Hydrogen in support of energy policy and sector integration

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Event "Zero emission with Hydrogen NOW!"
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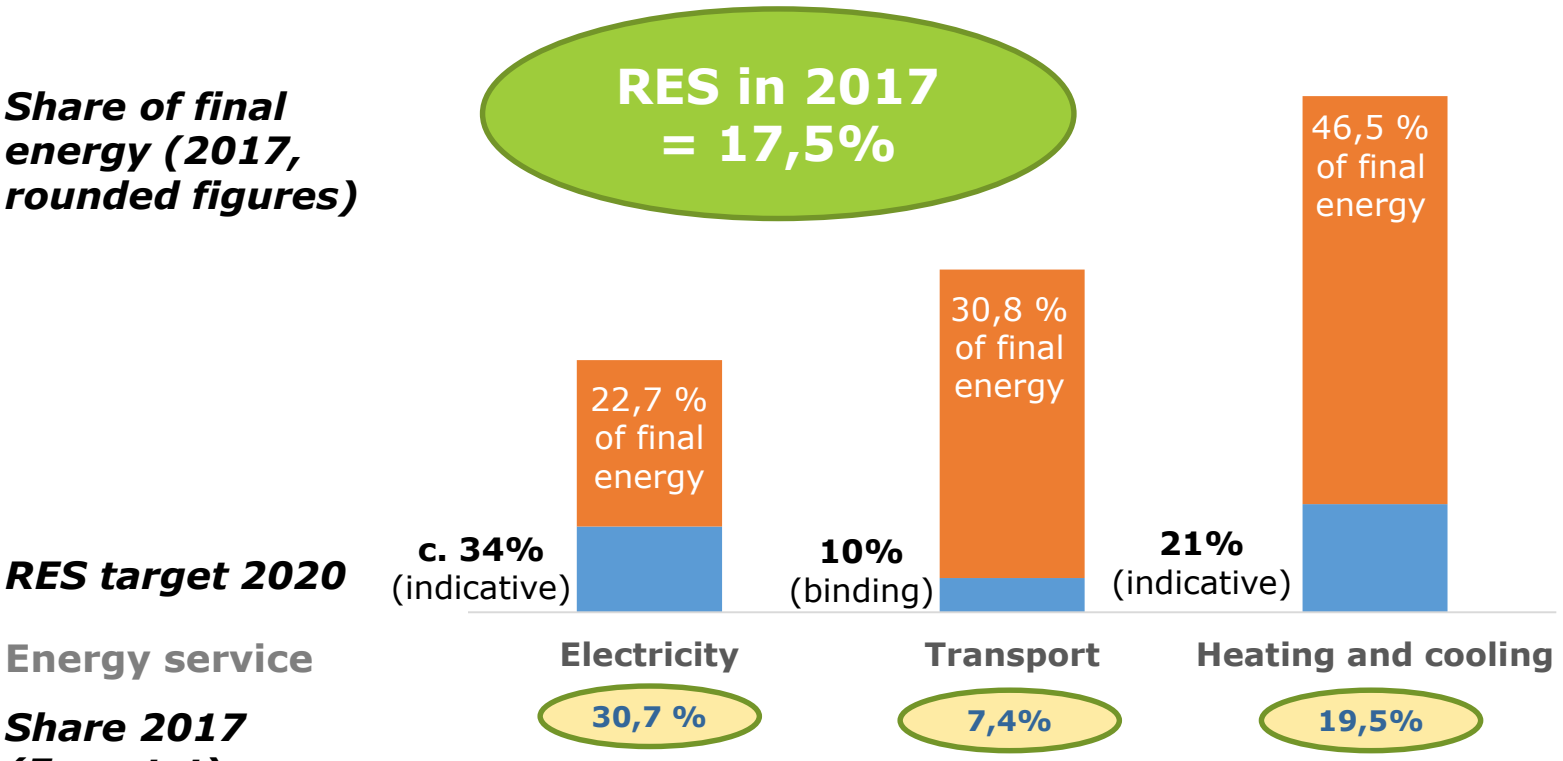
Renewables in the EU – progress per sector towards 2020



Sectoral Integration at EU level – ASSET study

Assuming the following hydrogen uses:

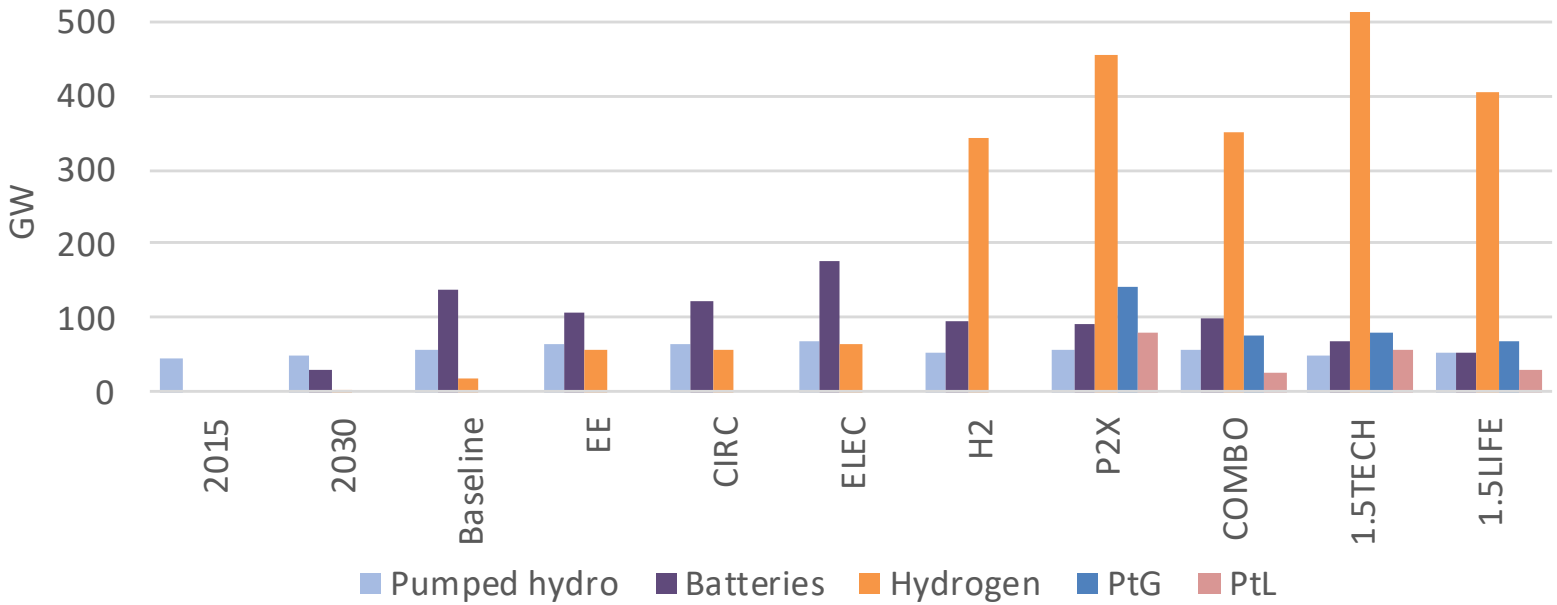
- Mix up to 15% in gas distribution
- Use fuel cells using H2 in vehicles that cannot run in batteries, such as trucks, buses, taxis, duty vehicles. Combine with large-scale HRS, which may include electrolysis and H2 storage
- Use H2 directly in high temperature furnaces in industry combined with local electrolysis and storage
- Produce clean methane in methanation plants using CO2 captured from air, integrated in power utility facilities well interconnected. H2 produced in these locations also serve electricity storage
- ¾ of total directly used in final consumption and ¼ of total as a feedstock to produce clean methane (CH4)

RESULTS

- ✓ **96% CO2 emissions reduction** in 2050 (relative to 1990) against -84% CO2 in the basic decarbonisation scenario
- ✓ The balanced scenario abates CO2 at an **average cost of €88/t CO2** (cumulatively in the period 2030-2050) against €182/tCO2 abated in the basic decarbonisation scenario

Long-term decarbonisation strategy

Storage capacity in 2050



Relevant initiatives at EU level

The **Hydrogen Initiative** launched by the **Austrian Presidency**

- Signed by 27 MS + CH, IS and the EC, together with 100 private stakeholders
- Puts emphasis on hydrogen for **seasonal storage** of electricity and to **decarbonise industry and gas networks**

The **Sustainable and Smart Gas Infrastructure declaration** launched by the **Romanian Presidency**

- Signed by 17 MS + Switzerland, Norway and Liechtenstein
- Aims to maximise the potential of the gas grid to **accommodate growing shares** of near-zero carbon hydrogen and renewable gases
- Concerns **existing as well as planned infrastructure**, in order to avoid stranded assets

The Hydrogen Energy Network

- DG ENER set up an **informal network of experts** from Ministries in charge of Energy, with the aim to offer to Member States a **platform to exchange information and best practices** in relation to hydrogen as a decarbonised energy carrier.

R&I on hydrogen: Fuel Cells and Hydrogen Joint Undertaking

- It finances R&D on FC and hydrogen with EU contribution of **EUR 646 million** from Horizon 2020 for 2014-2020.

- The EC proposed to have it continue under Horizon Europe, with a stronger focus on hydrogen **production, distribution and storage** next to selected **end-use applications** with focus on **integrating renewables and decarbonising other economic sectors**.

Hydrogen in the energy market
Regulatory and policy topics

- Reinforce the **policy framework**, (Clean Energy Package - incl. RES, distributed generation (RE), storage, smart technologies, capacity markets etc.)
- **Certification** (=market) for low-carbon gas (P2G), linking to the electricity market.
- Mechanisms for **linking energy storage to other economic sectors** (transport, industry).
- **Standardisation** - infrastructure, equipment and gas quality (incl. Hydrogen and bio-methane).
- International collaboration (e.g. CEM, IPHE, MI).

Thank You for Your Attention!

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http://ec.europa.eu/energy/index_en.htm