



2021 STA ANNUAL CONFERENCE & INNOVATION AWARDS

Decarbonising transport:

The role of transport infrastructures

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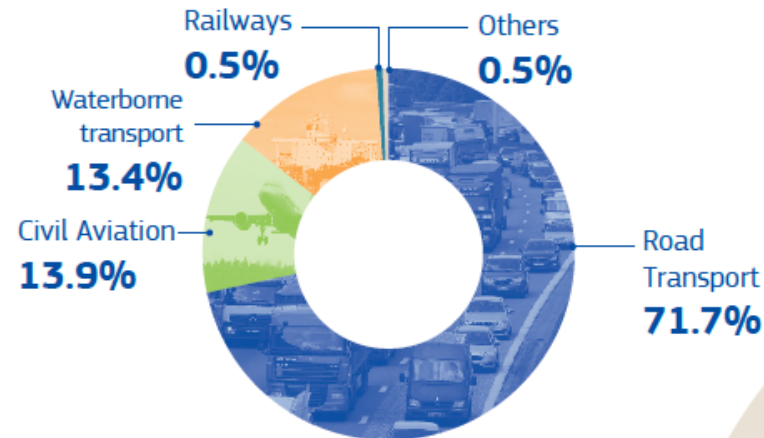
Europe must reduce emissions from transport faster

Transport accounts for a quarter of the Union's greenhouse gas emissions and these continue to grow. The Green Deal seeks a **90%** reduction in these emissions by **2050**.



90% reduction
greenhouse gas emissions in transport by 2050

Share of Greenhouse Gas Emissions by Mode of Transport (2017)



Source: Statistical pocketbook 2019

Go digital



- **Automated mobility and smart traffic management systems** will make transport more efficient and cleaner.
- **Smart applications** and **'Mobility as a Service'** solutions will be developed.

Sustainable & Smart Mobility Strategy 2020

Vision for the future of European transport and mobility

KEY ELEMENTS:

- Three objectives: making the European transport system more sustainable, smart and resilient
- 10 flagship areas with key milestones
- Action plan with a list of concrete policy actions
- Comprehensive Staff Working Document

Flagship areas

- Flagship 1 - Boosting uptake of zero-emission vehicles, renewable & low-carbon fuels and **related infrastructure**
- Flagship 2 - Creating **zero-emission airports and ports**
- Flagship 3 - Making interurban and urban mobility more sustainable and healthy
- Flagship 4 - Greening freight transport
- Flagship 5 - Pricing carbon and providing better incentives for users

Alternative Fuels Infrastructure Regulation

- Electricity Recharging LDV
 - Fleet based target, expressed in power installed (kW) per registered electric vehicle
 - Distance based target along TEN-T core and comprehensive network (maximum distance and power)
- Electricity Recharging HDV
 - Distance based target along TEN-T core and comprehensive network (maximum distance and power)
 - Safe and Secure parkings (overnight recharging)
 - Urban nodes (in particular for urban delivery)
- Hydrogen Refuelling, HDV / LDV
 - Distance based target along TEN-T core and comprehensive network (150 km maximum distance, 2t capacity, 700 bar + liquid ever 450km)
 - Urban nodes (in particular for urban delivery)
 - Currently ~120, targets will require about 700 stations.
- Reference to AFIR requirements (alternative fuels) in the proposes TEN-T regulation



Horizon Europe Work Programme (1)

HORIZON-CL5-2021-D5-01-03: System approach to achieve optimised Smart EV Charging and V2G flexibility in mass-deployment conditions (2ZERO)

- Definition of the optimal smart charging concepts able to cope with several million of Electric Vehicles (EV) deployed in different environments.
- Research and innovation action with budget 25M€

STRIA – Strategic transport research and innovation agenda 2020

Considerations for transport infrastructure decarbonisation:

- **GHG emissions** measured over a piece of infrastructure's entire life-life-cycle are **not routinely considered at the planning stage for new infrastructure**, and are **rarely considered when it comes to upgrades of existing infrastructure**.
- The infrastructure-design phase often considers GHG emissions only for construction. **The carbon intensity of operation, maintenance and eventual decommissioning are not routinely considered.**
- There is often a view that infrastructure designers can do little to influence the overall emissions from the operation phase of the infrastructure. **Methodologies are needed to support the most efficient use of the money obtained from infrastructure charges**, and to incentivise measures aimed at promoting greener mobility.

Research priorities in STRIA

TOPIC	Effective decarbonisation over the whole life-cycle		
Why is this a priority?	<p>The measurement of carbon expended in the construction, maintenance, and deconstruction or recycling of infrastructure is underdeveloped. It is necessary to build, design and operate infrastructure aimed at minimising carbon emissions over its life-cycle. While whole life-cycle costs are commonly considered for financial purposes, it is unusual to do so for carbon.</p>		
Actions	G.1.	Analyse the contribution of transport infrastructure to a resilient energy union and a forward-looking climate change and climate adaptation policy.	P
	G.2.	Develop a better understanding of carbon trade-offs between investing carbon in excess infrastructure capacity and the carbon used by traffic movements delayed by congestion or disruptions.	P
	G.3.	Develop the required standards for implementing trade-offs with CO₂ emissions for the whole life-cycle (taking into consideration the planning, design, construction, operation and decommissioning of infrastructures).	P
	G.4.	Develop design criteria for infrastructure aimed at minimising carbon emissions over the infrastructure's life-cycle , taking into consideration the carbon intensity of operating, maintaining and decommissioning infrastructure and the sustainability labelling of transport infrastructures, in line with the objectives of energy union.	P/T
	G.5.	Analyse how emissions derived from the maintenance of road pavements can be reduced and promote such a reduction.	P/T
	G.6.	Develop effective approaches to reduce the number and duration of construction sites of infrastructure to improve traffic movements ; analyse the impact of emissions derived from works during the infrastructure's lifetime.	P/T
	G.7.	Analyse the positive impact and further development of materials which absorb pollutants in infrastructure construction and management (e.g. concrete, cooling pavements, etc.)	P/M

Horizon Europe Work Programme (2)

- HORIZON-CL5-2022-D6-02-06: Smart and efficient ways to construct, maintain and decommission with zero emissions from transport infrastructure
- A holistic approach to lowering transport infrastructure environmental impact, which takes into account the whole life cycle of transport infrastructure; carbon-neutral construction, maintenance, operation and decommissioning of the infrastructure
- Innovation action with budget 10M€

Thank you



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