



Trans-European Networks (TEN)

- A Converging Strategy for Innovation
- The Possible Next Steps for CEF Innovation

CORE LNGas HIVE Conference

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● The Strategy : Converging the separate elements (1)

- Convergence 1: **Topic** : TEN-T/CEF-T Deployment complementing RTD / FP7 / H2020
 - » Creation of specific project pipelines research->demos->trials->rollouts for transport; - *bringing together H2020 & CEF*
 - » Examples funded for BEV & FCH & C-LNG
- Convergence 2: **Finance** : Real-life trials preparing business plans for roll-outs by EFSI / Juncker / private investment / **new: CEF blending call**
 - » Concept of Market-sided innovation perfectly matching EFSI et al
 - » Examples: (1) FCH buses (Roll-out under Clean Transport Facility),
 - » (2) Green Shipping Scheme



● The Strategy : Converging the separate elements (2)

- Convergence 3: **Planning** : Roll-out plans of Altern. Fuels Infra. Directive encourage alignment of national planning with already funded alternative fuel infrastructure
- Convergence 4: **Impact** : CEF Funding prioritises Core Network Corridors, thereby achieving benefits of particular high EU added value for citizens (*many people and businesses benefit*)
- Convergence 5: **Sectors** : Large installations of H2, Batteries, Gas promote transport & energy networks joining in **synergetic** way



Directive on Alternative Fuels Infrastructure

Clean Power for Transport 2013

A **strategy** for the long term substitution of oil in all transport modes

→ a coherent policy framework that guides investments
+ sustainability and competitiveness

Directive 2014/94 on alternative fuel (AF) infrastructure:

- Political signal and regulatory framework
- Deadline November 2016 for transposition and for notification of Member States' National Policy Frameworks
 - Mid June'17: 21 (out of 27) received

EC Low emission mobility strategy 2016

→ Emphasizes the role of the AF infrastructure

Directive on Alternative Fuels Infrastructure

Directive 2014/94/EU on the deployment of alternative fuels infrastructure:

DEPLOYMENT OF ALTERNATIVE FUELS INFRASTRUCTURE	DATE
Electric vehicle recharging points – Urban agglomerations	2020
CNG - Urban agglomerations	2020
CNG - TEN-T Core Network	2025
Hydrogen	2025
LNG - Heavy duty vehicles	2025
LNG - Maritime ports	2025
LNG - Inland Waterways	2030
Shore-side electricity	2025

● CEF Calls – An Overview

- **Synergy Call 28 Sep'2016 (€40 Million) – *now closed*;**
 - » Grants only - Transport & Energy – Real-life trials
 - » Deadline 13 Dec 2016 – 14 received, 9 eligible : despite difficult legal base 7 selected
 - » Results as planned 3rd May 2017 adopted: very innovative projects, participation across the EU
 - » LNG/CNG, Batteries and H2 as storage for grid balancing and alternative fuel
- **Transport Calls 13 Oct'2016 (about €2 Billion in total) – *now closed* – 54 eligible proposals in innovation;**
 - » Grants only – Transport – Real-life trials & Works
 - » As usually special support for cohesion countries
 - » Innovation: 80 M€ general, 59.5 M€ cohesion
 - » Cohesion Countries acceleration – first time oversubscription!
- **Transport Blending Call 8 Feb'2017 (140/700 Million) – *Turning the page!***
 - » Grants & loans in one proposal – Transport - Works only e.g. innovation (grant: up to 20%)
 - » Full support for vehicles for all transport modes
 - » *Now open*: deadlines **14 July** (& 30 Nov) 2017
 - » Different banking options: coh/non-cohesion, EIB/national/house banks





Overall Funding Pipeline

- *Where does the blending call fit?* -

Blending>>

H2020 TRANSPORT

Valley
of
Death

CEF TRANSPORT

Real-life trial (pilot) -> Roll-out

Technology readiness levels (TRL)

TRL 1-2
Principles and
formulation

TRL 3-4
Proof of concept
and validation

TRL 5-6
Validation in
real
environment

TRL 7-8
Prototype
demonstration
and completion

TRL 9
Proven and
operational

Basic research

Applied research

Prototype

Scale-up

Pilot

Demonstration

Deployment

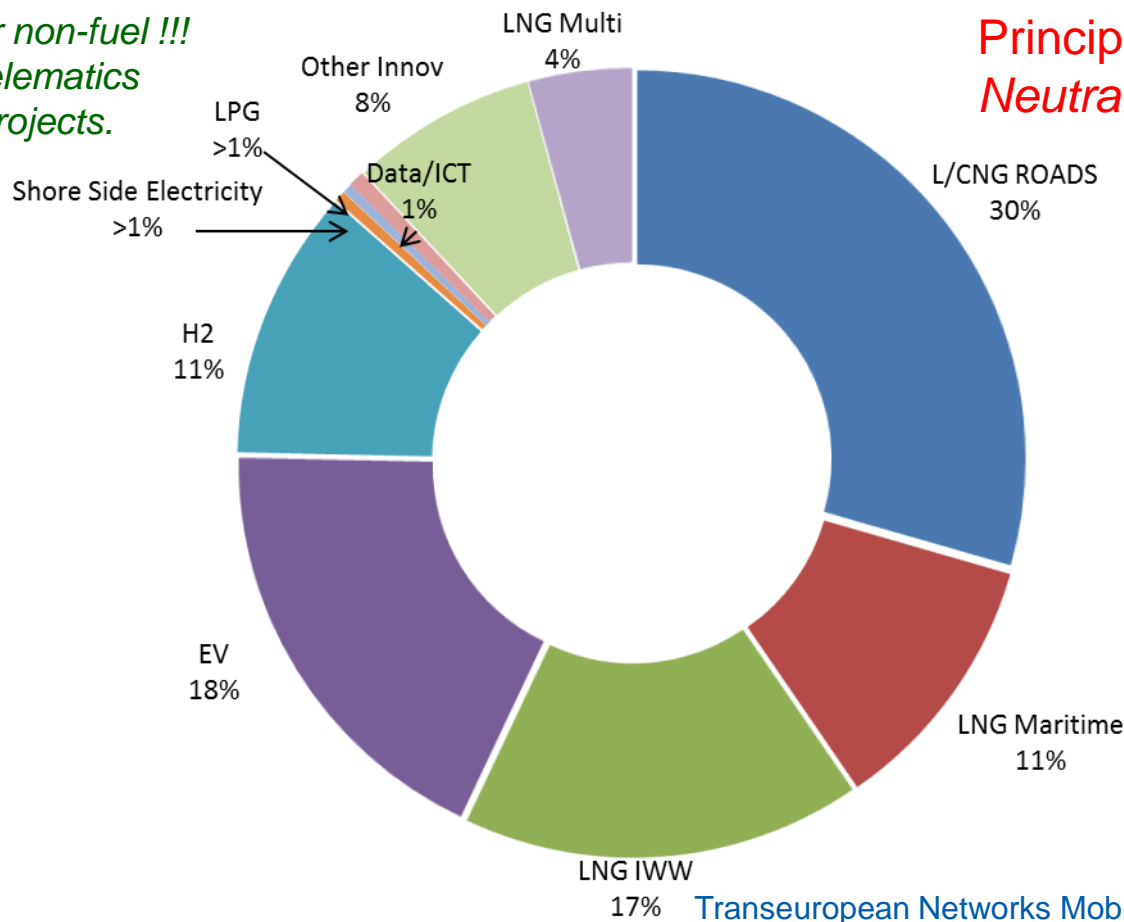
After supporting about 100 trials, we need now the follow-ons of some trials!

Roll-outs into Market (called "works" under TEN-T/CEF)

● About 100 Projects financed under the innovation priority by TEN-T and CEF Programmes (2010-16)

*About only 10% for non-fuel !!!
However IT/data/telematics
integrated in fuel projects.*

*Principle: Alternative Fuel
Neutrality of the EC*





European
Commission

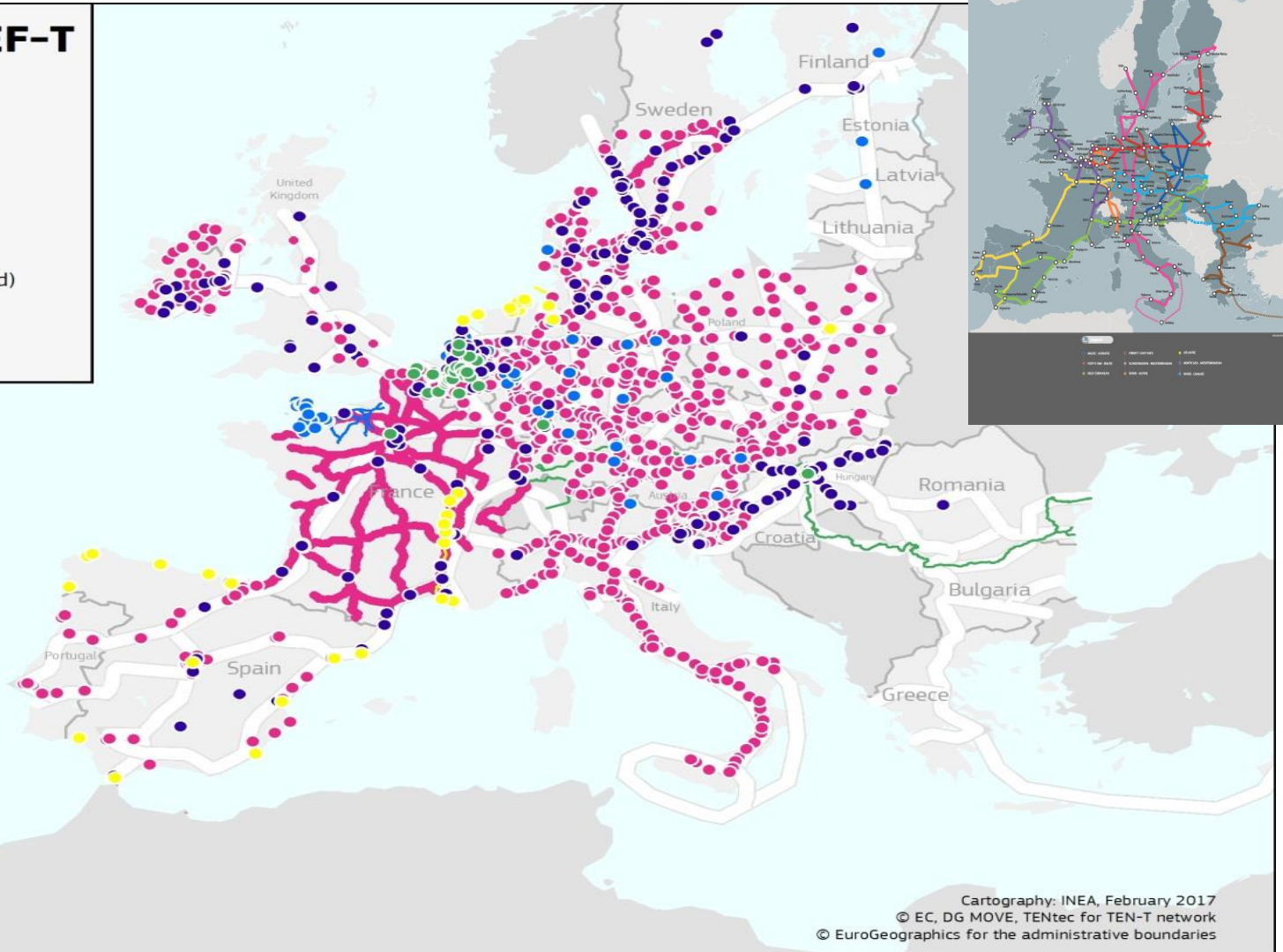
Deploying alternative fuels with TEN-T & CEF

TEN-T and CEF-T

Innovation actions

- LNG Maritime
- LNG IWW
- L/CNG Road
- H2
- EVs
- All corridors (simplified)

0 250 500
km



Cartography: INEA, February 2017

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© EuroGeographics for the administrative boundaries

● CEF Calls – Possible Next Steps (1)

- very preliminary brain-storming level -

- **Next Synergy Call - Begin 2018 ?**
 - » Several options: from simple repeat, to update of legal base/PCI-E list?
 - » The smart grid opportunity of the legal base!
 - » Integrate CEF-ICT networks fully (= 3 sector synergy)?
 - » Budget from €20 to 100 million?
 - » Call open 4 months. + Improved support documents!
 - » **Grants only** - Transport & Energy & ICT – **Real-life trials only**
- **Further Transport Grant Calls – 2018 ?**
- **Further Blending Calls - 2018 ?**
 - » **Grants & loans in one proposal**
 - » 1) (pure) Transport (innovation grant: up to 20%)
 - » 2) Synergy (innovation grant: up to 20+10=30%)
 - » Rest as loan (or assets or cash) as usually.
 - » **Full support for vehicles for all transport modes**
 - » **Works only**



● CEF Calls – Possible Next Steps (2)

- very preliminary brain-storming level -

● A (Radical) Innovation Deployment Programme for 2020+?

- » *Follow-on of 3-sector CEF Synergy – 1 large programme allowing real European dimension to compete on the global scene & avoid overlaps, scattered budgets and confusion*
- » *Very successful CEF format: (1) short deployment pilots (real-life trials preparing roll-outs) with 50% non-depreciation grants & (2) roll-outs into mass-market with blending (20% grants) and pure loans*
- » *Does Europe need it for 2020+ ?*
- » *Possible impact on next financial framework (2021 – 27)?*
- » *Let's discuss now and start preparing!*



Milestone Projects need Milestone People (2010-2016)

Milestone Projects on Alternative Fuels – *Innovative people are everywhere in the EU*
– all following market-sided innovation concept for new technology deployment; focus on unit costs & clients:

- Greening EU Transport 2010 – Battery Swapping (DK) – Amit Yudan
- eCars 2011 – Fast charging as minimum coverage of entire MS (IE) – Senan McGrath.
- **Greencranes 2011** – Innovation in ports incl. LNG tractors (ES, IT, SI) – Eva Perez-Garcia / Jose Jimenez
- GARneT 2012 – LNG for trucks / mobile LNG stations (ES) – Gas Natural
- **HIT 2012 & HIT2 2013** – Hydrogen infra in several MS (NL, FR, DK, SE, BE, FI, LV, PL) – Marieke Reijalt / Floris Mulder & Geert Schaap / Cecilia Wallmark
- **LNG Masterplan Rhein-Main-Danube 2012** – IWW innovation (13 MS across EU) – Manfred Seitz
- BioLNG for Heavy Vehicles – Very large LNG refueling stations at logistic centres in the UK – Gasrec Ltd's industrialising LNG for the road – Patrick Mocatta / Rob Wood
- RCN 2013 – Systematic rapid charging in UK and IE along 2 TEN-T Priority Projects 13 & 26 (now North-Sea-Med corridor) – Olivier Paturet
- **Central EU Green Corridors 2013** – First time cohesion countries implemented significant fast charging (AT, CR, SK, SI, DE) – Jan Cupal / Eva Plunger / Amit Yudan
- **H2 Nodes 2014** – Hydrogen infra reaches Baltic States (LV, EE, NL) – Aivars Starikovs
- **Fast-E 2015** – 300 Fast chargers along corridors in several MS east&west (BE, DE, SK, CZ, HR) – Markus Groll / Jörg Lohr / Radoslav Marcus / Amit Yudan
- GREAT 2015 – Combining all alt.fuels H2-BEV-C/LNG (DE, DK, SE) – Britt Karlsson-Green / Christian Hallelov / Jakob Lagercrantz
- **NCE FastEvNet 2015** – 85 Fast charging stations; 3 with battery storage along 4 corridors (SK, PL) - Peter Badik
- Breakthrough LNG in Intl. Waterways 2015 – Prepare large scale roll-out of 300 LNG vessels along Rhine++ (NL, DE) – Khalid Tachi
- Economic H2 Refuelling Infrastructure 2016 – Initiating refuelling infrastructure, triggering a 600 FCH bus fleet in the EU (start 80 buses: UK, NL, DE, IT) – Ben Madden – then 520 in 2 years via EFSI (first EFSI loan signed by Riga (LV) 11/2016
- **PAN-LNG-4-Danube 2016** - Multi-mode LNG trial – IWW, road & rail - infra & vehicles in HU – Henrik Domanovszky
- Ultra-E 2016 – First Ultra chargers along corridors in several MS – Anja van Nielsen / Marcus Groll / Jörg Lohr / Amit Yudan

● *Milestone people & all citizens becoming winners
in the global green challenge*

Nice start with infrastructure, but must further accelerate!

– Absolutely **need** (affordable) alternative fuel **vehicles** (incl. trucks, ships, trains, *planes*) of all sizes using the stations! But should also look at synergies – sectors, modes, bio/green, etc, AND do user-friendly **roaming that works!**

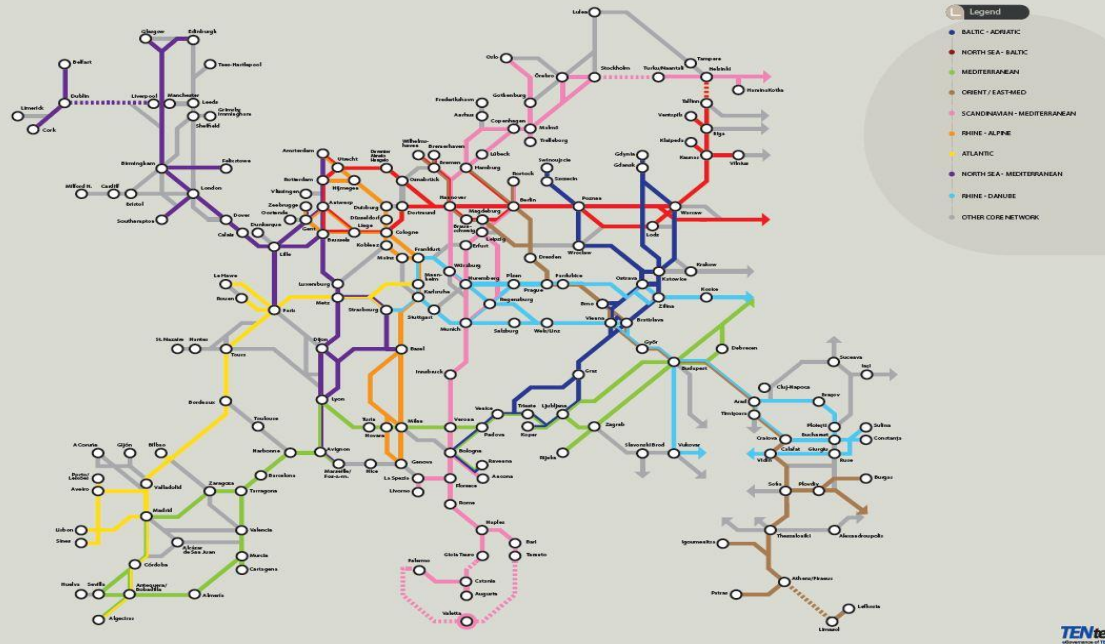
- *Towards Sustainable transport –*
 - *Fighting climate change -*
 - *Production remaining in Europe -*

...supported all the way by the EC.



THE TEN-T CORE NETWORK AND CORRIDORS

SCHEME (RAILWAYS & BALANDWATERWAYS BASED ON THE OUTCOME OF THE INFORMAL TRILOGUE OF 27th JUNE 2013)



**THANK YOU
FOR YOUR
ATTENTION!**

Innovation Projects:

<http://ec.europa.eu/transport/infrastructure/tenec/tenec-portal/site/en/innovation.html>

TENtec Portal (info, maps etc):

<http://ec.europa.eu/transport/infrastructure/tenec/tenec-portal>