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*Serving society
Stimulating innovation
Supporting legislation*

Energy Union EU transport strategy

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(with contributions from DG MOVE)

www.ec.europa.eu/jrc

Clean Power for Transport Package



The 2013 CPT Package: a **strategy** for the long term substitution of oil in all transport modes with alternative fuels:

- ✓ Electricity
- ✓ Hydrogen
- ✓ Liquid biofuels
- ✓ Synthetic and paraffinic fuels (e.g. Gas-To-Liquid)
- ✓ Liquefied Petroleum Gas (LPG)
- ✓ Natural gas, including bio-methane, in gaseous (CNG) and liquefied form (LNG)

MODE		ROAD PASSENGER			ROAD FREIGHT			WATER			RAIL	AIR
		 			  HGV			 				
Range		Short	Medium	Long	Short	Medium	Long	Inland	Short-sea	Maritime		
FUEL TYPES	LPG											
	Natural gas	LNG										
		CNG										
	Hydrogen											
	Electricity											
	Biofuels (liquid)											

Directive 2014/94

Alternative fuels 1/2



A minimum infrastructure to be implemented through national policy Frameworks (NPFs) for:

1. **Electricity:** 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 on the TEN-T Core Network.
2. **Liquefied Natural Gas (LNG):** publicly accessible Natural gas/bio-methane refuelling points for road vehicles and ships/vessels, **with common standards**, on the TEN-T Core Network;
3. **Compressed Natural Gas (CNG):** publicly accessible refuelling points to allow the circulation of CNG vehicles Union-wide, both in urban and sub-urban areas, as well as on the TEN-T Core Network;
4. **Hydrogen:** sufficient number of publicly accessible refuelling points, with common standards, **in the Member States who opt for hydrogen infrastructure.**



Electricity supply for transport [Article 4]

- ❑ Member States shall ensure, through their NPFs, that **an appropriate number of recharging points accessible to the public** are put in place **by 31 December 2020**, in order to ensure that electric vehicles can circulate **at least in urban/suburban agglomerations**.
- ❑ MS shall also take measures within their NPFs to encourage the deployment of **recharging points not accessible to the public**.
- ❑ **1 recharging point/10 cars indicated**. An appropriate number of recharging points accessible to the public should be installed, in particular at **public transport stations, such as port passenger terminals, airports or railway stations**.
- ❑ **Publicly accessible data on the geographic location** of the recharging points and fair price comparison for electricity supply (article 7).



Common EU standards for EVs recharging

- **A common plug for EVs in Europe "Type 2 "** for slow and fast charging stations. Compatible with national safety requirements (shutters). Chosen by ACEA, Eurelectric and CLEPA.
- Normal and high power recharging points for EVs, **as from 3 years of the date of entry into force of the Directive**, will **at least** comply with the technical specifications set out in Annex III. Do not ban other technologies!
- European standard for **wireless** recharging, battery swapping for motor vehicles, recharging points **for L-category motor vehicles** and **electric buses** will be pursued.

Next steps: interoperability (data formats and protocols) and data accessibility

Type 2



Combo Type 2



Clean Transport Follow-up...



- ❑ **Guidelines to help Member States to prepare their National Policy Frameworks** - with data collection, best practises and recommendations - available online http://ec.europa.eu/transport/themes/urban/studies/urban_en.htm
- ❑ **Fuel price comparison** – work on-going
- ❑ **Sustainable Transport Forum** --> to tackle specific issues such as **electro-mobility market of services**, interoperability and **alternative fuels in cities**
- ❑ **Standardisation mandate to the CEN/CENELEC** (adopted in March 2015) - work on-going (e.g. recharging for e-buses)
- ❑ **The EU Alternative Fuels Observatory** - www.eafo.eu



Transport in the Energy Union package - February 2015

- ❖ Continue "focus on tightening **CO₂ emission standards** for passenger cars and vans post-2020, and on measures to **increase fuel efficiency** and **reduce CO₂ emissions for heavy duty vehicles and buses**";
- ❖ "**Electrification of transport** is important to break oil dependency and to decarbonise transport, especially for road (short and medium distance) and rail transport."
- ❖ "The Commission will take further action to create **the right market conditions for an increased deployment of alternative fuels and to further promote procurement of clean vehicles**".



The EU Strategy on low-emission mobility – July 2016

Main elements:

- ✓ increasing the **efficiency** of the transport system
- ✓ speeding up the deployment of **low-emission alternative energy** (e.g. advanced biofuels, renewable electricity and renewable synthetic fuels)
- ✓ removing **obstacles to the electrification** of transport and moving towards zero-emission vehicles

Challenges



- ❖ **City logistics:** *Frevue* (FP7 project for electrification of urban freight) + EU guidance documents in preparation on city logistics and access regulation.
- ❖ **Buses and public transport :** *ZeEUS* (FP7 demonstration project on urban electric buses) + *ELIPTIC* (H2020)-> **platform on e-buses for market take up**
- ❖ **Passengers cars and L-category vehicles :** *Green eMotion* (FP7 project on electrification of passenger cars), *Dynamo* (Civitas FP7)-> **GEAR 2030**
- ❖ **Shore-side electricity** facilities for maritime and inland waterway, especially in nodes.
- ❖ **Continue rail electrification**, improving **powertrains (EGVI)** and **electrify other modes:** aviation, boating...
- ❖ **Smart energy management:** V2G, renewable energy and smart grid integration (grid tariffs)

Funding research and infrastructure



❑ HORIZON 2020: R&D funding

- Urban mobility = CIVITAS label (66.5 mEUR in 2015): electro-mobility topics
- Smart Cities and Communities (106 mEUR in 2015)
- SME transport fund: 58 mEUR (2016-2017)
- **Green Cars Initiative**, Fuel Cells and Hydrogen (PPPs)- > **GV calls : now with a price for the cleanest engine!**
- **ELENA – EIB facility**: technical assistance with EIB + **JESSICA** (sustainable urban-renewal projects).

❑ European Structural and Investment Funds

- ❑ TEN-T/CEF for innovation and urban nodes
- ❑ EFSI financial instruments -> **blending with grants !**

The European Fund for Strategic Investments (EFSI)



European
Investment
Bank

- €21 billion guarantee to leverage an extra financing capacity of €255 billion => total extra financing of €315 billion
- Cities and private promoters active in cities should engage with the EIB and the National Promotional Banks
- Investment Platforms will be created under the EFSI Regulations for certain countries and sectors, for example transport



- **EFSI guarantee** will enable the EIB to take riskier projects, e.g. smart urban mobility and alternative fuels projects
- **Research and innovation** is one of the key priorities, as is **urban mobility**.
- Innovative projects can also employ **financial instruments**, facilitated by investment platforms
- **Advisory Hub** : one-stop-shop / work together with a network of national promotional banks.
- **Regional hubs are likely to be created:**
<http://www.eib.org/eiah/index.htm>

An example: Clean Buses



- EIB and the European Commission – announced the creation of a new Clean Transport Financing Facility. facility to be ready for 2017.
- Clean (alternatively fuelled) buses to be a priority for investment.
- In parallel, DG MOVE is advancing discussions with cities, operators and manufacturers, to better match demand and supply.

Strategic Transport R&I Agenda (STRIA) 1/2



STRIA – the current exercise; 7 initial areas examined with experts and wider stakeholder community to:

- ☐ Identify **options** towards low carbon transport and mobility and an integrated transport system;
- ☐ Identify **options** to improve the **system's performance** (safety, security, competitiveness, environmental sustainability);
- ☐ Make best use of **digitisation** and new **mobility/logistics solutions**;
- ☐ Identify need for enablers and framework conditions **Take into account all sectors and all approaches (and identify individual potentials and possible priorities)**;

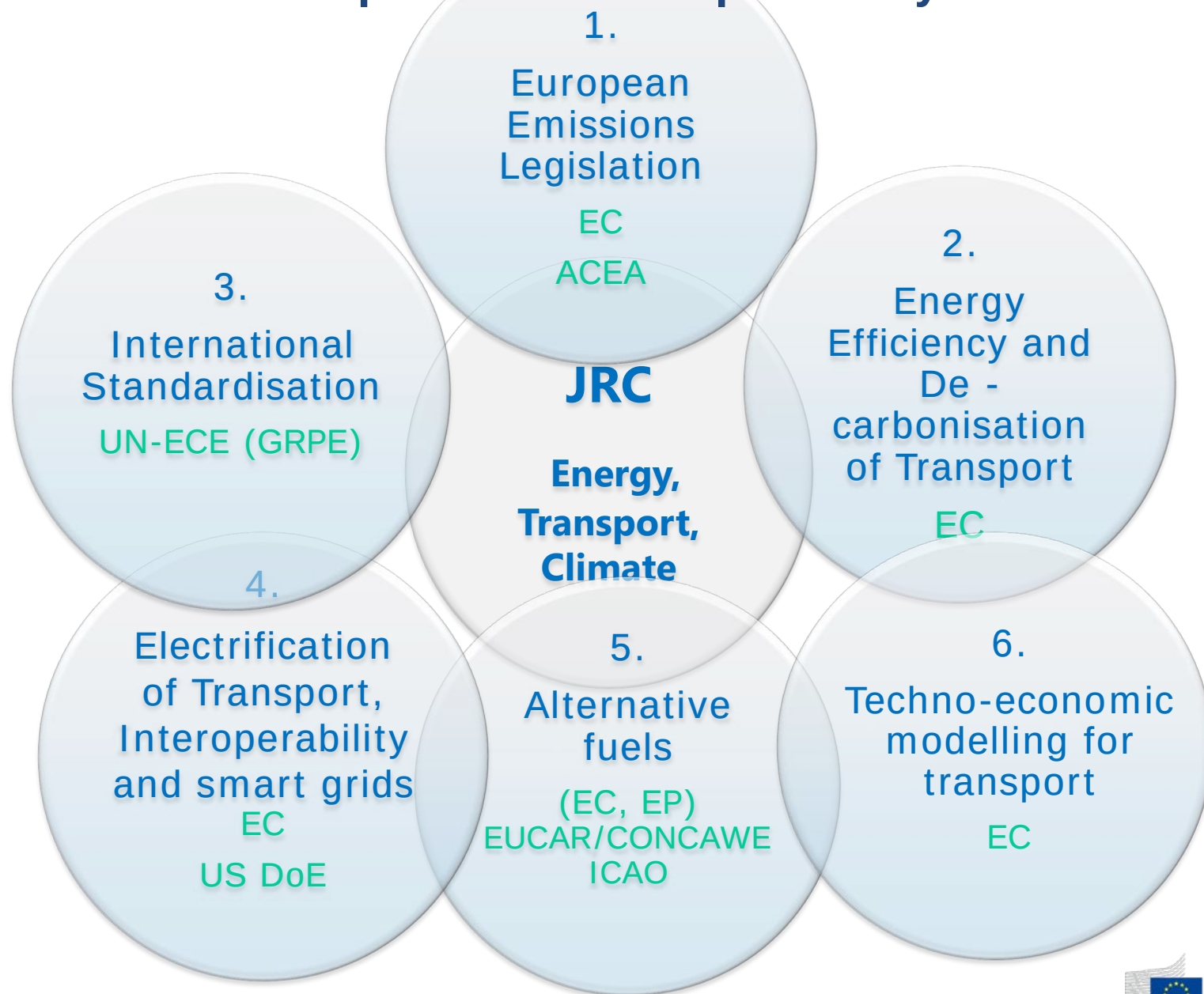
Strategic Transport R&I Agenda (STRIA) 2/2



The roadmaps

1. **Electromobility** -From framework conditions (recharging) to specific technologies (batteries, hybrid, powertrains); link to smart electricity grids;
2. **Alternative Fuels** -Renewable and non-renewable fuels; framework conditions, trade-offs and competitiveness;
3. **Vehicle design & manufacturing** -Optimised processes, new materials and capabilities;
4. **Connected & automated transport** -Technologies for system and vehicles /vessels; -Data handling and cyber-security;
5. **Infrastructure** -Enable transition to new capabilities and better system performance; better business models and lower costs for maintenance and optimisation of infrastructure;
6. **Network & traffic management** -From better modal networks to Intelligent and dynamic cross modal / system-wide network and traffic management;
7. **Smart transport & mobility services** -New, demand-based mobility services and logistics solutions; business models and impact on the system; -Urban solutions.

Overview of JRC activities and key partners on sustainable transport and interoperability



Electrification of Transport

EC/JRC - US DoE

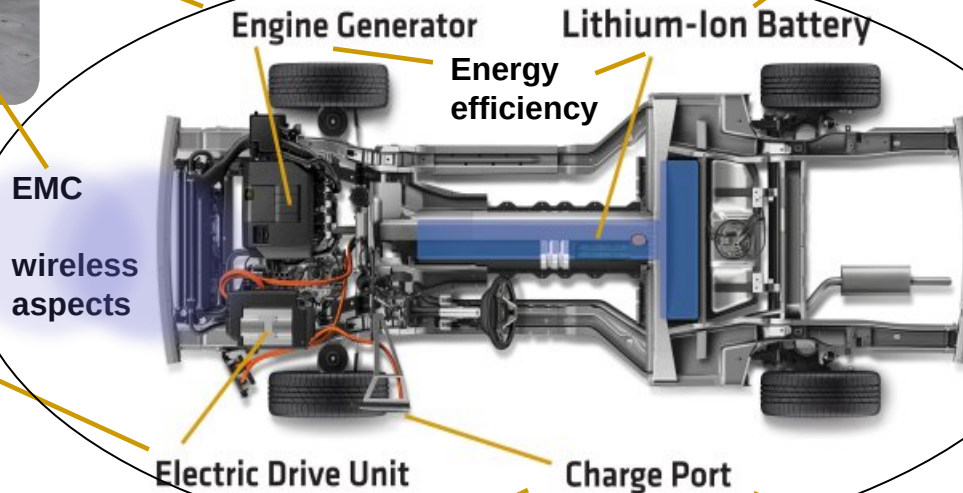
Vehicle tests



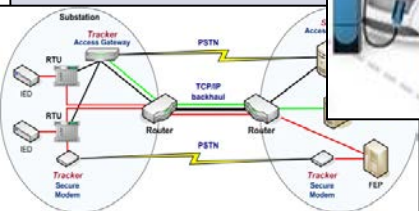
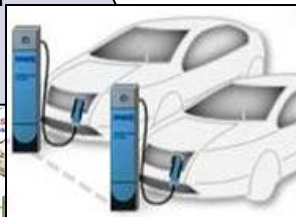
Deployment scenarios, Socio-economic modelling



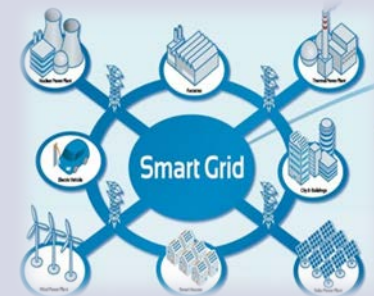
Batteries, components, new materials



ICT, smart grid for EVs



Interoperability



Electrification of Transport – Collaboration with US DoE and National Labs



Inauguration of the European Commission's Interoperability Centre in the presence of EC VP Šefčovič and Associate Deputy Secretary of the U.S. DoE John MacWilliams



JRC Integrated Electro-mobility modelling platform

SCENARIOS

INFRASTRUCTURE

**SYSTEM
IMPACTS**

**POLICIES, MARKET
AGENTS**

**TEMPORAL,
SPATIAL GRID
IMPACTS**

**ENERGY, POWER
SYSTEM, SOCIETY**





Thank you for your attention!



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