

Una soluzione 100% digitale per la
decarbonizzazione



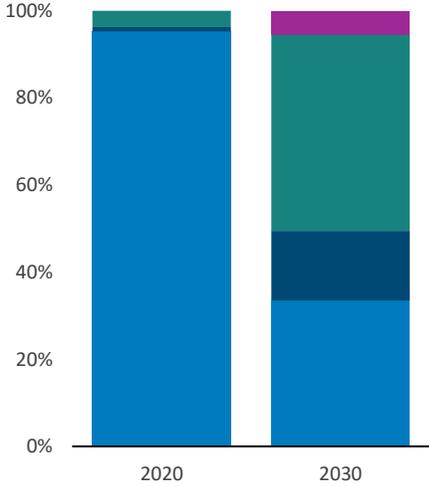
BOSCH Digital Fuel Twin Platform (DFT)



Focus on existing ICE* fleets

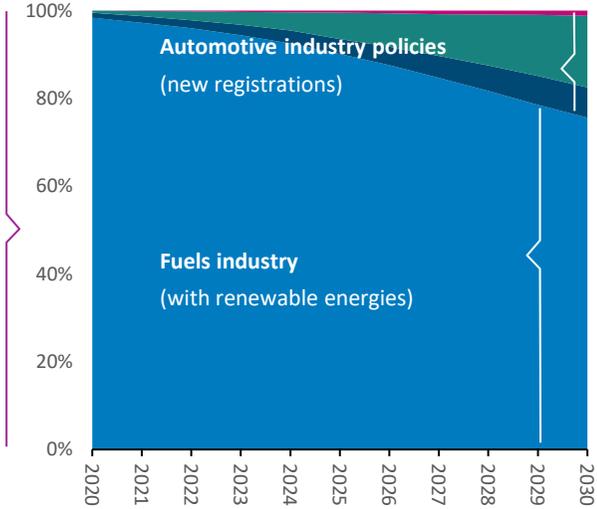
New registrations

(EU28 all road vehicles)



Vehicle stock

(EU28 all road vehicles)



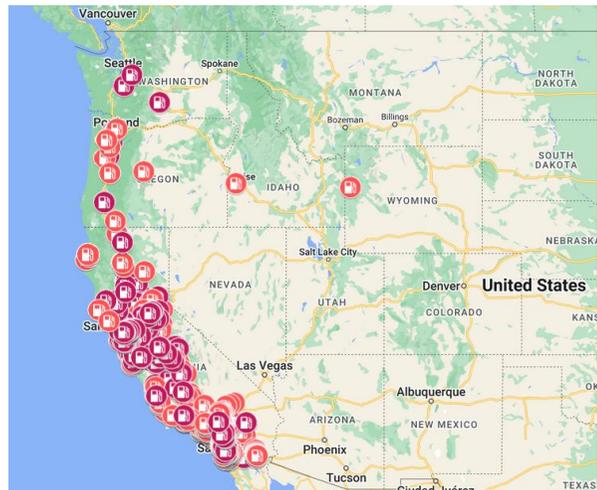
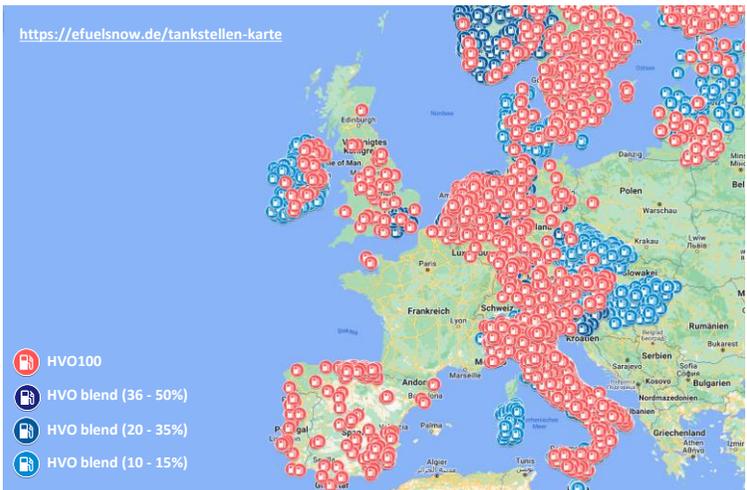
* ICE – Internal Combustion Engine
 Source: Bosch Automotive Market planning 2023

■ Fuel Cell-EV ■ BEV ■ Hybrid ■ ICE

Bosch Digital Fuel Twin Platform (DFT)

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

*Hydrotreated Vegetable Oil



Renewable fuels are **highly available** in many **EU member states**

By using these, an existing fleet of Diesel-engine vehicles can be operated with **high CO2-savings (>90%)**

...without the need to **invest in new vehicles**

Bosch Digital Fuel Twin Platform (DFT)

CO₂ certification of consumed fuel

By bringing together

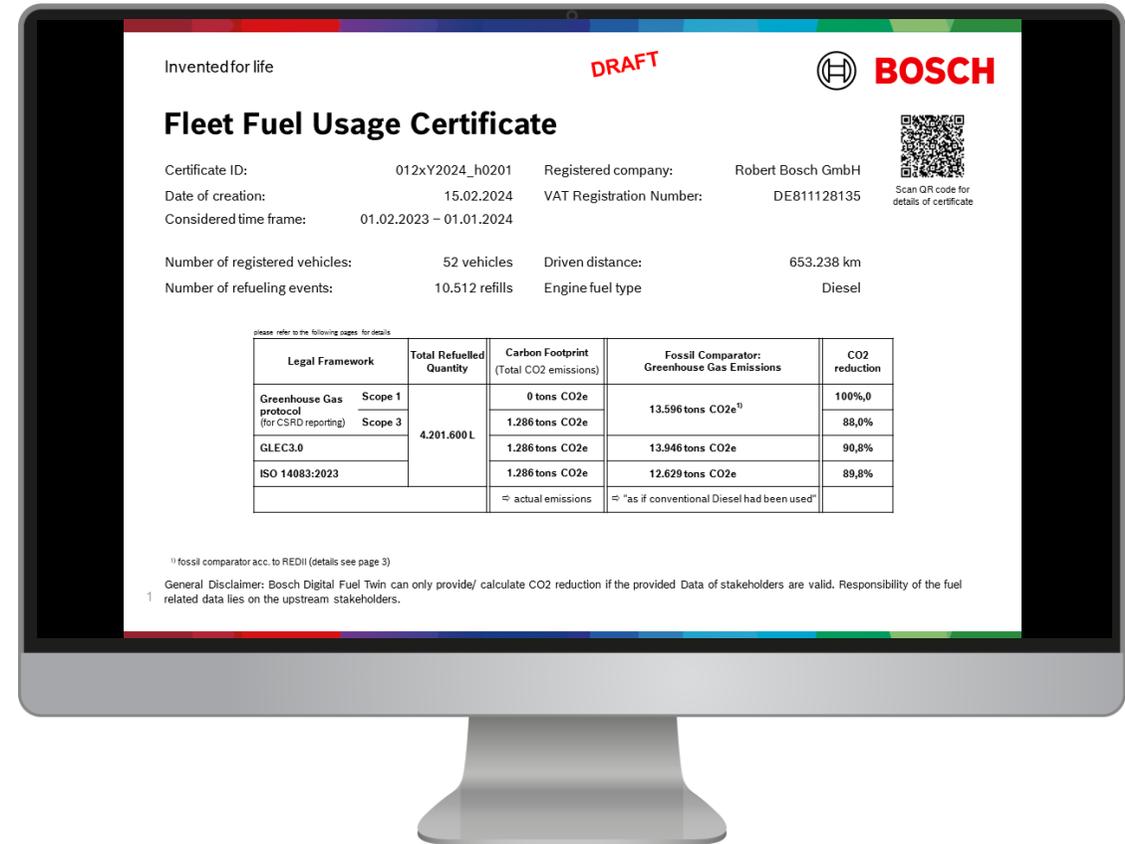


CO₂ information from the fuels industry plus



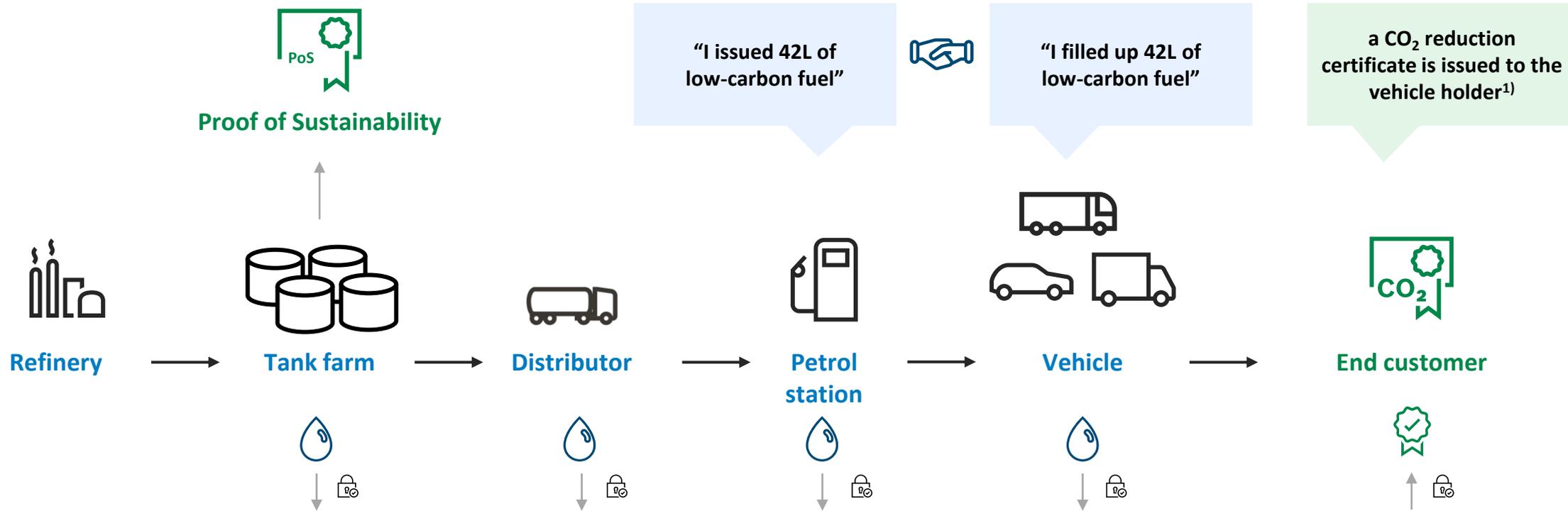
Consumption information from vehicles

Bosch is able to provide fuel usage certificates showing the actual **CO₂ reductions**, when renewable fuels are used



Bosch Digital Fuel Twin Platform (DFT)

Working Principle



Digital Fuel Twin (DFT)

Working Group on Monitoring Methodologies for CO₂ neutral Fuels



Benefits of a digital Fueling Monitor

- Tamper proof solution
- vCNF as SW variant – „Bit flip“
- Enabler for efficient measures to help decarbonize mobility sector



Fueling Monitor (100% digital solution)

Digital Handshake: vCNF ↔ DFT

Secure Data Space

vCNF Request:

I am a vCNF and claim
"I've refueled 42L CNF!"



vCNF

DFT Acknowledgement:

Plausibility check with fuel station
data and confirmation
"I confirm 42L CNF have been
refueled!"



CNF station

* CNF – Carbon Neutral Fuel

Digital Fuel Twin (DFT)

Customer benefit

In the next years, companies will need to comply with more and more CO2 reporting duties



Sustainability
Report
(CSRD)



EU
Green Claims
"green washing"
lawsuit

... due to
legal duties

offer for public
contract



... for offering
products or
services to **public**
or **private**
contractors



My Bank
application for
financing



to my
Investor
annual
report

... for **banks and**
investors

Reliable, verifiable, audit-
proof, easily accessible
CO₂ tracking and
reporting as business
success factor

for products



I was transported
100% carbon-neutrally... right up to
your DIY shop

and services



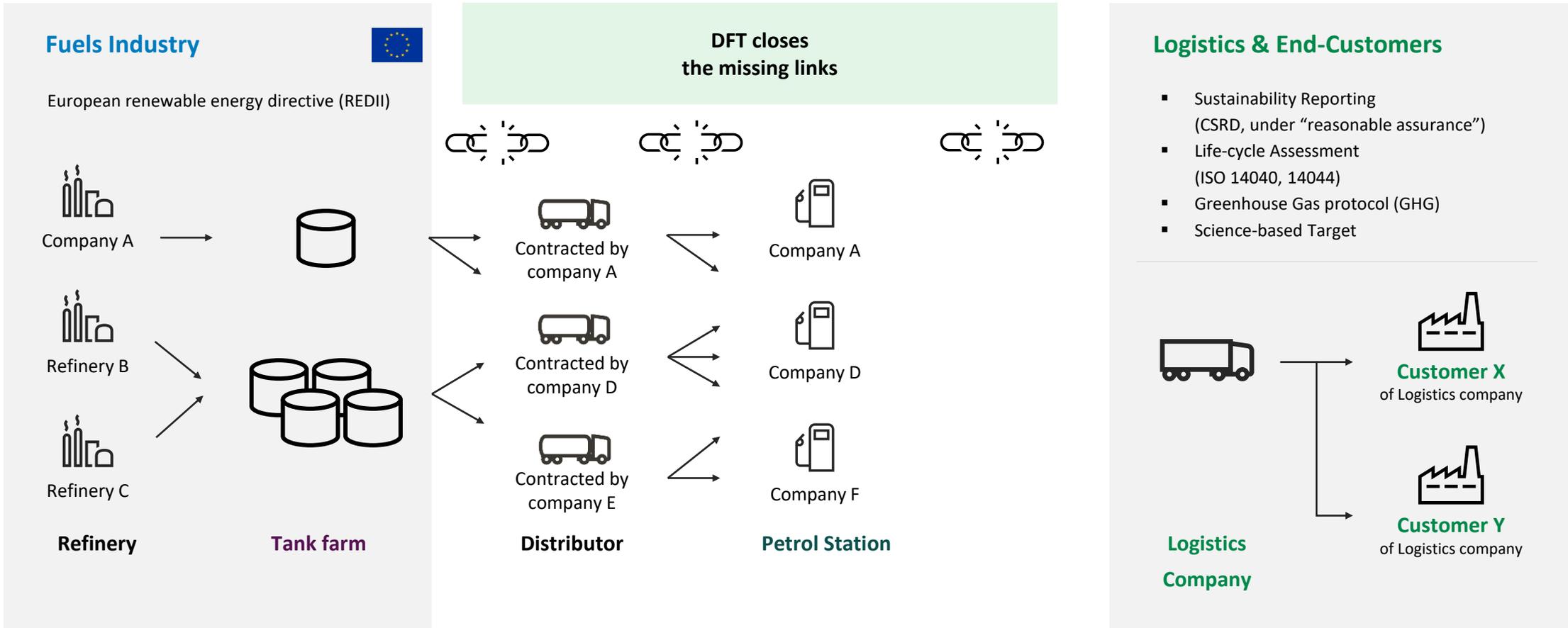
CO₂ reduction
instead of compensation
with emission certificates



... in **Sales,**
Marketing
and
Advertising

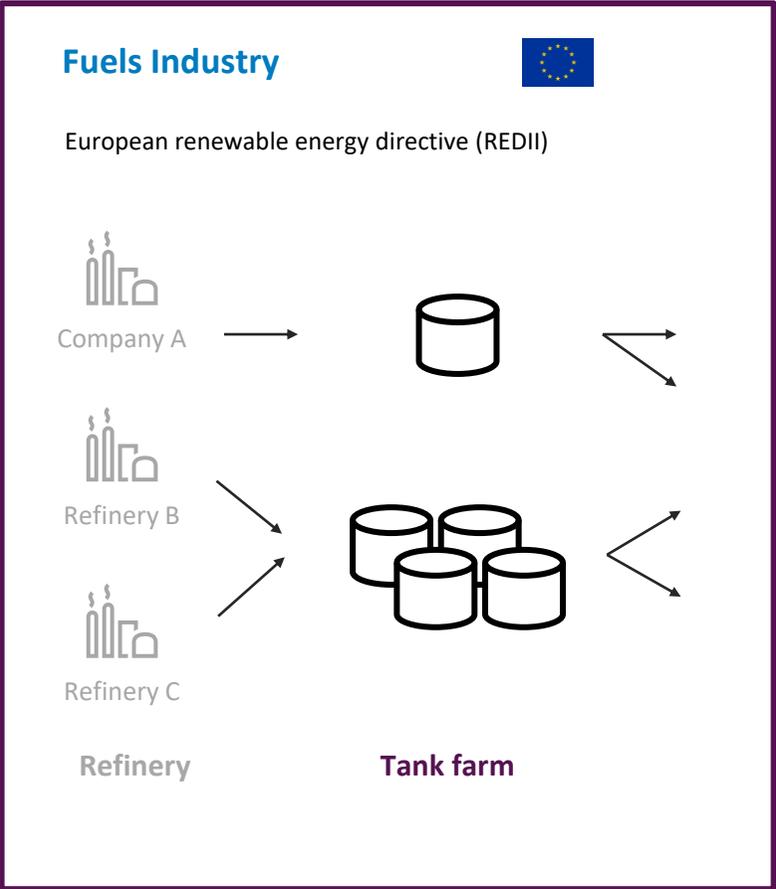
Bosch Digital Fuel Twin Platform (DFT)

DFT bridges the gaps between regulation in 2 domains



Bosch Digital Fuel Twin Platform (DFT)

Value proposition to Fuel Producers



 **Increase sales with low carbon fuel (LCF)**

The customer's willingness to buy low carbon fuels strongly increases, if the resulting CO₂ reductions can be made accountable in his sustainability report.

 **Enhance fuel with proof of sustainability**

The Bosch Digital Fuel Twin enriches the selling of renewable fuels with sustainability information, showing the CO₂ reduction compared to fossil fuels.

 **Certification of CO₂ benefit**

To fuel station customers: a certificate is provided, so they can make CO₂ reductions accountable in sustainability reports.
⇒ a market pull is created from end customers

 **Low and flexible platform costs**

Only small capital investment is required upfront (e.g. standardized API).
Ecosystem and infrastructure are managed by Bosch.

 **Supports achieving Green House Gas (GHG) quota**

Increasing sales of low carbon fuels helps to reach the GHG quota and avoids potential penalty of compensation cost.
Enabler to achieve ETS3 as of 2027 (cap & trade).

 **Fast time to market**

Solution will be available from Q1.2025.
International concept demonstration starting in Q4.2024.

We help you to sell more low carbon fuel.

A decorative header consisting of a series of overlapping, semi-transparent geometric shapes in various colors: red, purple, blue, cyan, and green, creating a modern, abstract pattern.

Digital Fuel Twin Platform

Tour-de-Europe Roadshow

Digital Fuel Twin (DFT): Tour-de-Europe Roadshow 2025 advocacy campaign

1: ICE – Internal Combustion Engine



Joint (marketing) approach by Fuels Europe members with Bosch and OEM vehicles.



Convince EU policy maker:
significant CO₂ reduction is possible today.

Minimum 1 **robust technology** is already **available today** for **carbon neutral fuel vehicle only** in 2035 ff.



Target group

1. **advocacy campaign towards EU policy maker**
2. Press
3. General public ⇨ to create momentum.



Rules

- Roadshow budget is reserved for advocacy towards political decision makers
- Brand marketing activities are to be funded by each brand for themselves

Key benefits

Showcase CO₂ reduction:
>90 % with specific routes
>60 % with individual routes



Investigate density need for fuel station **network.**

Prove that **CO₂ reduction** of current fleet can be achieved **today.**

Prove that solution is **tamper proof** and fitting to EU requirements.



Roadshow
across Europe



to **demonstrate today's usability** of low carbon fuel

with **low-cost vehicle technology**

Digital Fuel Twin | Tour-d'Europe Roadshow

Fuels Europe to Lead Marketing and Advocacy

HVO type coverage based on:
<https://efuelsnow.de/tankstellen-karte>

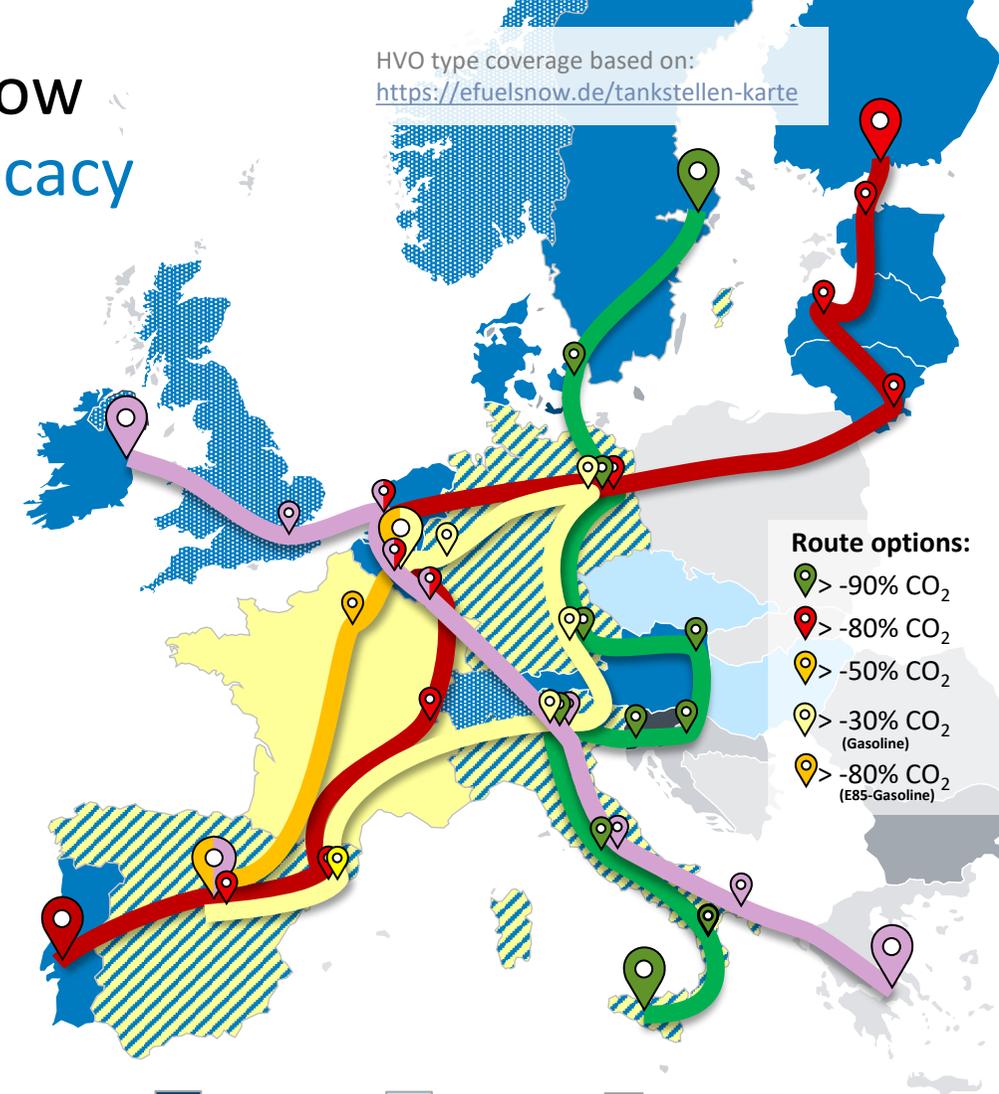
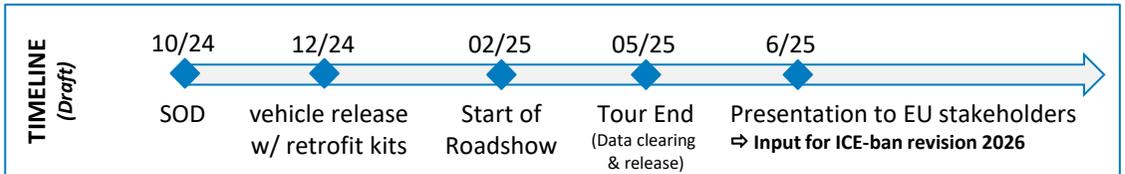
Tour goals

- 1. Prove significant CO2 reduction achievable today with combustion engines**
 Tour should cover all countries with low-carbon fuels (LCF) or fossil fuels to show CO₂-reduction achievable today in mixed fuel use
- 2. Prove that every vehicle can be digitally monitored**
 First technical solution exists for fueling monitor of CNF-only vehicles¹⁾

Contribution from Vehicle OEMs and Fuel Suppliers



- **PC and CV vehicles** with Bosch hardware retrofit-kit - Diesel (HVO100 released) and Gasoline (possibly w/ E85)
- **Data access and support** by vehicle experts for SW update
- **DFT onboarding** of Fuel Supply Chains across Europe
- **Engineering cost contribution to Bosch** to reach demonstration readiness and roadshow data analysis
- *Info: PR separately by associations (FuelsEurope & co.)*



¹⁾ CNF: Carbon-neutral vehicles



Digital Fuel Twin (DFT)

Thank You

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**Sustainable
Mobility & Transport
with
Digital Fuel Twin**