Hydrogen in EU Transport Policy

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Policy-driven Research and Innovation

- 20% CO₂ emissions from transport by 2030
  - Global solutions to reduce emissions (IMO, ICAO)
  - Polluter pays principle
  - Modal shift

DECARBONISATION

INNOVATION

DIGITALISATION

GLOBAL LEADERSHIP

INVESTMENT
  - Innovative financing mechanisms (EFSI)
  - Infrastructure investment (CEF)
  - Strategic Research and Innovation

CEF €24 bn for 2014-2020

PEOPLE
  - Safety and Security
  - Passenger Rights
  - Jobs

Halving road deaths by 2020

deployment of connected vehicles on European roads by 2019
  - Intelligent Transport Systems (ERTMS, SESAR, VTMIS, RIS)
  - Collaborative Economy
  - Drones

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Transport to become the largest CO₂ emitter after 2030 in case of non-action.

- Road transport main CO₂ emitter
  - currently 72%, of which 53% from cars/LDVs.
- Average passenger car emissions decrease in the medium term.

Source: Modelling suite for EU Reference Scenario 2016
Main EU policies on low emission Road transport

- **Clean Vehicles Directive (2009)**
  - Promote / incentivise the market for clean and energy-efficient road vehicles

- **Transport White Paper (2011)**
  - Long-term EU policy targets

- **Alternative Fuels Infrastructure Directive (2014)**
  - Minimum infrastructure to be deployed in each Member State

- **Low Emission Mobility Strategy (2016)**
  - Clean vehicles: type approval, emission testing, standards
  - Alternative fuels: production/use, infrastructure, electromobility
  - Transport management: digitalisation, pricing, multimodality

- **Clean Mobility Package (2017)**
  - New CO2 standards to help manufacturers embrace innovation and supply low-emission vehicles to the market (incl. targets for 2025 and 2030 to kick-start/de-risk investments)
  - Revision of Clean Vehicles Directive
  - EU Battery Alliance / Action Plan for a competitive, sustainable EU battery "ecosystem"

- **Clean Planet for all Communication (2018)**
  - EU’s long-term strategic vision for a prosperous, modern, competitive, climate neutral economy

- **Regulation on emission standards for new passenger cars (2019)**
  - New CO2 emission standards for new passenger cars until 2030
### Selected EU policy targets for clean mobility

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Target</th>
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<tbody>
<tr>
<td>2050</td>
<td>&lt;2°C to 1.5°C global temperature rise vs. pre-industrial levels (cf. Paris Agreement)</td>
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<td>2050</td>
<td>Net-zero GHG emissions (climate-neutral Europe)</td>
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<tr>
<td>2050</td>
<td>-60% transport GHG emissions (vs. 1990)</td>
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<tr>
<td>2040</td>
<td>-60% reduction in GHG emissions (vs. 1990)</td>
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<tr>
<td>2030</td>
<td>-40% reduction in GHG emissions (vs. 1990)</td>
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<tr>
<td>2030</td>
<td>-20% transport GHG emissions by 2030 (vs. 2008)</td>
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<tr>
<td>2030</td>
<td>-37.5% lower CO2 car emissions of manufacturer fleets (vs. 2021)</td>
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<tr>
<td>2025</td>
<td>-15% lower CO2 car emissions of manufacturer fleets (vs. 2021)</td>
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<tr>
<td>2020</td>
<td>95 g CO2/km average emission for new cars (c. 4.1 l petrol/100 km) – derogation targets for “niche”/“small” manufacturers</td>
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Amendment of Directive 2009/33 on the promotion of clean, energy-efficient road transport vehicles

Objectives:

- Create additional demand/market for vehicles with particularly low CO2 and air pollutant emissions, thereby complementing the CO2 standards ('push and pull')

- Improve air quality in cities, reduce CO2 from captive fleets, use procurement as innovation driver

- Current Directive is not effective because rules are too complicated and leave too much flexibility to Member States

Amendments to:

- Cover all relevant procurement practices
- Provide clear long-term signals to the market
- Make provisions simple and effective
Cover all relevant procurement practices:

• vehicles rented, leased, hire-purchased by public bodies
• broader number of public service contracts relevant

Provide clear long-term signals to the market + make provisions simple and effective

• CO2/air pollutants emission threshold for light-duty vehicles; mandate to COM to adopt threshold for HDV when CO2-legislation in place; for now: definition from Directive 2014/94/EU

• Minimum procurement targets at MS level for 2025 and 2030, differentiated by Member State (GDP + urban population)

• Technology neutrality

• In force since 02/08/2019
The Alternative Fuels Infrastructure Directive 2014/94/EU

<table>
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<tr>
<th>Fuel Type</th>
<th>Requirements</th>
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<tr>
<td><strong>Electricity</strong></td>
<td>Publicly accessible recharging points to be built by 2020 to allow the circulation of EVs Union-wide, both in urban and sub-urban areas, as well as by 2025 on the TEN-T Core Network.</td>
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<tr>
<td><strong>Liquefied Natural Gas (LNG)</strong></td>
<td>Publicly accessible Natural gas/bio-methane refuelling points for road vehicles and ships/vessels, with common standards, on the TEN-T Core Network;</td>
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<tr>
<td><strong>Compressed Natural Gas (CNG)</strong></td>
<td>Publicly accessible refuelling points to allow the circulation of CNG vehicles Union-wide, both in urban and sub-urban areas, by 2020, as well as on the TEN-T Core Network, by 2025;</td>
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<tr>
<td><strong>Hydrogen</strong></td>
<td>Sufficient number of publicly accessible refuelling points, with common standards, in the Member States who opt for hydrogen infrastructure.</td>
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Requires a minimum infrastructure to be implemented through national policy frameworks for:

Member States national policy frameworks have been assessed;
Implementation:

- By now, with some delays, almost all Member States have transposed Directive 2014/94/EU. The focus is now on the implementation.

- 14 Member States have included targets and measures for supporting hydrogen in their national policy frameworks under this Directive (for hydrogen, the inclusion is optional).

- By 18 November 2019, Member States have to report on the progress made with the implementation of their National Policy Frameworks. The Commission is required to report by 18 November 2020 back to Council and Parliament on the status of implementation.
Implementation:

• If the Commission considers it appropriate, it is entitled under Art 10 (5) of the Directive to propose a review by 31 December 2020.

• The Commission stands by its principle of technology neutrality, as also noted in the proposal for a long-term climate strategy of the EU of 28 November.

Evaluation:

-The evaluation is ongoing and will draw on the assessment of Member States Status update report due 18 November 2019.

-Based on the outcome of the evaluation, the Commission will determine whether a revision of the Alternative Fuels Infrastructure Directive is warranted, by means of an Impact Assessment
National Policy Plans on Hydrogen

• The directive foresees the use of common technical specifications for recharging and refuelling stations and paves the way for setting up consumer information on alternative fuels, including a price comparison methodology.

• The deployment of refuelling infrastructure for hydrogen-powered fuel cell electric vehicles is optional under directive 2014/94/EU. However, of the Member State plans received, 14 include hydrogen and some Member States have defined ambitious targets for hydrogen infrastructure.
In force since 13/08/2019
Standards concerning Hydrogen Refueling points, quality of dispensed Hydrogen, connectors
Hydrogen in Transport

- Hydrogen is the most promising decarbonisation option for trucks, buses, ships, trains, large cars, and commercial vehicles since it provides sufficient power for long ranges and high payloads.
- Hydrogen refueling infrastructure has significant benefits at scale by balancing the grid through seasonal storage of variable renewable energy.
- Hydrogen is a very suitable option for larger passenger ships, inland ships, as well as potentially for cruise ships. Hydrogen powered trains are already on tracks, servicing regional routes by replacing diesel powered trains.
Hydrogen in Transport

- Transport is thus a key end-user for Hydrogen technologies and Hydrogen is an important technology for its path towards the decarbonisation of all modes of transport.
- FCH technology has much advanced over the last 20 years. However, there is still a need to better communicate the advantages of FCH technologies to the wider public and the role they can play in the European energy transition.
Thank you for your attention

Find out more:

- **STRIA / TRIMIS**: [https://trimis.ec.europa.eu/](https://trimis.ec.europa.eu/)
- **EU Funding Portal**: [https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home](https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home)