



Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2 JU) Frequently Asked Questions

Background information:

The Fuel Cells and Hydrogen Joint Undertaking was established in 2008 - 2013, as the first public-private partnership under the European Strategic Energy Technology Plan (SET-Plan), technology pillar of the EU's energy and climate policy. Its objective is to accelerate the development of fuel cell and hydrogen technologies in Europe to enable their commercialisation. The continuation and further strengthening of the programme has been proposed under Horizon 2020, the new innovation investment package for 2014-2020.

Was the FCH JU 2008 – 2013 a success? What are the key results and achievements?

Under the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) 2008-2013, substantial progress has been achieved in both energy and transport applications, as well as in education and training activities.

Looking at **overall impact**, FCH JU has served as a catalyst for the sector:

- By providing stability and long-term commitment of key partners
- Creating a “hub” of active FCH players in Europe across the innovation chain
- Developing a joint coordinated strategy to increase effectiveness
- Pooling resources to support nascent technologies beyond local or private possibilities
- Building coalitions as a central focal point that brings parties together
- Facilitating access to new business and project partners to stimulate the sector growth

More than **130 concrete projects** have been supported and additional projects are under negotiation:

- More than 430 individual beneficiaries have participated in the programme so far.
- Between 2008 and 2012, a total amount of 391 million € was spent on JU activities. Private enterprises received two-thirds of the funding (258M€, of which 100M€ for SMEs), while research centres and universities received one-third (133M€).
- The focus of these projects ranges from fundamental/basic research to large-scale demonstration and policy and pre-market studies.

Transport:

- 49 FCH buses, 37 passenger cars and 95 mini cars with range extenders will be brought into operation.
- Reduction in H₂ consumption : bus 22 =>11 kg/100 km
- 13 new refuelling stations in EU
- H₂ cost < 10 €/kg

Stationary Energy Production:

- More than 1000 micro-CHP (Combined Heat & Power generators), mainly for domestic applications
- Techno-economic achievements: electrical efficiency will be up to 60% for SOFC and below 20,000 €/kW by the end of the trial

Early Markets:

- 9 fork lifts and 1 tow truck demonstrated
- 19 back up power units installed



- Detailed information regarding all FCH JU projects, as well as results of annual project reviews, is available on the FCH JU website: www.fch-ju.eu

Did the FCH JU stimulate private investment?

The sector has **grown substantially** since the FCH JU was established. [A 2013 study](#) “Trends in investments, jobs and turnover in the Fuel cells and Hydrogen sector” reports the following:

- 10% average increase of annual turnover (on a 2012 total of €0.5 billion)
- 8% average increase of R&D expenditures (2012 total €1.8 billion)
- 6% average increase of market deployment expenditures (2012 total €0.6 billion)
- 6% growth in jobs per year (~4,000 FTE in 2012) while average EU job market has contracted
- 16% annual increase in patents granted in the EU to European companies (average 1.5% for all European industries)

FCH JU has **sparked** activities across the industry, resulting in **significant investments**: almost 60% out of 150 organisations participating in the 2012 sector survey have increased R&D expenditures / budgets because of the FCH JU's existence.

What about SMEs?

The current FCH JU programme has provided a strong and stable **growth platform for SMEs**, who are considered valued partners in the FCH JU community. The SME participation rate in FCH JU projects is 25.6%, higher than FP7 average of 18%. In addition, SMEs are very **active players** in the system. One seat on the Board of the Industry Grouping as well as one seat in the FCH JU Governing Board is specifically reserved for SMEs.

Why continue the FCH JU?

The FCH JU has achieved **significant progress** and contributed to bringing some applications near to market readiness (e.g. material handling, back-up power systems, portable power generation). However, taking to market applications with the strongest potential to address energy security and climate change issues (e.g. road transport, public urban transport, stationary power generation, combined heat and power, hydrogen from renewable energy sources and electricity storage) requires both **further technical developments and demonstrations** to achieve large scale production volumes fast.

What will be the strategic objectives of the FCH 2 JU?

The proposed new phase of the FCH 2 JU under Horizon 2020 will **build on the research and experience** gained in the current period 2008-2013 and implement a focused innovation programme to develop to the point of market introduction a portfolio of clean and efficient solutions that exploit the properties of hydrogen as an energy carrier and fuel cells as energy converters.

The **strategic objectives** of the renewed programme will be to:

- 1) Boost the share of FCH technologies in a sustainable, low-carbon energy and transport system;
- 2) Enhance energy security in Europe at affordable prices for end-consumers;
- 3) Ensure a world leading, competitive European FCH industry with research excellence leading to industry innovation, growth and jobs.



How will the programme be structured?

The implementation of the FCH 2 JU programme will be structured around **two main innovation pillars** in road transport and energy supported by cross-cutting research activities that integrate technologies applied both in energy and transport sectors such as codes and standards, training and studies.

- **Innovation pillar 1: FCH Technologies for Transportation Systems**

Road transport will be the principal priority as it offers the highest potential for addressing EU climate change and energy security objectives. The programme will address performance improvement and cost reduction of the next generation of fuel cell electric vehicles and developing the necessary hydrogen refuelling infrastructure – both critical points for mass market introduction. Non-road mobile vehicles and machinery, maritime, rail and aviation applications will also be included.

- **Innovation pillar 2: FCH Technologies for Energy Systems**

In energy, the FCH 2 JU programme will focus on hydrogen as the flexible link between renewable energy and range of use in both mobile and stationary systems. Another focus area will be storage of renewable electricity and grid balancing, including hydrogen blending in the natural gas grid. Finally fuel cells in power, Combined Heat and Power and Combined Cooling Heat and Power systems for domestic, commercial, municipal and industrial applications uses and other small applications will also be included.

Who will manage the programme? How will governance be organised?

A **Programme Office**, under the responsibility of its **Executive Director**, will manage the execution of the FCH 2 JU Programme. The Executive Director will work under supervision of the **Governing Board**. The latter will consist of representatives of the three FCH JU members and will be chaired by an Industry representative, elected by the rest of the members of the Board.

The FCH 2 JU will continue to be an industry led private-public partnership with the same membership as at present: the Industry Grouping **NEW-IG**, representing the European FCH industry sector, the Research Grouping **N.ERGHY**, representing the European FCH research community and the **European Commission**. These partners will be represented in the Governing Board of the Joint Undertaking.

A **Scientific Committee** and a **States Representatives Group**, both formal advisory bodies, will continue to provide relevant advice to the FCH 2 JU. A **Stakeholder Forum** will meet each year to enable interaction with the larger European fuel cell and hydrogen community.

How will priorities be determined?

Both documents will be developed by the NEW-IG, N.ERGHY and the European Commission under the leadership of the NEW-IG and with input from the Programme Office, the Scientific Committee and the States Representatives Group. The principal business documents of the FCH 2 JU will be the **Multi-Annual Work Plan (MAWP)** and the **Annual Work Plans (AWPs)** that have to be endorsed by the Governing Board. The MAWP may be revised over the lifetime of the FCH 2 JU with industry and market inputs. The AWP will be the basis to define the topics for calls proposals to be published each year.



How much money will be available? How much will be committed by the partners?

The maximum EU contribution to the existing FCH JU under FP7 is almost €1 billion, consisting of 50/50 co-financing between the European Commission and other Members of the JU (the Industry Grouping and the Research Grouping).

An increased **total commitment of €1.4 billion** has been proposed for FCH 2 JU with the private partners and the public sector contributing €700 million each. In addition to its direct funding capacity, the FCH 2 JU is planned to further stimulate private investments and leverage other funds (e.g. at the level of the Members State and regions/municipalities).

Who can apply? Is the FCH JU programme open and transparent?

The FCH JU system is **completely open and transparent**. Fulfilling basic eligibility criteria, any company or research institute in Europe can apply for funding under the competitive calls for proposals. In addition, the membership of NEW-IG and N.ERGHY, the two FCH JU Groupings which actively shape the priorities of the programme is also open to companies and research entities who fulfil basic eligibility criteria (e.g. relevant activities in Europe).

All **practical information for FCH JU call applicants**, including eligibility criteria, timelines, processes and required documents are published on the FCH JU website – section “*How to participate*”: <http://www.fch-ju.eu/content/how-participate-fch-ju-projects>.

What are the benefits of becoming a member of NEW-IG or N.ERGHY?

The current members of the FCH JU represent a **major share of Europe’s stakeholders** from across the fuel cells and hydrogen value chain.

The **NEW-IG** gathers over 60 companies of all sizes (about 50% SMEs), including car manufacturers, industrial groups, oil and gas companies, utilities, industrial gas companies and highly innovative SMEs developing and integrating FCH technologies across the whole value chain for applications in transportation, power generation and hydrogen production. The current list of members is available here: <http://www.new-ig.eu/members>.

N.ERGHY is the voice of the European FCH Research community within the FCH JU. Since its foundation in March 2008, it has been representing the interests & priorities of about 60 universities and research institutes. N.ERGHY focuses on creating favourable conditions for research organizations within the European FCH environment by defining the needs, scale and strategic path of the FCH Research. The current list of members is available here: <http://www.nerghy.eu/en/intern/108.php>

By joining NEW-IG or N.ERGHY, companies and research players:

- Set the priorities of the on-going European R&D and demonstration programme for fuel cells and hydrogen technologies
- Benefit from valuable resources made available through the collaboration of the FCH JU private and public partners
- Get easier access to financial support for members by benefiting from rules of participation applying to FCH JU calls for proposals
- Receive first-hand insights in relevant EU development and up-to-date information on global developments, activities and events relevant to the sector
- Are part of a unique platform for knowledge sharing, exchange and networking across various segments of the FCH industry
- Take advantage of services provided by the Brussels-based Secretariats



Where can I find more information?

For Information regarding the NEW-IG Industry Grouping and membership:

NEW-IG Secretariat
Email: secretariat@new-ig.eu
Tel: +32 2 54 087 75
Website: www.new-ig.eu

For Information regarding the N.ERGHY Research Grouping and membership:

N.ERGHY Secretariat
Email: secretariat@nerghy.eu
Tel: +49 2203 601 2421
Website: www.nerghy.eu

For Information regarding the FCH JU as a whole, calls and application for funding:

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