Fuel cells and hydrogen
Joint undertaking

Transport Pillar and Overarching Topics in 2014 call

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New Energy World JU
fuel cells & hydrogen for sustainability

http://www.fch-ju.eu/

Transport pillar
FCH-02 2014

Topic	Type of Action	Ind. Budget MEURO
1.1: Standardization of components for cost-efficient fuel cell systems for transportation applications	Innovation (IA)	10
1.2: Cell and stack components, stack and system manufacturing technologies and quality assurance	Research & Innovation (RIA)	
1.3: Development of advanced fuel cell systems and system components		
1.4: Hydrogen storage standardisation and components optimization for mass production		
1.5: Development of cost effective and reliable hydrogen refuelling station technologies and systems for fuel cell vehicles		
1.6: Engineering studies for large scale bus refuelling		
1.7: Large scale demonstration of refuelling infrastructure for road vehicles	Innovation (IA)	32

Transport pillar IA

Topic 1.1: Standardization of components for cost-efficient fuel cell systems for transportation applications

Challenge

- Standardization of interfaces and components to reduce cost to accelerate market introduction of automotive fuel cell technology

Scope

- Identify and select components or subsystems
- Align specifications and interfaces
- Define test protocols
- Transfer to industry codes & standards and regulations

Impact

- Standardization of Balance-of-Plant components will lead to cost reduction and likely, commercialisation.

Other information

- *One project maximum. 3-4 years. Indicative budget of 2-3 million €*

Transport pillar RIA

Topic 1.2: Cell and stack components, stack and system manufacturing technologies and quality assurance

Challenge

- Improve manufacturability, production efficiency and production cost of automotive fuel cell stacks

Scope

- Improvements to existing, validated designs for cells
- Improvements in cell and stack manufacturing, assembly and QA methods
- Simplification of design and manufacturing methods of cell components, cells, stacks and/or stack modules
- Testing and validation of critical manufacturing sub-processes

Impact

- Cost reductions of more than 500 €/kW down to 150 €/kW at FC system level
- Manufacturing methods in terms of yield and cost, reducing stack scrap rate
- Decreased materials consumption or/and achieve a higher power density

Other information

- *One project maximum. 3 years. Indicative budget of 4-6 million €*

Transport pillar RIA

Topic 1.3: Development of advanced fuel cell systems and system components

Challenge

- Improvement of functionality, efficiency, manufacturability and cost of automotive application fuel cell technology.

Scope

- Develop low cost fuel cell system components adopting latest system and component level engineering methodologies.
- Provide advanced analysis and concepts for further system simplification, ease of manufacturing and cost reduction at typical automotive volumes

Impact

- Verification of components on test stations
- Validation of components on the level of a fuel cell system
- Prototyping demonstration in a relevant end-to-end environment

Other information

- *4-5 years. Indicative budget of 3-4 million €*

Transport pillar RIA

Topic 1.4: Hydrogen storage standardisation and components optimization for mass production

Challenge

- Meet cost and performance targets of onboard hydrogen storage systems for fuel cell powered vehicles (light and heavy duty).
- Standardisation of systems, processes and components to accelerate market introduction of automotive hydrogen storage technology.

Scope

- Identify and select onboard storage system components
- Align specifications and interfaces
- Define test procedures
- Transfer to industry standards, codes and regulations

Impact

- Hydrogen storage components for standardization on a world-wide level
- Accepted test procedures for selected components
- cost reduction to 800 €/kg H2 stored

Other information

- *One project maximum. 3-4 years. Indicative budget of 3-5 million €*

Transport pillar RIA

Topic 1.5: Development of cost effective and reliable hydrogen refuelling station components and systems for fuel cell vehicles

Challenge

- Solve the hydrogen refuelling infrastructure currently part-wise unsatisfactory reliability
- Reduce the relatively high CAPEX of HRSs related to costly components and high HRS complexity.

Scope

- R&D, engineering, prototype manufacturing and/or laboratory testing of key components or complete HRS systems
- R&D and optimization of multiple key components (compression, storage, cooling and refuelling, regulation and control)
- R&D and design of larger scale complete HRS systems

Impact

- Newly developed and laboratory or pilot validated HRS key components and/or complete HRS systems fulfilling MAWP 2017 targets.

Other information

- *One project maximum. 3years. Indicative budget of 4-6 million €*

Transport pillar RIA

Topic 1.6: Engineering studies for large scale bus refuelling

Challenge

- Need of HRS at scale for commercial bus depots (75-300 buses)

Scope

- Detailed engineering design studies for a minimum of five representative bus depots operating at least 75-150 fuel cell buses
- Options for supplying hydrogen to bus depots (off-site and on-site production)
- Assess administrative and practical burdens which large fuelling systems
- Implications of local regulations, codes and standards on the designs

Impact

- Identification of the factors which lead to the lowest costs of hydrogen supply at a range of specific bus depots
- Provide a mechanism to down-select depots for detailed design work if enough regions are interested
- Indicative layouts for the preferred depot design

Other information

- *One project maximum. 1.5-2 years. Indicative budget of 1-2.5 million €*

Transport pillar IA

Topic 1.7: Large scale demonstration of refuelling infrastructure for road vehicles

Challenge

- Improve FCEV technology.
- Strengthen customer acceptance.
- Deployment of a refuelling infrastructure for initially limited vehicle fleet

Scope

- Roll-out of a minimum of 100 FCEVs and 23 HRS.
- Focus on FCEVs which use a fuel cell system as the main power source and 700 bar hydrogen storage systems but range extenders or other storage possible

Impact

- develop, deliver and operate hydrogen refuelling infrastructure and a fleet of FCEVs
- Contribute to coordination of“H2Mobility” initiatives at the European scale

Other information

- *One project maximum. 4-6 years. Maximum funding of 32 million €*

Overarching topics
FCH-02 2014

Topic	Type of Action	Ind. Budget MEURO
3.1: Hydrogen territories	Innovation (IA)	5

Overarching projects IA

Topic 3.1: Hydrogen territories

Challenge

- Demonstrate pioneer hydrogen economy models at territories levels where there is a strong political commitment
- Prove the viability and feasibility of hydrogen economy concept in off-grid areas (isolated territories).

Scope

- Develop and deploy replicable, balanced and integrated fuel cell and hydrogen solutions in both energy and transport fields
- Near/fully autonomous hydrogen buildings/quarters/districts
- Integration of hydrogen refuelling infrastructures and provision of vehicle fleets powered by hydrogen

Impact

- Increase the energy efficiency of isolated territories and the mobility efficiency with lower emissions of pollutants and CO2.

Other information

- *One project maximum. 5 years. Maximum funding of 5 million €*

More information

Call Material http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-jti-fch-2014-1.html

FCH JU official website:
http://www.fch-ju.eu/

European Industry Grouping for a FCH-JTI (NEW-IG):
http://www.fchindustry-jti.eu

New European Research Grouping on FCH (N.ERGHY):
http://www.nerghy.eu