



Fuel Cell Europe

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From concept to reality: smart transition to clean alternative fuels

The European hydrogen and fuel cell sector (FCH sector), represented by the organisations listed below, welcomes the EU Commission's White Paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system". The European Commission tries to capture in this White Paper the complexity of the full transport sector and its variety of modal choices into a future low carbon strategy.

Introduction

Hydrogen will be a key energy carrier in a future low carbon economy. It can be produced from all primary energy sources and generates no local emissions when used to produce power in a fuel cell. Hydrogen as a clean alternative fuel and fuel cells as a new (electric) propulsion technology will therefore play an important role in achieving the goals set out in the White Paper by introducing clean electric power-trains in EU's transport system, provided proper policy and political support are put in place in the coming years.

The European Hydrogen and Fuel Cell sector would like to present hereunder its recommendations to make sure EU achieves its objectives in terms not only of decarbonisation but also in terms of EU global leadership in key sustainable technologies.

1. Fuel cell electric vehicles are an essential part of a clean car portfolio

It is clear now that only a shift to clean technologies together with better modal choices can bring about the shift to clean, safe and silent transport. **In particular in urban environments the use of public transport should be encouraged.** The White Paper recognises however, that for many people personal transports will nevertheless remain the only alternative due to the complexity of their daily journey. To enable an **offer of clean transport choices**, that **accommodates the diversity of needs** in terms of driving performance, car-size and refueling-time, **a portfolio of clean alternative cars** need to be **commercially deployed** and **appropriate refueling infrastructure needs to be built.**

In a recent fact-based evaluation of the various available alternative power trains for passenger cars¹, a balanced perspective is given on the role of various alternative passenger cars, clearly pointing out

¹ "A portfolio of power-trains for Europe: a fact-based analysis, The role of Battery Electric Vehicles, Plug-in Hybrids and Fuel Cell Electric Vehicles" McKinsey November 2010, <http://www.zeroemissionvehicles.eu/>

that electric cars, both battery and fuel cell electric, are the only alternatives with the potential to reduce carbon footprint in individual transport to zero. Battery electric and fuel cell electric cars are complementary, serving each a different car-segment in terms of size and range. **Fuel cell electric vehicles are a clean alternative for both shorter and longer ranges**, delivering similar driving-performance as traditional cars in terms of range, size and refueling time and thus **providing for a realistic clean alternative**. Battery electric cars are limited in their range and size and face long recharging times and are therefore fit for shorter journeys, likely as a second car in the family. Both alternatives require dedicated infrastructure and the cost is relatively low in terms of cost of ownership of the car (about 2500€ per car) and will reduce in line with the scaling up of cars in the market.

The technology is already today demonstrated in Light Duty Vehicles (e.g. example mail delivery cars), public buses, taxis, motorbikes, certain maritime applications and for certain applications in aircrafts. Commercial deployment of the technology in a mass market like passenger cars will be an essential step towards reducing the cost of fuel cells vehicles to comparable total cost of ownership levels to current combustion engines vehicles. This will also benefit other fuel cell application areas.

2. Investment in Hydrogen infrastructures is required to enable the take off of commercial deployment, economically feasible and should start today

As mentioned in the White Paper, *"delayed action and timid introduction of new technologies could condemn the EU transport industry to irreversible decline"*. The challenge indeed is *"to break the transport system's dependence on oil without sacrificing its efficiency and compromising mobility"*. A smooth transition towards a cleaner transport system requires a coherent and reliable regulatory framework and financial support mechanism to ensure timely introduction of clean transport options. In this context business as usual is not an option. The technology is there and ready for deployment, if not capitalised in Europe than elsewhere. To really make fuel cell electric vehicles a credible and affordable offer for the European citizen as from 2020 onwards, hydrogen infrastructure should to be built up without delay and the car-fleet should be scaled up accordingly. These developments go hand in hand. **Taking timely action is the turning-point from innovation to a real solution for European Society.**

High initial investments in infrastructure place fuel cell vehicles initially at a competitive disadvantage compared to battery charging infrastructure, even though total infrastructure cost for both technologies reach comparable levels. Furthermore the development of parallel infrastructures for both battery and fuel cell electric is key for a consistent sustainable transport policy and will allow an optimized economic balance of infrastructure needs for those complementary technologies. No economic reason prevents such parallel development. Developing different charging/refuelling infrastructures in parallel is the only way to offer a real sustainable mobility choice in view of various passenger transport needs and cost-effective deployment. Clever market de-risking mechanisms will be indeed critical to make this development a success for the European Society and industry.

A group of companies together with German government and the FCH JU is currently developing a plan to overcome this market-gap including an indication of the financial support mechanisms and incentives needed for large scale deployment in H2Mobility.

We welcome the dialogue approach as described in the White Paper for refining the concepts for future transport and shaping the role of hydrogen and fuel cells.

From concept to reality : Recommendations:

To move from concept to reality and to facilitate a smart transition to clean alternative fuels and vehicles, the FCH sector likes to put forward the following suggestions, building on the framework as laid out in the White Paper.

To fully leverage the potential of key technologies, the measures indicated up to 2014 should address investments in deployment of these technologies in a more immediate and concrete manner to achieve EU's low carbon transport ambitions for 2030 and 2050.

The FCH sector agrees with the European Commission that EU's transport research and innovation policy should move towards a "systems' approach" by

- Taking care of infrastructure and regulatory requirements,
- Coordination of multiple actors
- Carrying out large demonstration projects over the next couple of years, in order to encourage market uptake of new transport technologies, like hydrogen and fuel cells,.

The European hydrogen and fuel cell sector together with the Commission has started to work in this direction since more than three years in the Joint Undertaking for hydrogen and fuel cells (FCH JU), one of the first European Industrial Initiatives under the Strategic Energy Technology Plan (SET-plan). The White Paper indications of increased efforts in identifying appropriate governance and financing instruments and more coordination with the SET Plan activities are therefore very encouraging.

The White Paper further identifies the urban environment as an excellent testing bed for the demonstration and deployment of clean transport technologies, in particular for public transport. Especially at urban level the following needs to be addressed coherently to achieve fast results

- Requirements for introducing new technologies with regards to land-use planning
- Pricing schemes,
- Public transport services
- Refueling infrastructure of clean vehicles

In addition, EU, national, regional and local policy action should be leveraged to accelerate necessary adaptation and involvement of key political and industrial stakeholders.

The FCH sector sees an important role for its technology within the intended measures up to 2014 as indicated by the Commission. When used effectively, these measures could help facilitate bridging the gap to market for the use of hydrogen in public and private transport:

1. EU Strategic Transport Technology Plan

When setting out the deployment strategy to incentivise the uptake of new technologies in the market should take into account the role and cost perspective of different clean technologies. As indicated in the recent study “A portfolio of power-trains for Europe: a fact-based analysis” both battery and fuel cell vehicles will play each a complementary role in the decarbonisation of transport, whereby fuel cell electric vehicles provide a clean alternative for both short and the longer range and the 'family-car' segment . In order to leverage the full potential of the contribution of fuel cell transport (including hydrogen buses and commercial LDV) **for reducing transport emissions**, the following actions need to be taken, starting now:

- **Hydrogen infrastructure requirements** should be **integrated** in current **transport and energy network planning** at **local and intercity** level.
- Comprehensive multi level **(public) procurement support actions** need to be developed to ensure **sustainable market build- up**.

2. Clean transport systems strategy

The clean transport systems strategy, as part of the overall STTP, needs to include specific measures to

- Incentivise and facilitate the introduction of **clean vehicles**
- Favour the introduction of EU wide **standards**.
- Facilitate large scale **industrial investments** plans, necessary to accelerate the roll out of significant numbers of vehicles and the development of an **effective maintenance and service structure** for these vehicles.

3. Better coordination of public and private (financial) resources

Enhanced **coordination and planning** of **multilevel financing mechanisms**, to support public/private driven market introduction of clean vehicles and refuelling infrastructure is needed to enable pooling of the various funds available both at private and public levels. Budget at regional level for hydrogen infrastructure development should be matched with EU funding on an annual basis. More coordination and planning of multi level financing measures could facilitate the shift from funding of these technologies to financing concrete large scale integration of these applications at local level.

4. Smart cities

Procedures and financial assistance for urban mobility audits and urban mobility plans and possibilities for regional and cohesion funds to be linked to cities and regions which have submitted urban mobility plans should not only support the use of the cheapest clean transport options on the short term but should **facilitate the uptake of transport solutions that provide long term sustainable solutions and economic opportunities for European industry including SME's and have a positive impact on local employment**.

We like to conclude with stressing that investment in fuel cell and hydrogen technology is key today to keep EU leadership in one of the main sustainable solutions for a strong European energy & transport policy

We look forward to continue our dialogue and look forward to contributing to the further development of the regulatory framework necessary to achieving these objectives.

Yours sincerely,

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Fuel Cells and Hydrogen Joint Undertaking (FCH JU), www.fchju.net

FCH JU is the public private partnership supporting research, technological development and demonstration (RTD) activities in fuel cell and hydrogen energy technologies in Europe to accelerate the market introduction of these technologies.

NEW-IG www.fchindustry-jti.eu

NEW-IG is the industry group of a public-private partnership built to implement a target-oriented R&D programme to support the broad market introduction of fuel cells and hydrogen technologies.

European Hydrogen Association, EHA www.h2euro.org

Representing 19 national associations and the main hydrogen infrastructure development companies, the EHA is promoting the integration of hydrogen as a clean energy carrier in Europe's energy and transport system.

HyRaMP www.hy-ramp.eu

The European Regions and Municipalities Partnership for hydrogen and fuel cells represents over 30 regions and cities. HyRMP's objectives are fostering the adoption of fuel cell and hydrogen technologies.

FuelCellEurope www.fuelcelleurope.org

FuelCellEurope is the leading European association gathering organisations active on the entire fuel cells value chain. It works to accelerate the development and market uptake of fuel cells technology.