europe

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The EU's Net Zero Emission will be a success if:.....

- The EU achieves net-zero greenhouse gas (GHG) emissions by 2050.
- Citizens have access to energy when and where they need it – to travel, to heat their home, to live a quality life – and are able to pay the bill.
- Critical infrastructure, i.e. hospitals, public transport and services rely on an uninterrupted – and affordable – supply of energy.
- An internationally competitive, innovative, sustainable industry thrives in the EU. Creating wealth, offering quality jobs and providing business for many small and large companies.



The EU's Net Zero Emission will be a success if:.....

- **In order to achieve these objectives, in addition to electrification, the use of liquid fuels will continue to be inevitable. Therefore, our proposal is to replace fossil molecules with renewable molecules in liquid products.**
- **These results can be achieved through the definition of a European Strategy for new alternative fuels aimed at developing low-carbon liquid products for road, maritime, and air transport.**
- **It is essential, therefore, to design a clear and predictable regulatory framework that allows for the development of the Low Carbon Fuels market with a legislative approach that is open to technology. This would enable all promising clean technologies, throughout their life cycle, to compete and complement each other.**





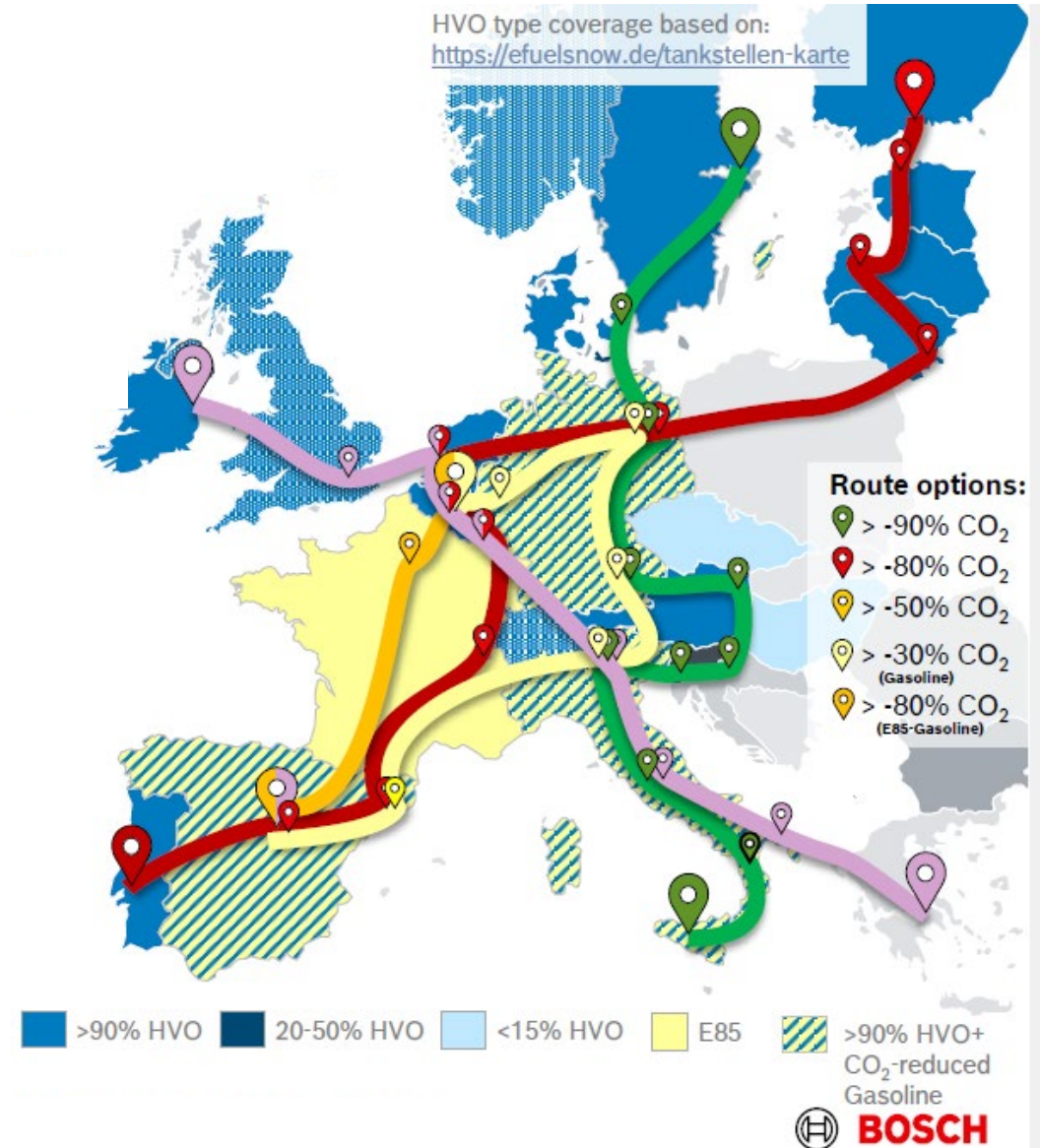
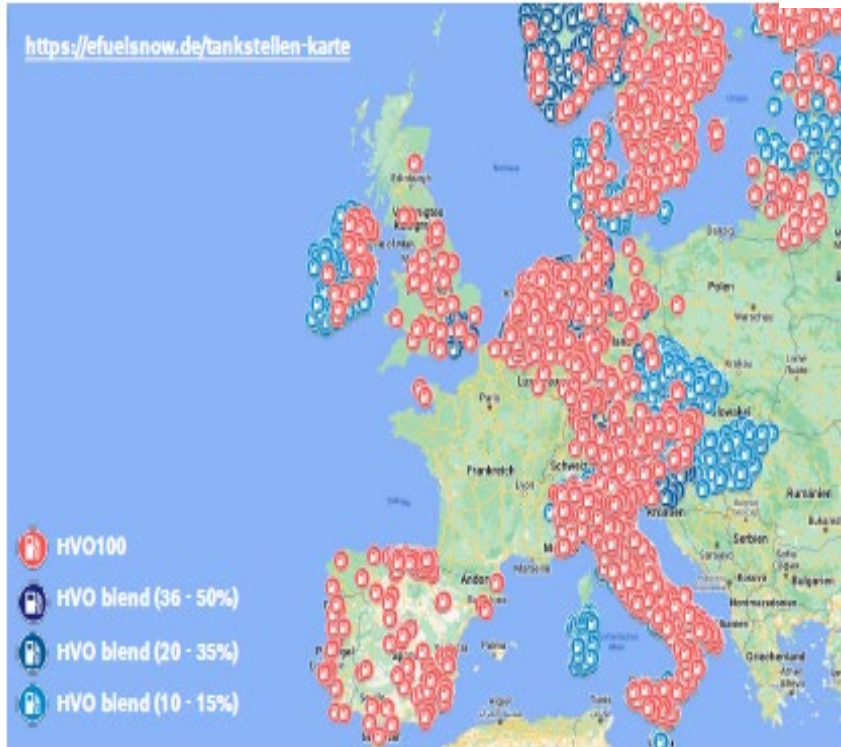
Low Carbon Fuels are already a reality

- 1. GREEN HYDROGEN: 18 projects beyond Final Investment Decision (FID). 4 further projects (pre-FID) currently announced.
- 2. RENEWABLE LIQUID FUELS: 27 projects beyond Final Investment Decision (FID) – including some already operational. 10 further projects (pre-FID) currently announced.

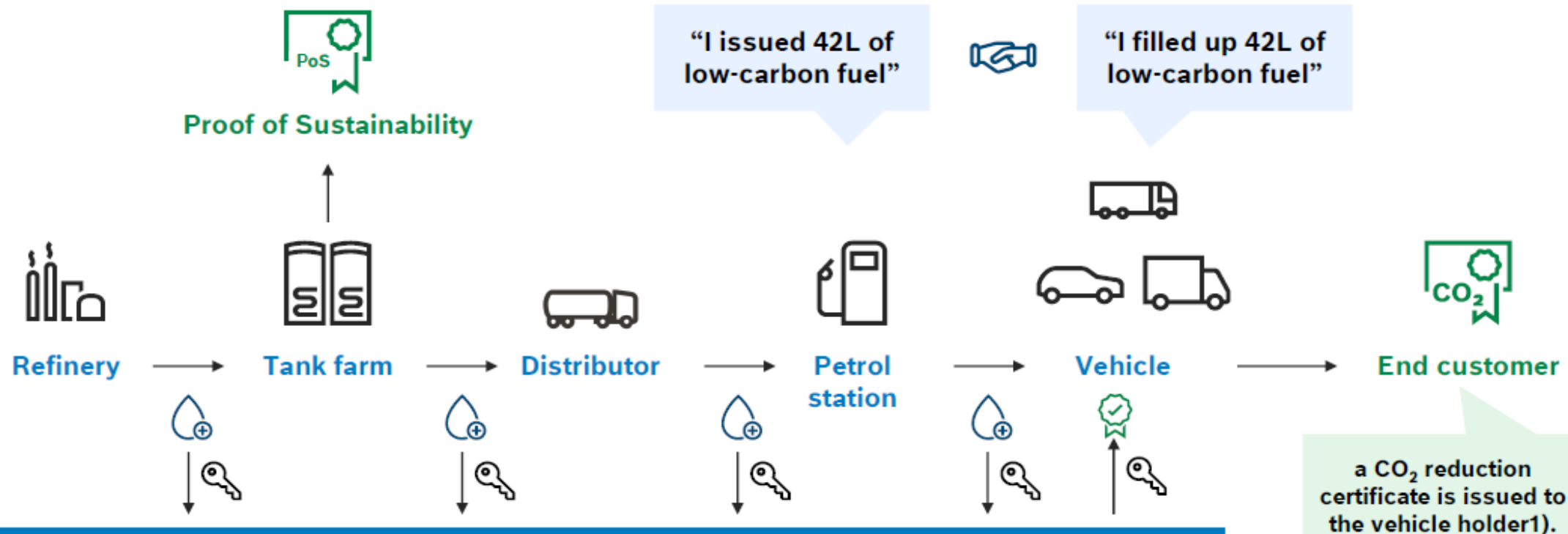


Renewable fuels (i.e., HVO) now widely available in Europe

Hydrotreated
Vegetable Oil



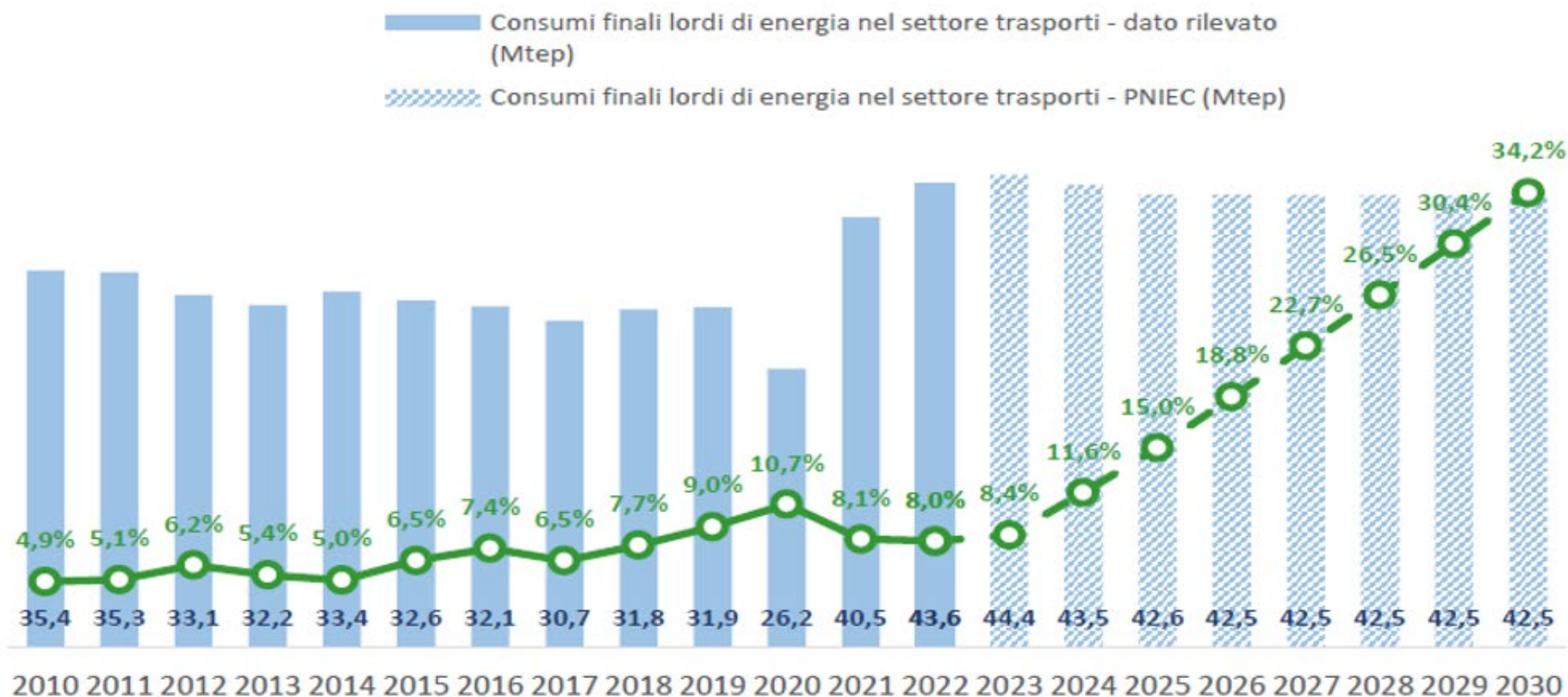
Bosch Digital Fuel Twin Platform (DFT) Working Principle



DFT platform and services:
Along the supply chain, a digital tag is attached to every step of fuel delivery

Renewable quota trajectory in transportation.

Figura 13 - Traiettorie della quota FER nel settore trasporti(*) [Fonte: RSE, GSE]



PNIEC 2024 – Focus on transport sector – data in kton

PNIEC TRANSPORT 2024	2022	2025	2030
Low Carbon Fuels	1.560	3.000	5.954
Liquid	1.380	2.510	4.687
Biomethane	180	478	877
RFNBO (H2 - e-fuels)	0	11	390
Fossil fuels	40.165	36.184	27.938
Road fuels	35.643	30.648	21.838
Marin bunker (international bunker excluded)	800	1.000	1.100
Aviation (international flights included)	3.722	4.500	5.000
Fossil fuels + LCF	41.725	39.184	33.892
Electricity in transport	287	495	1.332

- Compared to the PNIEC 2023, slight decrease in biofuels in 2025 with a share that still remains very challenging at around 2.5 Mtons of liquid biofuels.
- Biofuels increase by 2030 in line with UNEM proposal for max development of liquid biofuels by 2030, close to 5 Mtons.
- Modest reduction in the development of biomethane in road transport.



In order to enhance the contribution of the oil sector to the country's decarbonization targets and to improve the Italian energy security, the PNIEC identifies the following measures to be implemented by 2030:

- Promote conversion of oil refineries into biorefineries, in line with the increase in domestic demand for advanced biofuels, to be used both in blending with fossil products and 100% bio**
- Encourage the bio co-processing units within refineries to further develop the production of advanced biofuels for both road transport and the aviation sector with SAF – Sustainable Aviation Fuels.**
- Support research and industrialization of synthetic fuels, both RFNBO and RCF, within refineries to complement the production of biofuels.**
- Promote the development and implementation of green, bio, and especially blue hydrogen production in refineries, also facilitating the creation of CCS and CCUS plants, as necessary options for the decarbonization of non-electrifiable production processes such as refining.**
- Foster the development of the market, as well as the transport/storage infrastructure for both hydrogen and captured CO₂.**



- Energy security is an essential enabler of a competitive and resilient EU economy
- Energy security is enhanced by the gradual low-carbon transformation of existing, strategic EU refineries to make clean products for transport & the industrial value chain from domestic raw materials
- A technology-neutral competition of solutions, including low-carbon, renewable fuels for transport, alongside with electrification, can deliver the 2050 net-zero GHG emissions, with significant additional benefits, but.... If **low-carbon, renewable fuels (both bio- and e-fuels) would not be allowed to contribute to the OEM's compliance with CO2 vehicle standards:**
 - the realization of the enormous private investment plan for Low Carbon Fuels (LCF) would be prevented,
 - the achievement of the energy and climate goals set for 2050 would be compromised, and
 - the security of energy supply at European level would be at risk



- **Our urgent request to the EU Commission is to review the regulatory framework and to adopt an EU strategy for renewable liquid fuels in order to create the business case for transformative investments**
- **The right EU policy framework will enable us to make a significant contribution to help the EU successfully deliver climate neutrality by 2050, ensure a secure supply of energy, and foster innovative, EU-based, globally competitive industry to offer affordable decarbonization options to citizens, industries and society**





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