

## Driving the hydrogen way

**Hydrogen energy could reduce oil consumption by 40% in road transport by 2050 according to the HyWays project, which proposes a roadmap to overcome barriers and boost European competitiveness in this key sector.**

By taking a leading position in the worldwide market for hydrogen technologies, Europe can open new economic opportunities and strengthen its competitiveness. But such a transition will not happen automatically. Substantial barriers have first to be overcome, ranging from economic and technological to institutional barriers, and actions must be taken as soon as possible. The HyWays roadmap and action plan for hydrogen in Europe provide a strategy to overcome these barriers.

The EU-funded FP6 project brought together industry, research institutes and government agencies from ten European countries. Following more than 50 workshops, the project produced a roadmap to analyse the potential impacts of the large-scale introduction of hydrogen on the EU economy, society and environment in the short- and long-term, as well as a detailed action plan.

### **Zero carbon content**

Hydrogen is an energy carrier with zero carbon content. As with electric power, hydrogen can be produced from all energy resources and converted to power and heat with high efficiency and zero emissions. As a result, hydrogen has a very high potential for reducing emissions. It improves security of supply due to the decoupling of demand and resources, allowing each EU Member State to opt for those energy sources it sees fit.

Moreover, hydrogen is one of the most realistic options for environmental and economic sustainability in the transport sector, in particular passenger transport, light

duty vehicles and city buses. However, its introduction requires gradual changes throughout the entire energy system with careful planning at this early stage. The transitional period offers Europe the opportunity to take the lead in developing hydrogen and fuel cell technology and its applications in transport and energy supply. The challenges are high and the right steps have to be taken quickly if Europe is not to count the cost of late market entry.



Costs of hydrogen end-use applications, especially for road transport, need to be reduced considerably to become competitive. At the same time deployment support schemes for hydrogen end-use technologies and infrastructure build-up are required. Extensive simulations

predict that the break-even point would be most likely reached between 2025 and 2035. The HyWays roadmap estimates that there will be 16 million hydrogen cars in 2030 with a total cumulative investment for infrastructure build-up of €60 billion.

#### More information:

- [HyWays project](#)<sup>1</sup>
- [‘Commission promotes take-up of hydrogen cars and the development of hydrogen technologies’](#)<sup>2</sup>
- [Hydrogen \(Research DG website\)](#)<sup>3</sup>
- [The Fuel Cells and Hydrogen Joint Technology Initiative](#)<sup>4</sup>

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<sup>1</sup> <http://www.hyways.de/>

<sup>2</sup> <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1468&format=HTML&aged=1&language=EN&guiLanguage=en>

<sup>3</sup> [http://ec.europa.eu/research/energy/nn/nn\\_rt/nn\\_rt\\_hy/article\\_1142\\_en.htm](http://ec.europa.eu/research/energy/nn/nn_rt/nn_rt_hy/article_1142_en.htm)

<sup>4</sup> <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/404&format=HTML&aged=1&language=EN&guiLanguage=en>

- [The European Hydrogen and Fuel Cell Technology Platform](#)<sup>5</sup>
- [‘European Commission proposes a plan to accelerate energy technologies for a low-carbon future](#)<sup>6</sup>

### **Fuel Cell and Hydrogen technology JTI**

The HyWays report was published in February 2008 as Member States gave approval for a €940 million public/private research partnership for the development of hydrogen and fuel cells. Competitiveness ministers of the 27 Member States gave the green light to a European Commission proposal for a Joint Technology Initiative (JTI) – public/private research partnership – to develop fuel cell and hydrogen technology. This industry-led integrated programme of research, technology development and demonstration activities will receive €470 million of funding from the EU's research programme over the next six years, an amount to be matched by the private sector. At the same meeting, ministers discussed the Strategic Energy Technology Plan, which mentions this initiative as an example for future European actions to develop new energy technologies.

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<sup>5</sup> <https://www.hfpeurope.org/>

<sup>6</sup> <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1750&format=HTML&aged=1&language=EN&guiLanguage=en>