IEA Hydrogen Roadmap

Europe Workshop - Infrastructure panel

M. Steen
European Commission – DG JRC

- EU efforts on H2 technologies and infrastructure
- Proposal for Directive for an Alternative Fuels Infrastructure
- Regulation on guidelines for trans-European Energy Infrastructure
- Support activities
- International cooperation
**EU-level efforts on H2 technologies and infrastructure:**

- **Policy-DGs** MOVE, ENER, ENTR, CLIMA
- **Research and Innovation:** FCH-JU (RTD)

**DG MOVE:**
- Transport White Paper: EU 2050 transport strategy
- Strategic Transport Technology Plan

**DG ENER:**
- Energy Roadmap 2050
- Strategic Energy Technology Plan
- Communication Energy Technology and Innovation
- Working Paper Energy Storage
Directive on Alternative Fuels Infrastructure

Barriers identified for hydrogen as an alternative fuel:

- High retail cost of vehicles  R&I in FCH-JU
- Lack of infrastructure  Proposal for directive AFI
- Low level of consumer acceptance


- **Focus on current obstacles**: infrastructure; standards
- **Obligation of means** (national policy frameworks+ EC recommendations)
- **Developed in close consultation with Member States and industry**
- **Targets unlocking private investment = a pro-business initiative**
- **Full freedom given to Member States for implementation**
**Targets hydrogen transport infrastructure build-up by end 2020**

- Only address countries with already existing H2 infrastructure

- Set out **minimum** level of infrastructure coverage necessary to:
  - enable cross-border mobility in-between 14 Member States
  - support commercialisation of hydrogen vehicles in the 2020 horizon

- minimum 77 hydrogen refuelling stations along TEN-T Core Network, with maximum distance of 300 km

- cost = 77 refuelling stations * 1.6 M€ = 123 M€

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Core network corridors will be created as a way to promote the coordinated development of infrastructure and resource-efficient ways of using it.

The new policy focuses the most critical elements: cross-border projects, interoperability and inter-modality between different means of transport.

http://ec.europa.eu/transport/themes/infrastructure/revision-t_en.htm
Closure of the Missing Link

**Infrastructure**
- Common standards

**Sustainable Market**

**RTD Projects**
- Green Car Initiative
- FCH JU
- Collaborative research

**Market incentives**
- Subsidies
- Fiscal advantages
- EIB loans

**Regulatory measures**
- CO2 and pollutants
- Fuel quality and renewable energy Directives
- Green procurement
Energy Infrastructure
Priorities for 2020 and beyond

REGULATION (EU) No 347/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 17 April 2013
on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC

- Infrastructure for electricity, gas, oil, CO2
- H2 infrastructure not explicitly included, but H2 is enabler

DG ENER Working Paper
The future role and challenges of Energy Storage

H2 in the economy
- The strongest link in the energy chain? –
April 26th 2013,
**Support activities**

**FCH-JU studies:**
- Identify financing options for a HRS roll-out not exclusively by public subsidy and/or corporate equity.
- Economic and technical assessment of the role of hydrogen in energy storage.

**FCH-JU(1): ongoing projects**

**FCH-JU(2) - Multi-annual Work Plan:** Energy and Transport Pillars

**HIT Project: Hydrogen Infrastructure for Transport (TEN-T)**
- Define optimum strategies to migrate from H2 hotspots in densely populated areas to actual local markets for HRS and from there to long distance transport and mobility along TEN-T corridors.
- Develop National Implementation Plans for FR, SE, DK and NL

*** SUMMARY ***

Workshop “Hydrogen – A competitive Energy Storage Medium to enable the large scale integration of renewable energies”

Seville, 15-16 November 2012

IEA HIA Task 28 - Large Scale Hydrogen Delivery Infrastructure

IEA HIA Task 30 - Global Hydrogen Systems Analysis