



The EU Framework Programme for Research and Innovation

# HORIZON 2020

Smart, green and integrated Transport

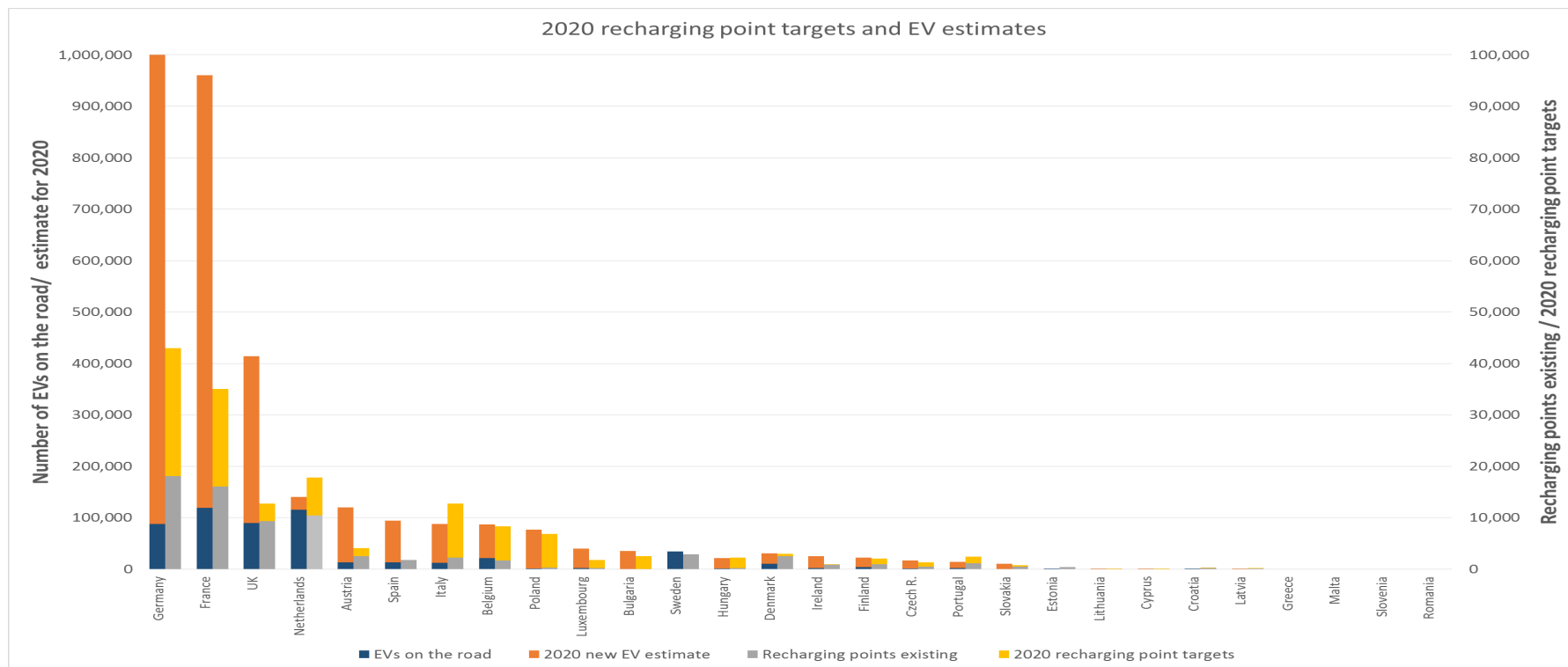
## **Implementation of the infrastructure Directive Support to deployment Transport Work Programme 2018-2020**



**Maurizio Maggiore  
European Commission  
DG RTD Transport Directorate**

## Analysis of NPFs - Electricity

- Estimated 2020 EV shares from 0.1% to 9.2% in the different MS.
- Current attainment level (ratio of current and 2020 estimated EV stock) 0.2-83%.
- Only seven NPFs define a target that would ensure at least one publicly accessible recharging point per 10 EVs for 2020 (from 5 in Latvia to 32)

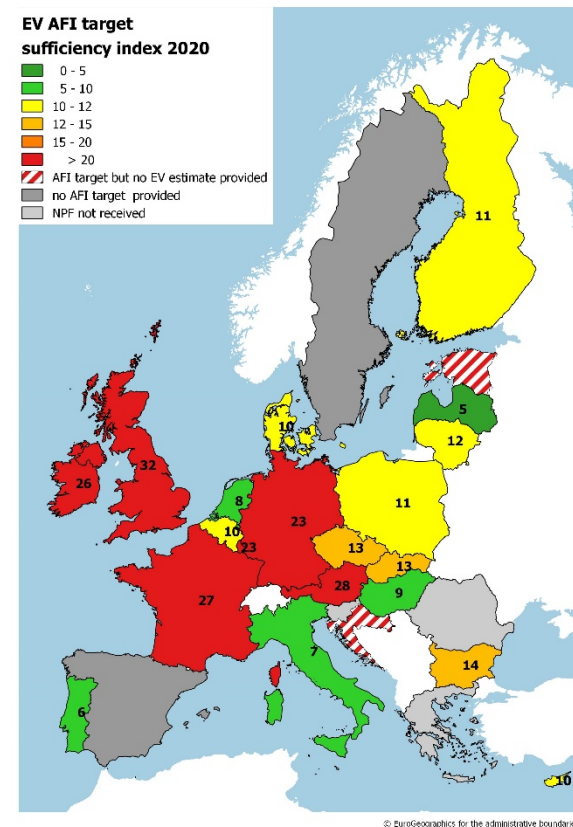
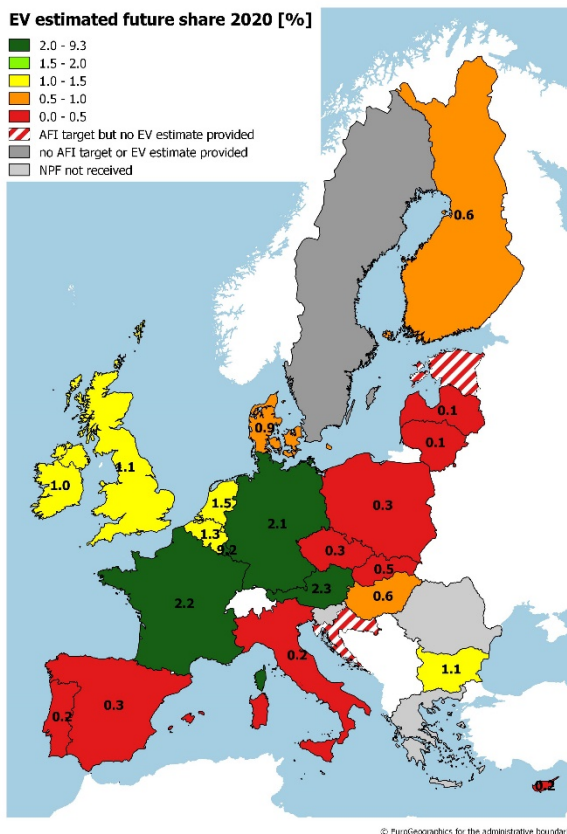


## Conclusions

- *NPFs are not coherent at Union level and are diverging in view of prioritising different alternative fuels.*
- *Very different ambition levels across MS, both in terms of projected future development of vehicles and infrastructure.*
- *Estimates and targets much lower than what used as a basis for the Directive (2014/94/EU).*
- *Even with low ambition, very few NPFs define sufficient corresponding targets for alternative fuels infrastructure.*
- *The adoption status and likely impact of support measures seems too low to ensure that national targets and objectives are reached.*
- *All this can lead to a market fragmentation at EU level and even within certain MS.*

## Analysis of NPFs - Electricity

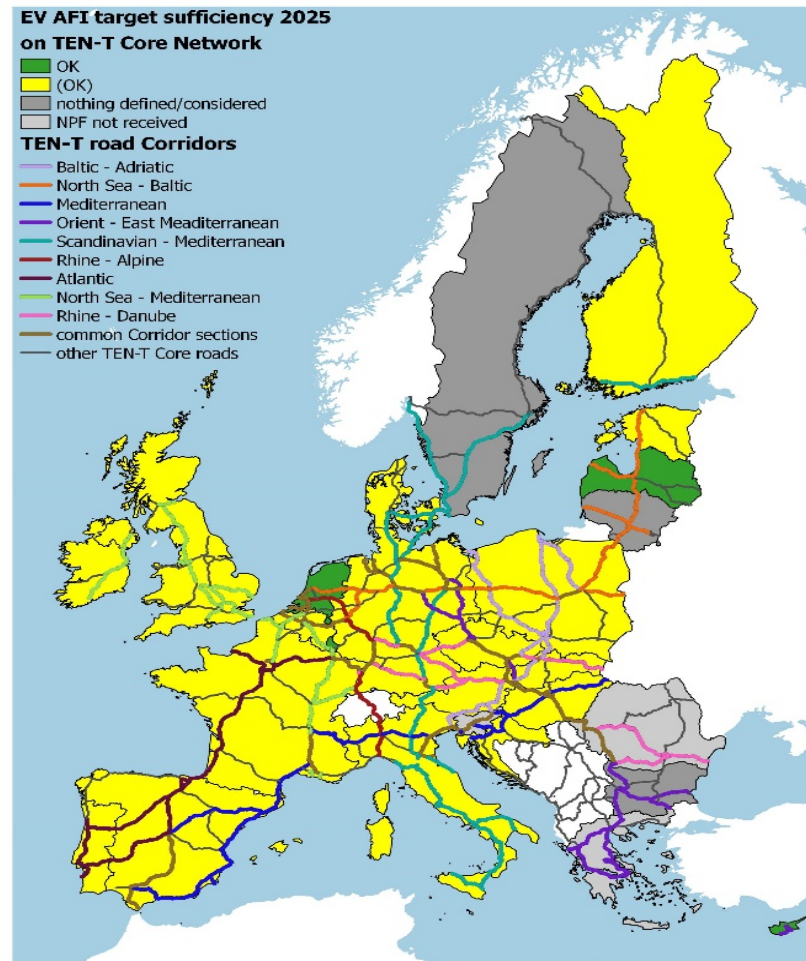
- *The current attainment level for the 2020 targets of publicly accessible recharging points ranges from 1% to 100%.*





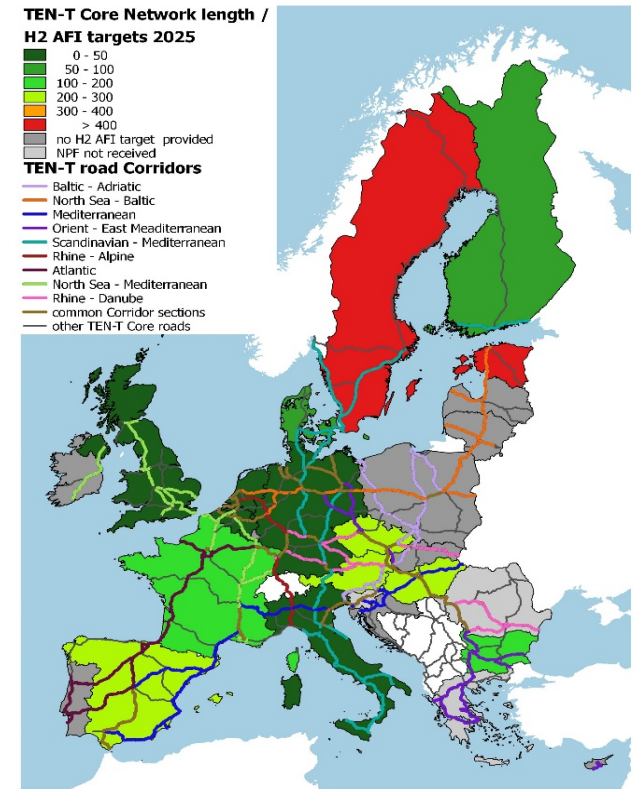
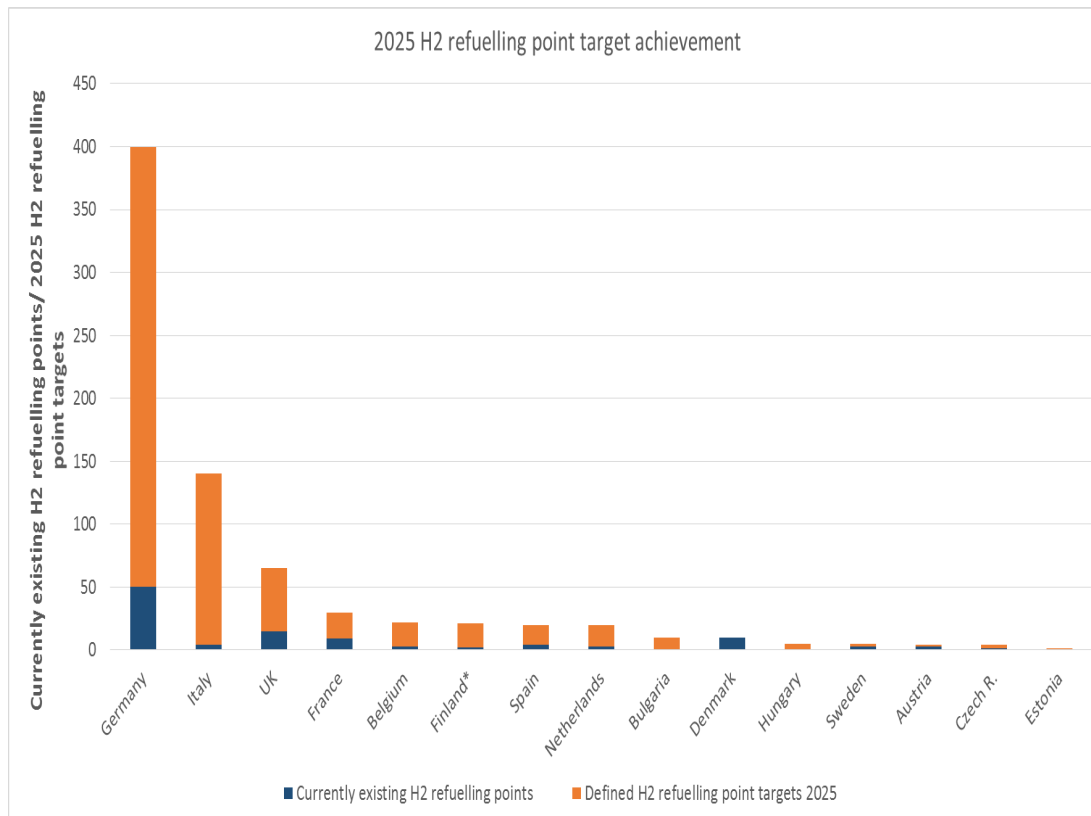
## Analysis of NPFs - Electricity

- *Much better results for the TEN-T core network*

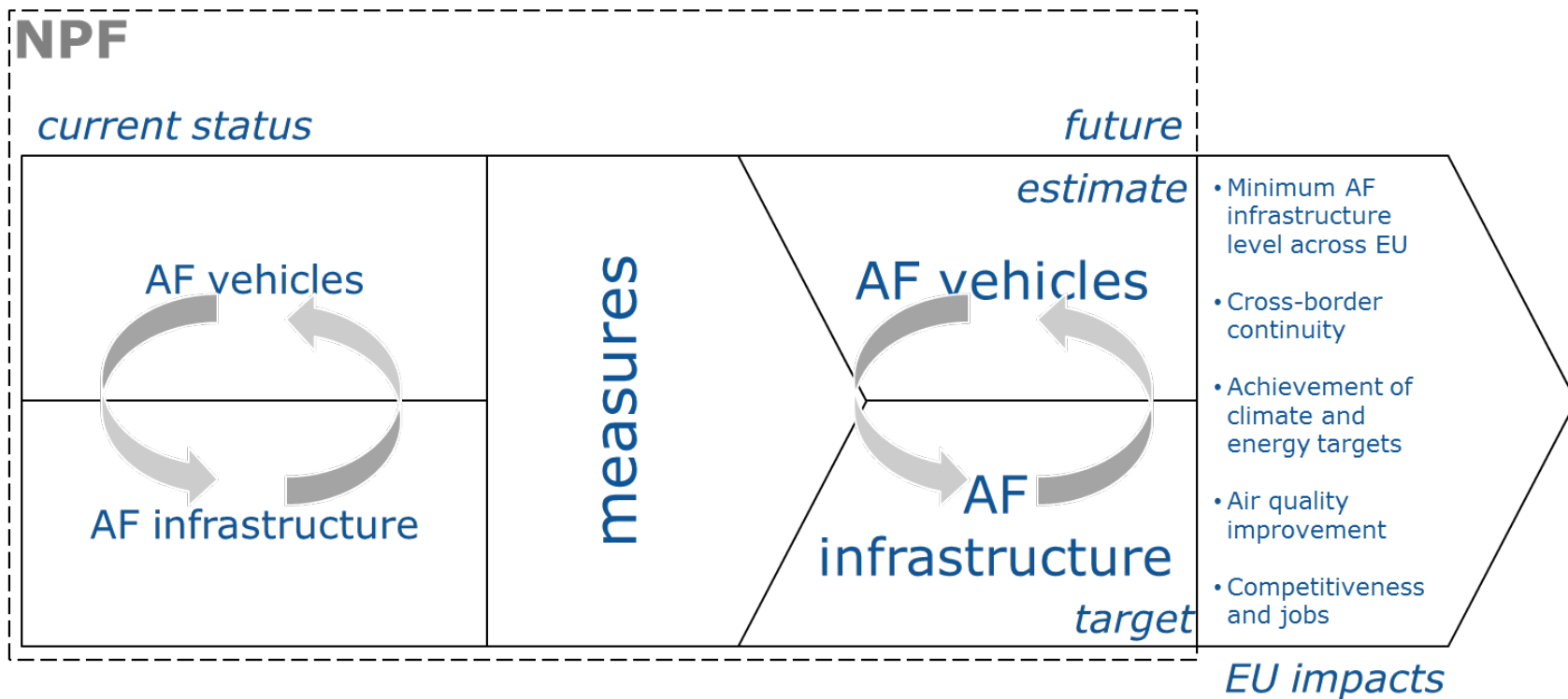


## Analysis of NPFs - Hydrogen

- Hydrogen infrastructure not mandatory
- 14 NPFs (Austria, Belgium, Bulgaria, the Czech Republic, Germany, Estonia, Spain, Finland, France, Hungary, Italy, the Netherlands, Sweden, and the UK) include it. Danish NPF discusses it but does not commit to targets.



## Interaction of various aspects covered in NPFs and resulting impacts



# TEN-T and Connecting Europe Facility

**This EU funding mechanism is supporting many Fast Charging networks**

➤ *In Austria and Italy*



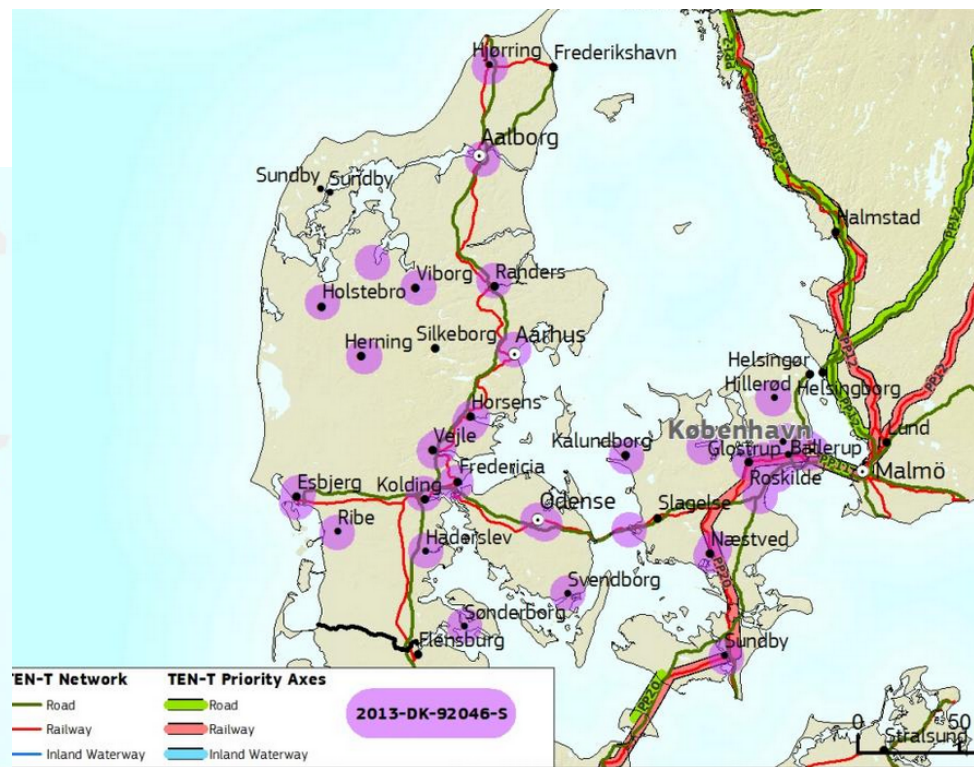
# TEN-T and Connecting Europe Facility

**This EU funding mechanism is supporting many Fast Charging networks**

➤ *In Scandinavian countries*



Action: 2014-EU-TM-0477-S



source: INEA

2013-DK-92046-S

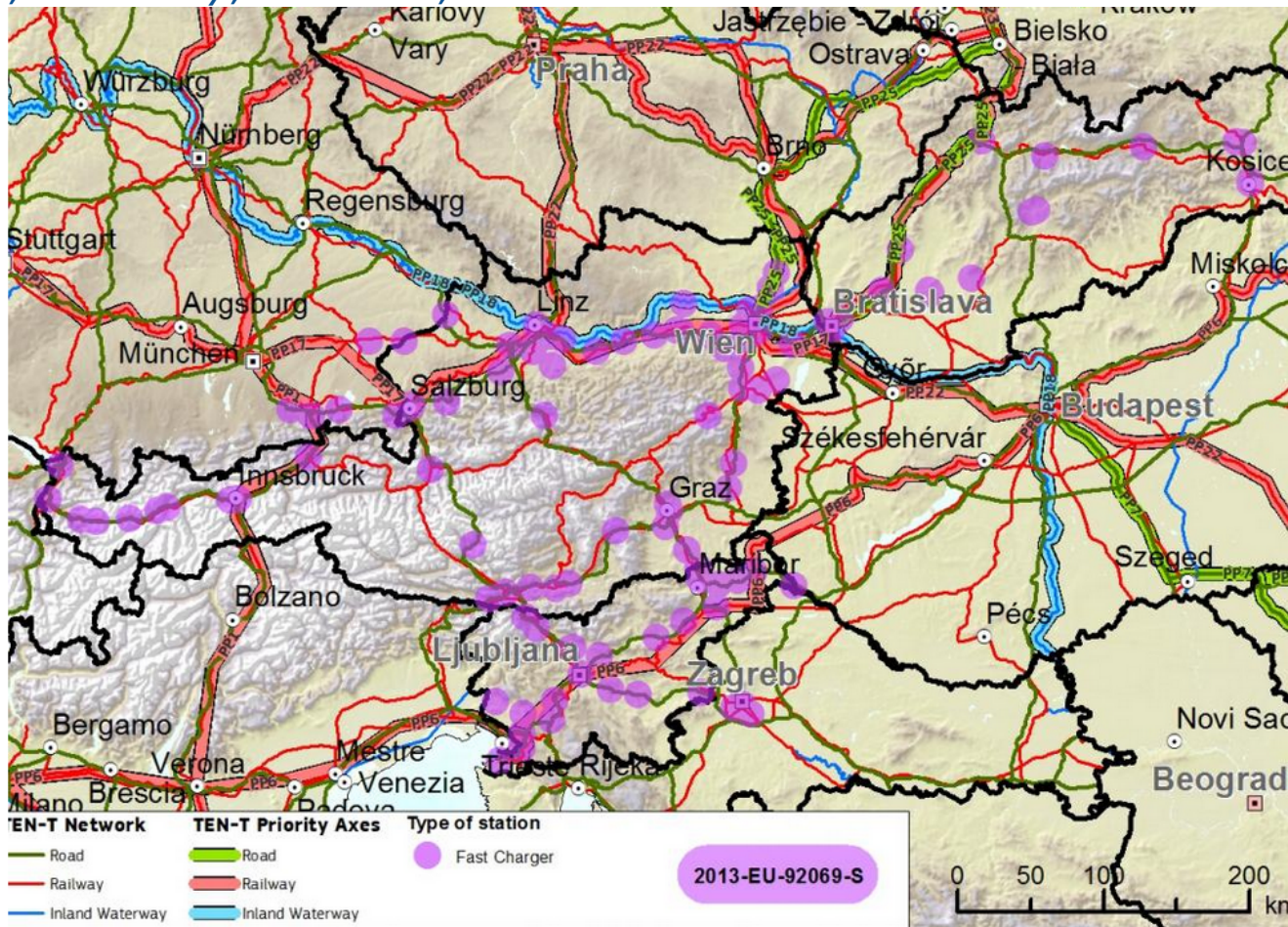
Source: INEA



# TEN-T and Connecting Europe Facility

**This EU funding mechanism is supporting many Fast Charging networks**

➤ *In Austria, Germany, Slovenia, Slovakia and Croatia*



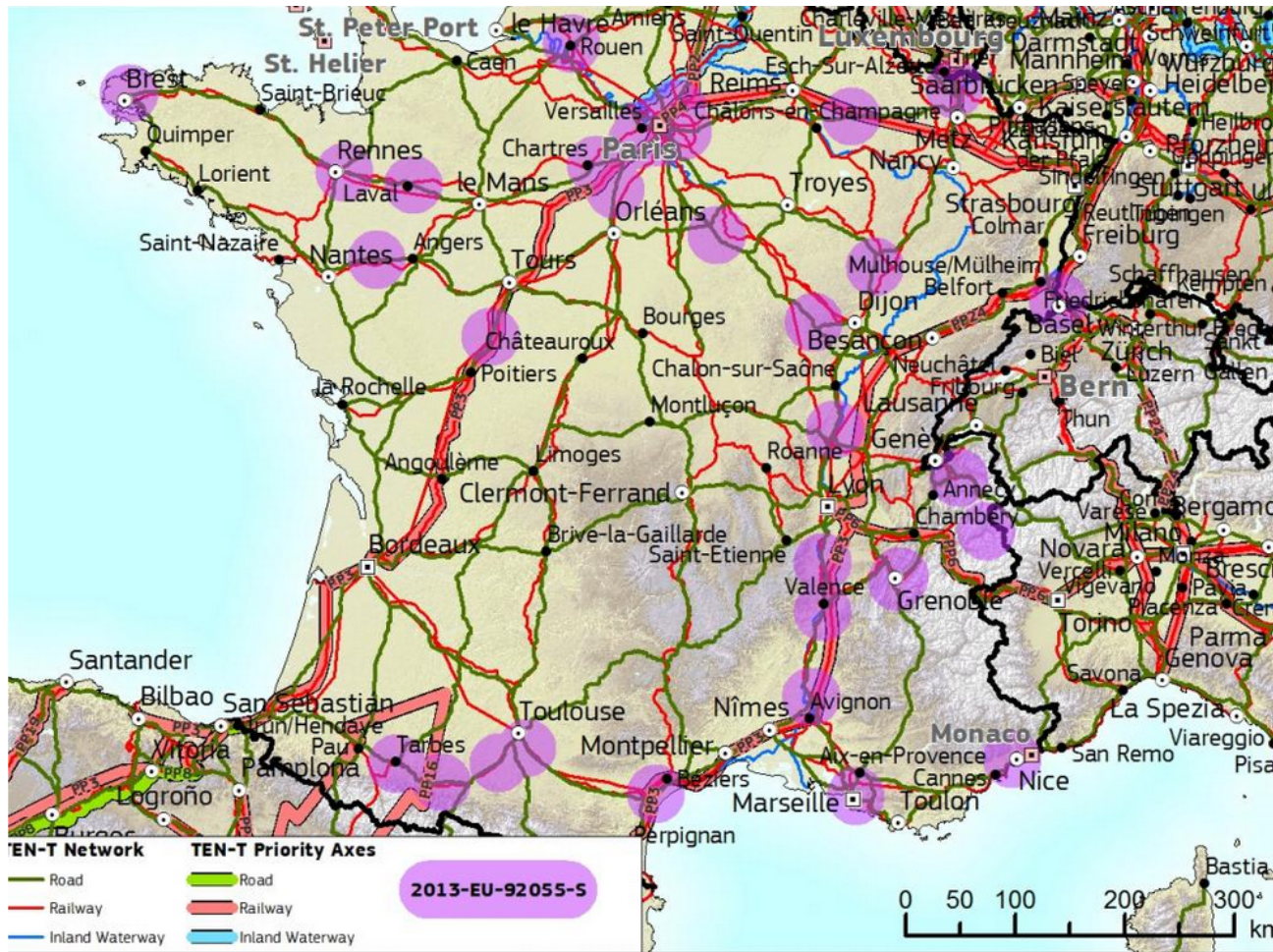
Source: INEA



# TEN-T and Connecting Europe Facility

**This EU funding mechanism is supporting many Fast Charging networks**

➤ *France*

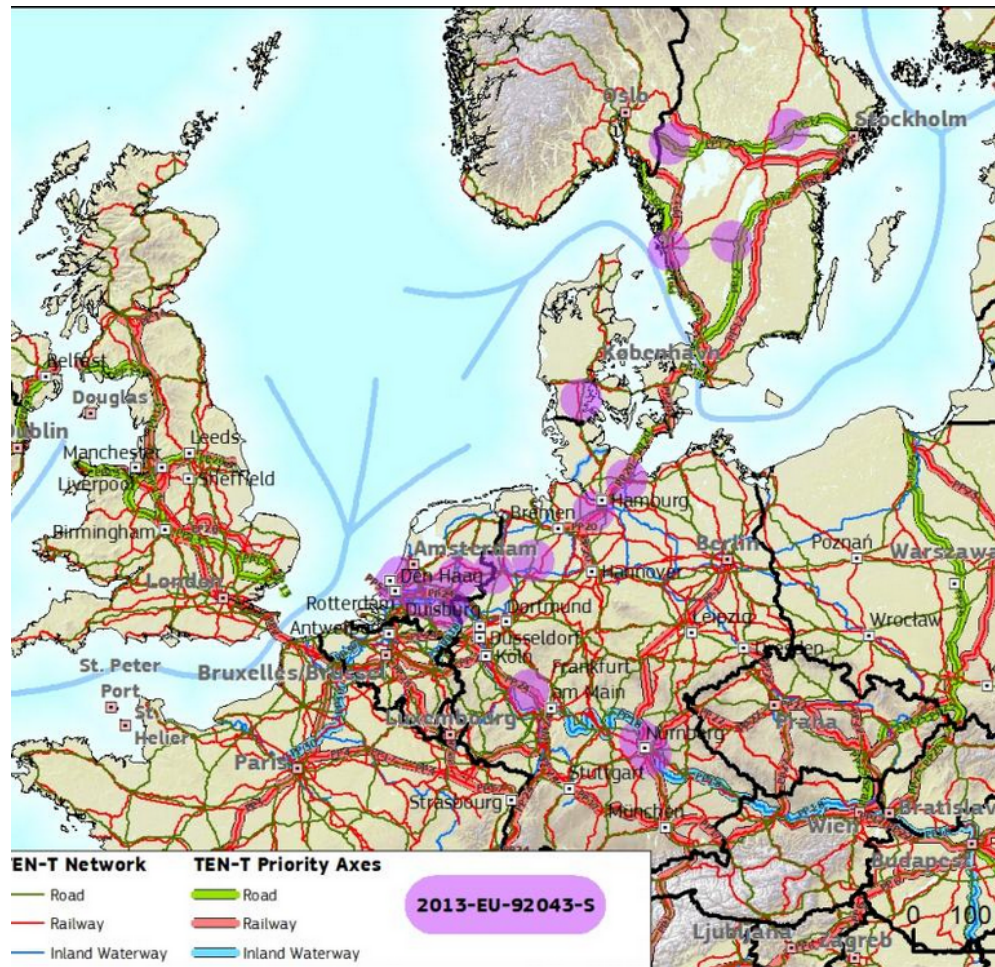


Source: INEA

# TEN-T and Connecting Europe Facility

**This EU funding mechanism is supporting many Fast Charging networks**

➤ *Germany and Nordics*

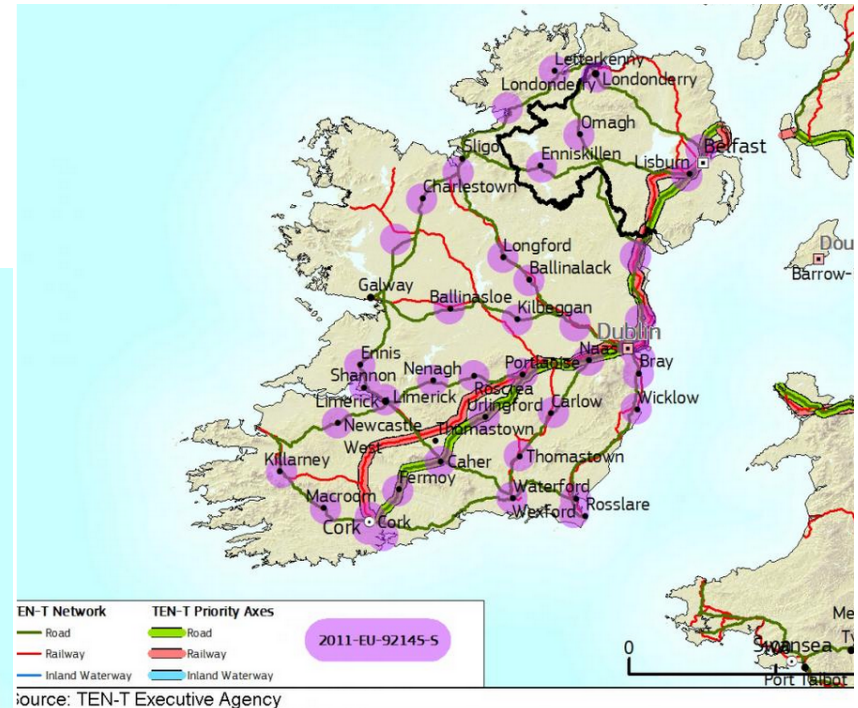
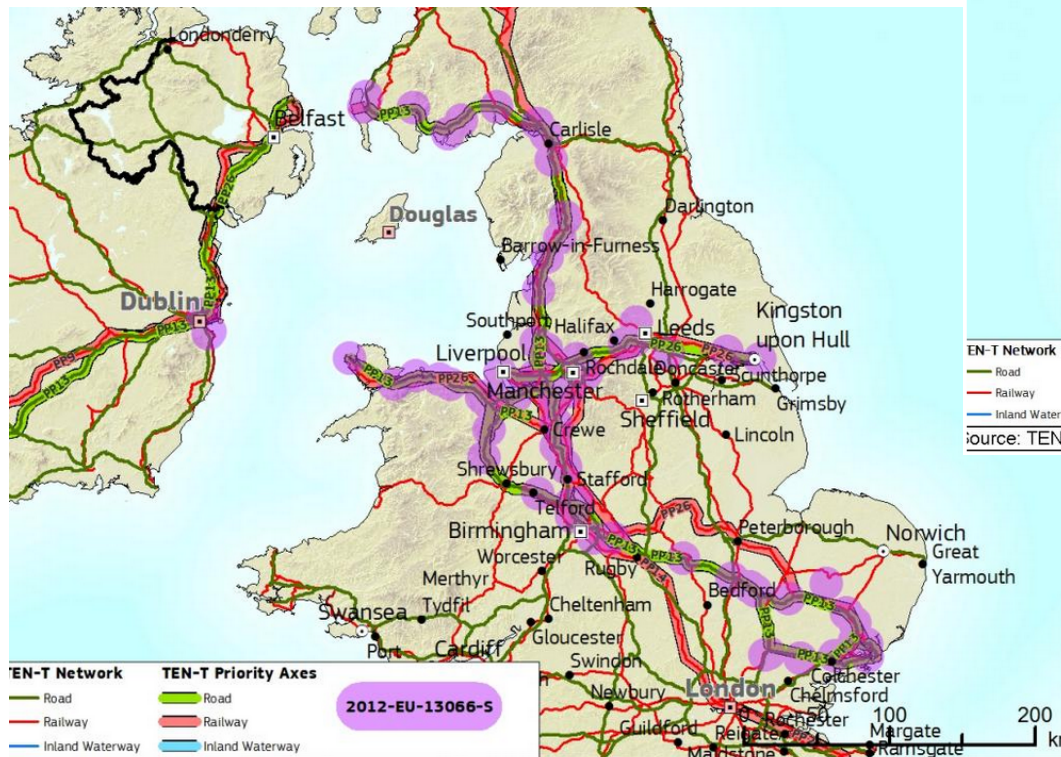




# TEN-T and Connecting Europe Facility

**This EU funding mechanism is supporting many Fast Charging networks**

## *The British Islands*



# H2020 Work Programme 2018-2020

## H2020 WP Policy framework

Increased investment in **sustainable development** and **climate** related R&I

- 35% climate actions
- 60% sustainable development

Integrating **digitisation** in all industrial technologies and societal challenges

- Digital Single Market Strategy

Strengthening **international R&I cooperation**: Flagships to ensure scope and scale in targeted areas

Addressing **societal concerns**: security and migration, demographic changes and social inclusion

**Market creating innovation**: EU Innovation Council Pilot

## Transport Challenge - Smart, green and integrated Transport

### Objective:

*"To achieve a European transport system that is **resilient, resource efficient, climate and environmental friendly, safe and seamless** for the the benefit of all citizens, the economy and society."*

### The logic:

- a holistic, **system approach**
- ... that is focused on **societal** challenges
- ... that recognises **modal specificities**
- ... and takes into account the imperatives of **competitiveness**



## Main features

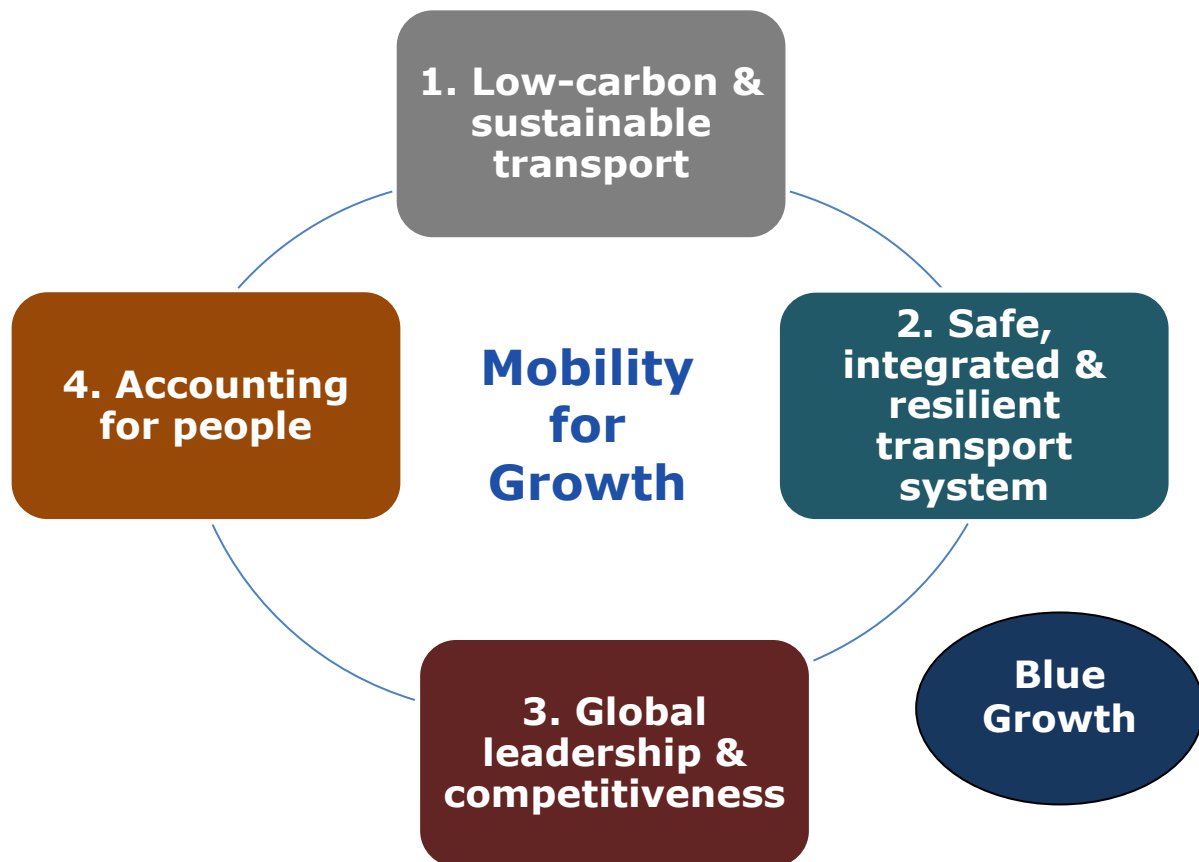
- **Budget 2018: EUR 298.6 mio** – EUR 945 mio in 2018-2020
- **3 calls for proposals** and 21 topics in 2018
  1. *Mobility for Growth (MG)*
  2. *Automated Road Transport (ART)*
  3. *Green Vehicles (GV)*
- **Opening of calls - 31 October 2017** - WP pre-published on H2020 web-site
- **3 types of actions: RIA, IA, CSA/EraNet** + **Other actions:** Prizes, SME Instrument, FTI, experts groups and procurements,
- **Transport relevant topics** in **other parts of the H2020 WP:** NMPB, ICT, ENERGY, SECURITY, FOOD and **complementarities** with calls and activities of CleanSky, SESAR, Shift2Rail, FCH2
- **Open Access to Data policy:** applies by default to the whole H2020 to scientific publications and research data generated by projects
- Improved **focus and clarity** in the topic descriptions (notably the **expected impacts**)...while keeping an open and non-prescriptive approach

# MOBILITY FOR GROWTH – MG call



## Overall objectives:

- ✓ **Reconcile sustainability and competitiveness**
- ✓ **Ensure better and safer mobility for all**
- ✓ **Address socio-economic aspects and provide evidence for policy-making**





## MOBILITY FOR GROWTH – MG call

### 1. Low-carbon and sustainable transport

#### Focus on:

- The transition towards zero-emission and quieter mobility for all modes, for people and goods
- Tools and mechanisms for monitoring and detection of emissions & noise
- Scientific evidence for decision making process and planning
- Cross-modal/transport integration solutions in urban areas

Topic	Title	Action type	Stages	Budget		
				2018	2019	2020
<b>LC-MG-1-1</b> <i>InCo flagship 1</i>	Reduction of transport impact <b>on air quality</b>	RIA	2	30.00		
<b>LC-MG-1-2</b>	Sustainable <b>multi-modal inter-urban transport</b> , regional mobility & spatial planning	RIA	2	12.00		
<b>LC-MG-1-3</b>	Harnessing and understanding the impacts of changes in urban mobility on policy making by city-led innovation for <b>sustainable urban mobility</b>	CSA	1	3.00		
		RIA	2	11.00		
<b>LC-MG-1-4</b>	Hardening <b>vehicle environmental protection</b> systems against tampering	RIA	2	5.00		
<b>LC-MG-1-5</b>	Advancements in aerodynamics & innovative propulsion systems for <b>quieter &amp; greener aircrafts</b>	RIA	2		15.00	
<b>LC-MG-1-6</b> <i>InCo flagship 2</i>	<b>Aviation</b> operations impact on climate change	RIA	1		10.00	
<b>LC-MG-1-7</b> <i>InCo flagship 2</i>	Future propulsion & integration: towards a <b>hybrid/electric aircraft</b>	RIA	1		15.00	
<b>LC-MG-1-8</b>	Retrofit Solutions and Next generation propulsion for <b>Waterborne Transport</b>	IA	2		8.00	
		RIA	2		15.00	
<b>LC-MG-1-9</b>	Upgrading <b>transport infrastructure</b> in order to monitor noise and emissions	RIA	2		7.00	
<b>LC-MG-1-10</b>	<b>Logistics</b> solutions that deal with requirements of the 'on demand economy' and for shared-connected and low-emission logistics operations	RIA	2		10.00	

## ❑ ***Focus on reducing transport air quality impact***

- *Low-emission oriented driving, vehicle and traffic management and assistance.*
- *Development of holistic scoring mechanism for the environmental performance of all vehicles*
- *Sensing of emissions for monitoring fleet-wide on-road emissions, tampering, OBD ineffectiveness, etc*
- *Development of an emissions measurement system for operating vessels and assessment of AQ impact*
- *Measurement of pollutants emissions from aircraft in/around airports and assessment of AQ impact*
- *Assessment of health effects of ultrafine particles (VOCs and SVOCs) emitted from engines*
- *Hardening vehicle environmental protection systems against tampering*





## MOBILITY FOR GROWTH – MG call

### 2. Safe, integrated and resilient transport systems

#### Focus on:

- **Transport safety: contribution to the "*zero road fatalities*" goal in a changing environment**
- **Innovative solutions to reduce congestion and ensure seamless, safe and sustainable mobility for people and freight**
- **More resilient transport system and support network capacity**

# Safe, integrated and resilient transport system: topics and budget

**Total EU contribution: EUR 73 m in 2018**

Topic	Title	Action type	Stages	Budget		
				2018	2019	2020
<b>MG-2-1</b>	<b>Human Factors</b> in Transport Safety	RIA	2	18.00		
<b>MG-2-2</b>	<b>Marine</b> Accident Response	IA/RIA	2	35.00		
<b>MG-2-3</b>	Airworthiness of <b>mass-market drones</b>	CSA	1	3.00		
<b>MG-2-4</b>	Coordinating national efforts in modernizing <b>transport infrastructure</b> and provide innovative <b>mobility services</b>	CSA	1	1.00		
<b>MG-2-5</b> <i>InCo flagship 2</i>	Innovative technologies for improving <b>aviation safety</b> and certification in <b>icing conditions</b>	RIA	1	16.00		
<b>MG-2-6</b>	Moving freight by Water: <b>Sustainable Infrastructure</b> and <b>Innovative Vessels</b>	RIA	2		30.00	
<b>MG-2-7</b>	<b>Safety</b> in an evolving <b>road mobility</b> environment	RIA	2		8.00	
<b>MG-2-8</b>	Innovative applications of <b>drones</b> for ensuring <b>safety transport</b>	RIA	2		15.00	
<b>MG-2-9</b> <i>InCo flagship 3</i>	Integrated multimodal, <b>low-emission freight transport</b> systems and <b>logistics</b>	RIA	2		14.00	

## MOBILITY FOR GROWTH – MG call

### 3. Global Leadership & Competitiveness

#### Focus on:

- **Vehicle/vessel design and manufacturing and life-cycle approaches**
- **Rapid integration of ICT and IoT**
- **Human component of CAT technologies**

Topic	Title	Action type	Stages	Budget		
				2018	2019	2020
MG-3-1	Multidisciplinary and collaborative aircraft <b>design tools and processes</b>	RIA	2	12.00		
MG-3-2	The Autonomous <b>Ship</b>	IA	2	20.00		
MG-3-3	"Driver" <b>behaviour and acceptance</b> of connected, cooperative and automated transport	RIA	2	12.00		



## MOBILITY FOR GROWTH – MG call

### 4. Accounting for the People

#### Focus on:

- Innovative solutions for an accessible & inclusive transport system
- Behavioural issues and user needs
- Appropriate regulatory frameworks and policies to support innovation and deployment
- Dissemination and exploitation of sustainable mobility solutions



# Accounting for the People: topics and budget

**Total EU contribution: EUR 11.4 m in 2018**

Topic	Title	Action type	Stages	Budget		
				2018	2019	2020
<b>MG-4-1</b>	New regulatory frameworks to enable effective deployment of <b>emerging technologies</b> & business/operating models <b>for all transport modes</b>	CSA	1	2.00		
<b>MG-4-2</b>	Building <b>Open Science</b> platforms in transport research	CSA	1	3.00		
<b>MG-4-3</b>	Demographic change and participation of <b>women in transport</b>	CSA	1	5.00		
<b>MG-4-4</b>	Support for <b>dissemination events</b> in the field of Transport Research	CSA	1	1.40	0.70	
<b>MG-4-5</b>	An inclusive <b>digitally interconnected transport</b> system meeting citizens' needs	RIA	1		7.00	
<b>MG-4-6</b>	Supporting <b>Joint Actions on sustainable urban accessibility</b> and connectivity	ERA-NET-Cofund	1		6.00	



## Automated Road Transport – ART call

### Focus on:

- Large-scale/cross-border demos to promote market introduction of highly automated driving systems
- Trials on sustainable automated functions in real driving conditions - various traffic scenarios and urban areas
- Regulatory framework, certification procedures and standards
- New concepts for shared, connected and automated mobility
- ART-related cross-cutting issues: safety, users' needs, business models,...

# Automated Road Transport: topics and budget

*Total EU contribution: **EUR 15 m in 2018***

Topic	Title	Action type	Stages	Budget		
				2018	2019	2020
<b>DT-ART-01</b> <i>InCo flagship 4</i>	Testing, validation and certification procedures for highly automated <b>driving functions</b> under <b>various traffic scenarios</b> based on pilot test data	RIA	1	6.00		
<b>DT-ART-02</b> <i>InCo flagship 4</i>	Support for <b>networking activities</b> and <b>impact assessment for road automation</b>	RIA	1	6.00		
		CSA	1	3.00		
<b>DT-ART-03</b> <i>InCo flagship 4</i>	Human centred design for the new <b>driver role in highly automated vehicles</b>	RIA	1		8.00	
<b>DT-ART-04</b> <i>InCo flagship 4</i>	Developing and testing shared, <b>connected and cooperative automated vehicles fleets in urban areas</b> for the mobility of all	IA	1		30.00	
<b>DT-ART-05</b>	Efficient and safe connected and automated <b>heavy-duty vehicles</b> in real logistics operations					
<b>DT-ART-06</b>	Large-scale, cross-border demonstration of highly automated driving functions for <b>passenger cars</b>					



## GREEN VEHICLES – GV call

Bring forward the activities of the **EU Green Vehicle Initiative**: prepare the ground for a **potential massive introduction of electrified vehicles**

- **Support design and manufacturing of 3<sup>rd</sup> generation of electrified vehicles, components and new generation of batteries**
- **Improve the charging solutions to meet end-users needs (access, time, cost, payment systems, etc.)**
- **Develop new concepts to reduce energy consumption and emissions of long-distance vehicles**
- **Cooperate with developing and emerging economies for demonstration activities and pilots in large urban areas**



# Green vehicles: topics and budget

**Total EU contribution: EUR 56 m in 2018**

Topic	Title	Action type	Stages	Budget		
				2018	2019	2020
LC-GV-01	Integrated, brand-independent architectures, components and systems for <b>next generation electrified vehicles</b> optimised for the infrastructure	IA	1	42.00		
LC-GV-02	Virtual <b>product development</b> and production of <b>all types of electrified vehicles</b> and components	RIA	1	14.00		
LC-GV-03	User centric <b>charging infrastructure</b>	IA	1		35.00	
LC-GV-04	Low-emissions propulsion <b>for long-distance trucks and coaches</b>	IA	1		25.00	
LC-GV-05 InCo flagship 5	<b>Urban mobility and sustainable electrification</b> in large urban areas in developing and emerging economies	IA	1		18.00	
LC-GV-06	Next generation and realisation of <b>battery packs BEV &amp; HEV</b>					
LC-GV-07	<b>Advanced light materials</b> and their production processes for automotive applications					
LC-GV-08	Reducing the environmental impact of <b>hybrid light duty vehicles</b>					
LC-GV-09	Next generation <b>electrified vehicles for urban use</b>					



# Deadlines

Work Programme 2018-2020	2018		2019	
	Opening	Closing	Opening	Closing
Single Stage (MG, ART and GV calls)	31/10/2017	<b>4/4/2018</b>	4/12/2018	24/4/2019
First Stage of 2-Stages (MG call only)	31/10/2017	<b>30/1/2018</b>	5/9/2018	16/1/2019
Second Stage of 2-Stages (MG call only)	-	19/9/2018	-	12/9/2019

## Budget (in million €)

	2018	2019	2020	Total
<b>MG Call</b>	197.4	168.7	147.5	<b>513.6</b>
<b>ART Call</b>	15	38	50	<b>103</b>
<b>GV Call</b>	56	78	112	<b>246</b>
<i>Other Actions</i>	7.4	8	1.6	<b>17</b>

## International cooperation

### Global challenges call for global solutions

- Emissions, pollution, climate impact
- Oil dependency, energy efficiency
- Transport safety and security
- Standardisation of services, products and procedures

...



### Local issues benefit from exchange of best practices



- Traffic congestion
- Land use planning
- Behavioural issues

...

## InCo in the Transport WP 2018-20

### Joint Calls

- Used for specific actions (e.g. identified through Joint Steering Committees)
- **One call, one evaluation, two contracts**

### Synchronized /Coordinated calls

- Used for specific actions (e.g. identified through Joint Steering Committees)
- **Paired calls, linked evaluations, two contracts** (e.g. *MG.1.10-2015 International cooperation in aeronautics with China*)

### Programme- level coordination (twinning)

- Funding Agencies share and agree priorities for implementing through their own programmes (e.g. *twinning and symposia via the **EU-US Implementing Arrangement***)

# Transport WP2018-2020 – Flagships

## Targeted countries

Area	Topic	Title	Targeted opening
<b><i>International Cooperation on particles in relation to health and climate change</i></b>			
MG - Low-carbon and sustainable transport	LC-MG-1-1-2018	<i>InCo flagship on reduction of transport impact on air quality</i>	<b>Asia (e.g. China), CELAC and the US</b>
<b><i>Aviation International Cooperation Flagship – Safer and Greener in a Smaller World</i></b>			
MG - Low-carbon and sustainable transport	LC-MG-1-6-2019	<i>Aviation operations impact on climate change</i>	<b>China (bilateral)</b>
	LC-MG-1-7-2019	<i>Future propulsion and integration – Towards a hybrid/electric aircraft</i>	<b>Canada and Japan</b>
MG - Safe, integrated and resilient transport systems	MG-2-5-2018	<i>Innovative technologies for improving aviation safety and certification in icing conditions</i>	<b>Australia, Brazil, Canada, Japan, Russia and the US</b>
<b><i>Integrated multimodal freight transport systems and (the last mile) logistics</i></b>			
MG - Safe, integrated and resilient transport systems	MG-2-9-2019	<i>Integrated multimodal, low-emission freight transport systems and logistics *</i>	<b>Canada, China, Japan, Latin America and the US</b>

**\* Proposals should foresee twinning with projects funded by US DOT**



# Transport WP2018-2020 – Flagships

## Targeted countries

Area	Topic	Title	Targeted opening
EU-US Road vehicle automation and safety			
Automated road transport	DT-ART-01-2018	Testing, validation and certification procedures for highly automated driving functions under various traffic scenarios based on pilot test data *	Australia, Japan, Singapore, South Korea and the US
	DT-ART-02-2018	Support for networking activities and impact assessment for road automation *	
	DT-ART-03-2019	Human centred design for the new driver role in highly automated vehicles *	
	DT-ART-04-2019	Developing and testing shared, connected and cooperative automated vehicle fleets in urban areas for the mobility of all *	
* Proposals should foresee twinning with projects funded by US DOT			
Clean urban transport in medium/mega sized cities in developing and emerging economies			
Green vehicles	LC-GV-05-2019	InCo flagship on "Urban mobility and sustainable electrification in large urban areas in developing and emerging economies	Africa, Asia (e.g. China, India) and Latin America (CELAC)

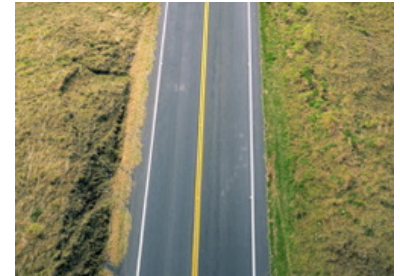
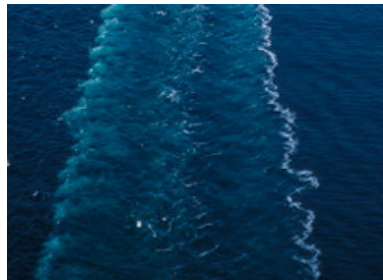
# Transport WP2018-2020 – R&I topics

## Targeted countries

Area	Topic	Title	Targeted opening
MG - Low-carbon and sustainable transport	LC-MG-1-2-2018	<i>Sustainable multi-modal inter-urban transport, regional mobility and spatial planning *</i>	<b>US</b>
	LC-MG-1-3-2018	<i>Harnessing and understanding the impacts of changes in urban mobility on policy making by city-led innovation for sustainable urban mobility</i>	<b>China, India and the US</b>
	LC-MG-1-9-2019	<i>Upgrading transport infrastructure in order to monitor noise and emissions *</i>	<b>US</b>
	LC-MG-1-10-2019	<i>Logistics solutions that deal with requirements of the 'on demand economy' and for shared-connected and low-emission logistics operations</i>	<b>Any Third Countries</b>
MG - Safe, integrated and resilient transport systems	MG-2-1-2018	<i>Human Factors in Transport safety</i>	
	MG-2-2-2018	<i>Marine Accident Response</i>	
	MG-2-7-2019	<i>Safety in an evolving road mobility environment</i>	
MG - Accounting for the people	MG-4-1-2018	<i>New regulatory frameworks to enable effective deployment of emerging technologies and business/operating models for all transport modes</i>	
	MG-4-2-2018	<i>Building Open Science platforms in transport research</i>	
Blue Growth	MG-BG-02-2019	<i>Ship emission control scenarios, marine environmental impact and mitigation</i>	

\* **Proposals should foresee twinning with projects funded by US DOT**

# *Thank you*



**Save the date:**  
**16-19 April**

## *Find out more:*

Participant Portal <http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

Expert evaluators needed! <http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html>

Learn more about the Transport Challenge and the WP

<http://ec.europa.eu/programmes/horizon2020/en/h2020-section/smart-green-and-integrated-transport>