

# Procedure file

Basic information	
CNS - Consultation procedure Regulation	2007/0211(CNS) Procedure completed
Fuel Cells and Hydrogen Joint Undertaking Amended by <a href="#">2011/0091(NLE)</a> Repealed by <a href="#">2013/0245(NLE)</a> Subject 3.50.01.05 Research specific areas 3.50.20 Scientific and technological cooperation and agreements 3.60.05 Alternative and renewable energies 3.70.03 Climate policy, climate change, ozone layer	

Key players			
European Parliament	Committee responsible	Rapporteur	Appointed
	<b>ITRE</b> Industry, Research and Energy		18/12/2007
		PSE <a href="#">LOCATELLI Pia Elda</a>	
	Committee for opinion	Rapporteur for opinion	Appointed
	<b>BUDG</b> Budgets		20/09/2004
		PSE <a href="#">HAUG Jutta</a>	
	<b>CONT</b> Budgetary Control	The committee decided not to give an opinion.	
	<b>ENVI</b> Environment, Public Health and Food Safety	The committee decided not to give an opinion.	
Council of the European Union	Council configuration	Meeting	Date
	<a href="#">Competitiveness (Internal Market, Industry, Research and Space)</a> <a href="#">2871</a>		29/05/2008
	<a href="#">Competitiveness (Internal Market, Industry, Research and Space)</a> <a href="#">2852</a>		25/02/2008
	<a href="#">Competitiveness (Internal Market, Industry, Research and Space)</a> <a href="#">2832</a>		22/11/2007
European Commission	Commission DG	Commissioner	
	<a href="#">Research and Innovation</a>	POTOČNIK Janez	

Key events			
09/10/2007	Legislative proposal published	<a href="#">COM(2007)0571</a>	Summary
22/11/2007	Debate in Council	<a href="#">2832</a>	
10/12/2007	Committee referral announced in Parliament		

25/02/2008	Debate in Council	<a href="#">2852</a>	
08/04/2008	Vote in committee		Summary
10/04/2008	Committee report tabled for plenary, 1st reading/single reading	<a href="#">A6-0145/2008</a>	
19/05/2008	Debate in Parliament		
20/05/2008	Results of vote in Parliament		
20/05/2008	Decision by Parliament	<a href="#">T6-0203/2008</a>	Summary
29/05/2008	Act adopted by Council after consultation of Parliament		
29/05/2008	End of procedure in Parliament		
12/06/2008	Final act published in Official Journal		

### Technical information

Procedure reference	2007/0211(CNS)
Procedure type	CNS - Consultation procedure
Procedure subtype	Legislation
Legislative instrument	Regulation
	Amended by <a href="#">2011/0091(NLE)</a> Repealed by <a href="#">2013/0245(NLE)</a>
Legal basis	EC Treaty (after Amsterdam) EC 171
Stage reached in procedure	Procedure completed
Committee dossier	ITRE/6/54798

### Documentation gateway

Legislative proposal		<a href="#">COM(2007)0571</a>	09/10/2007	EC	Summary
Document attached to the procedure		<a href="#">SEC(2007)1272</a>	09/10/2007	EC	
Document attached to the procedure		<a href="#">SEC(2007)1273</a>	09/10/2007	EC	
Committee draft report		<a href="#">PE402.530</a>	19/02/2008	EP	
Committee opinion	<b>BUDG</b>	<a href="#">PE400.645</a>	29/02/2008	EP	
Economic and Social Committee: opinion, report		<a href="#">CES0484/2008</a>	12/03/2008	ESC	
Amendments tabled in committee		<a href="#">PE402.922</a>	14/03/2008	EP	
Committee report tabled for plenary, 1st reading/single reading		<a href="#">A6-0145/2008</a>	10/04/2008	EP	
Text adopted by Parliament, 1st reading/single reading		<a href="#">T6-0203/2008</a>	20/05/2008	EP	Summary
Commission response to text adopted in plenary		SP(2008)3593/2	12/06/2008	EC	
Follow-up document		<a href="#">COM(2011)0557</a>	14/09/2011	EC	

Follow-up document		<a href="#">SEC(2011)1044</a>	14/09/2011	EC	
Follow-up document		<a href="#">SEC(2011)1072</a>	21/09/2011	EC	Summary
Follow-up document		<a href="#">COM(2012)0190</a>	27/04/2012	EC	Summary
Follow-up document		SWD(2012)0105	27/04/2012	EC	
Follow-up document		<a href="#">COM(2012)0758</a>	14/12/2012	EC	Summary
Follow-up document		SWD(2012)0430	14/12/2012	EC	
Follow-up document		COM(2013)0935	06/01/2014	EC	Summary
Follow-up document		SWD(2013)0539	06/01/2014	EC	
Follow-up document		COM(2014)0252	08/05/2014	EC	Summary

### Additional information

National parliaments	<a href="#">IPEX</a>
European Commission	<a href="#">EUR-Lex</a>

### Final act

[Regulation 2008/521](#)  
[OJ L 153 12.06.2008, p. 0001](#) Summary

## Fuel Cells and Hydrogen Joint Undertaking

**PURPOSE:** to establish a Joint Technology Initiative (JTI) on 'Fuel Cells and Hydrogen' to stimulate an integrated research, technological development and demonstration effort in fuel cell and hydrogen technologies of sufficient critical mass to contribute significantly to European energy public policy objectives.

**PROPOSED ACT:** Council Regulation.

**BACKGROUND:** Joint Technology Initiatives (JTIs) are introduced in the Seventh Framework Programme (FP7) as a way of creating public-private partnerships in research at European level. The "Co-operation" Specific Programme identifies fuel cells and hydrogen as one of six areas where a JTI could be particularly relevant, alongside aeronautics and air transport, innovative medicines, embedded computing systems, nanoelectronics and global monitoring for environment and security (GMES). JTIs arise mainly from the work of European Technology Platforms (ETPs). In a small number of cases, ETPs have achieved such an ambitious scale and scope that they will require the mobilisation of high public and private investments as well as substantial research resources to implement important elements of their Strategic Research Agendas. JTIs are proposed as an effective means of meeting the needs of these ETPs.

Fuel cells are very quiet, highly efficient, energy converters capable of delivering substantial cumulative greenhouse gases (GHG) and pollutant reductions. They offer flexibility to the energy mix as they can be operated on hydrogen and other fuels such as natural gas, ethanol and methanol. Fuel cells using hydrogen are intrinsically clean energy converters because the only exhaust product is steam, while other types using natural gas and other fossil fuels also reduce emissions because they use less fuel owing to their higher efficiency. The introduction of hydrogen as a flexible energy carrier can contribute positively to energy security and stabilise energy prices as it can be produced from any primary energy source, and as such can introduce diversity into the transport mix, which is currently 98% dependent on oil.

Although significant EU public funds have already been directed to research into fuel cells and hydrogen, and they are already included in the FP7 energy and transport research portfolio as an important component of research, technological development and demonstration (RTD&D) strategy, the technologies are unlikely to be commercially available as quickly as is desirable. There is a danger of fuel cell and hydrogen industrial development stagnating and falling further behind global competitors. An integrated strategy is required to maximise the benefits of transition technologies with fuel cells using natural gas, biogas, methanol and ethanol, if possible combined with carbon capture and storage (CCS) in the pathway and exploiting strategic niche markets in a planned and optimised framework to avoid economic disruption.

**CONTENT:** the Fuel Cells and Hydrogen Joint Undertaking resulting from the Technology Platform on Hydrogen and Fuel Cells contributes to the implementation of the Environmental Technologies Action Plan (ETAP) as foreseen in the Communication which included this Technology Platform within priority actions of the ETAP ([INI/2004/2131](#)). The European Parliament adopted a Written Declaration in May 2007 which called upon the EU Institutions to support fuel cell and hydrogen technologies for portable, stationary, and transport applications through a partnership with committed regions and cities, SMEs and civil society organisations ([DCE/2007/2123](#)).

The FCH Joint Undertaking shall contribute to the implementation of the Seventh Framework Programme (2007-2013) of the European Community for research, technology development and demonstration and in particular the 'Cooperation' Specific Programme themes for "Energy", "Nanosciences, Nanotechnologies, Materials and New Production Technologies", "Environment (including Climate Change)", and "Transport (including Aeronautics)". It shall, in particular:

- support research, technological development and demonstration (RTD&D) in the Member States and Associated countries in a coordinated manner to overcome the market failure and focus on developing market applications and thereby facilitate additional industrial efforts towards a rapid deployment of fuel cells and hydrogen technologies;
- support the implementation of the research priorities of the JTI on Fuel Cells and Hydrogen, notably by awarding grants following competitive calls for proposals;
- aim to encourage increased public and private research investment in fuel cells and hydrogen technologies in the Members States and Associated countries;
- conclude service and supply contracts necessary for the functioning of the FCH Joint Undertaking;
- ensure the efficiency and effectiveness of the JTI on Fuel Cells and Hydrogen.

The FCH Joint Undertaking shall be considered as an international body which shall be located in Brussels, Belgium. It should be set up for an initial period of 10 years ending on 31 December 2017. This period may be extended. The founding members of the FCH Joint Undertaking shall be: (a) the European Community, represented by the Commission, and (b) the European Fuel Cell and Hydrogen Joint Technology Initiative Industry Grouping Aisbl established under Belgian law (hereinafter the 'Industry Grouping').

The EC budget, totalling EUR 470 million, will come from the following FP7 "Cooperation" Specific Programme budget lines: Energy; Nanosciences, Nanotechnologies, Materials and New Production Technologies; Transport (including Aeronautics); and Environment (including Climate Change) in DG RTD and Transport in DG TREN.

Lastly, the Commission shall present to the European Parliament and to the Council an annual report on the progress achieved by the FCH Joint Undertaking.

## Fuel Cells and Hydrogen Joint Undertaking

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The Committee on Industry, Research and Energy adopted the report by Pia Elda LOCATELLI (PES, IT), amending, under the consultation procedure, the proposal for a Council regulation setting up the Fuel Cells and Hydrogen Joint Undertaking.

The main amendments adopted are as follows:

**Establishment of the Joint Undertaking:** MEPs ask that it be ensured that, after the last call for proposals in 2013, projects still in progress are implemented, monitored and funded until 2017. They also specify that the Joint Undertaking is a Community body as referred to in Article 185 of the Financial Regulation and that Parliamentary control over the budget is guaranteed.

**Objectives and tasks:** the main aim of the Joint Undertaking shall be to place the European Union at the forefront of fuel cell and hydrogen technologies, thus enabling the market breakthrough of fuel cell and hydrogen technologies, so that the substantial benefits expected of such technology can be achieved by the market. Breakthrough-oriented research should also be supported. The research activities should build on the work carried out by the European Hydrogen and Fuel Cell. Furthermore, the participation of SMEs, research centres and universities in the RTD activities should be promoted. In line with the Rules for Participation in the Seventh Framework Programme, MEPs consider that the maximum level of public funding of eligible costs should, in the case of SMEs, research centres and universities, be fifty percent higher than for other entities.

**Sources of finance:** the amended text specifies that the initial Community contribution to the Joint Undertaking administrative and operational costs - EUR 470 million - shall be paid from the appropriations in the general budget of the European Union allocated to the "Energy", "Nanosciences, Nanotechnologies, Materials and New Production Technologies", "Environment (including Climate Change)", and "Transport (including Aeronautics)" themes of the Specific Programme "Cooperation" implementing the Seventh Framework Programme for research. This contribution may be revised during a mid-term review in light of progress made and the achievements and impact of the Joint Undertaking.

The Joint Undertaking shall be jointly funded by its Members by way of financial contributions paid in instalments and by in-kind contributions from legal entities participating in the activities. The running costs of the Joint Undertaking shall be covered equally in cash by the Community and the Industry Grouping from the outset. The Industry Grouping shall ensure that industry's contribution to the achievement of the RTD activities funded by the Joint Undertaking at least matches the Community contribution. As soon as the Research Grouping becomes a member of the Joint Undertaking, it shall contribute to 1/20 of the running costs.

The part of the Community contribution to the Joint Undertaking for the funding of RTD activities shall be granted following open, competitive calls for proposals and an evaluation, completed with the assistance of independent experts, of the proposed project. The Commission's contribution to running costs shall not exceed EUR 20 million, payable in annual instalments of up to EUR 2 million. Any part of this contribution not spent during the current year shall be made available in the following years for the RTD activities. The running costs, and in particular the administrative costs, should be kept to an absolute minimum and full use should be made of the resources and organisational systems of existing bodies.

**Financial provisions:** MEPs consider that the financial rules applicable to the Joint Undertaking should not depart from Commission Regulation (EC, Euratom) No 2343/2002 on the framework Financial Regulation for the bodies referred to in Article 185 of the Financial Regulation, unless its specific operating needs so require. The prior consent of the Commission should be required for the adoption of any rules which derogate from this Regulation. The budgetary authority should be informed of such derogation.

**Reports, assessments:** the annual report presented by the Commission shall include the number of proposals submitted, the number of proposals selected for funding, the types of participant (including SMEs) and country statistics. By no later than 31 December 2011 and 31 December 2014, the Commission shall present interim evaluations of the Joint Undertaking carried out with the assistance of independent experts. The Commission shall communicate the conclusions thereof, accompanied by its observations and, where appropriate, proposals for the amendment of the present Regulation to the European Parliament and to the Council.

**Personnel:** MEPs stress that the need to ensure stable employment conditions and equal treatment of staff and to attract specialised scientific and technical staff of the highest calibre requires that the Commission be authorised to second as many officials as it regards necessary to the Joint Undertaking. The remaining staff should be recruited by the Joint Undertaking in accordance with the host country employment regulations.

Intellectual property rights: given that this JTI forms part of FP7, the rules on intellectual property rights should be based on the principles set out in the Rules of Participation in FP7.

Lastly, it should be noted that the text has been put in line with the text of the other JTIs in order to have a consistent and horizontal approach. To this aim, amendments have been proposed to move parts of the legal text into the Annex, which would also reduce unnecessary duplication of the text and legal inconsistencies.

## Fuel Cells and Hydrogen Joint Undertaking

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The European Parliament adopted, by 591 votes to 13 with 15 abstentions, a resolution amending the proposal for a Council regulation setting up the Fuel Cells and Hydrogen Joint Undertaking. The report had been tabled for consideration in plenary by Pia Elda LOCATELLI (PES, IT) on behalf of the Committee on Industry, Research and Energy.

The main amendments, adopted in the framework of the consultation procedure, are as follows:

**Establishment of the Joint Undertaking:** Parliament stated that it must be ensured that, after the last call for proposals in 2013, projects still in progress are implemented, monitored and funded until 2017. Furthermore, the Joint Undertaking is a Community body as referred to in Article 185 of the Financial Regulation and that Parliamentary control over the budget is guaranteed.

**Objectives and tasks:** the main aim of the Joint Undertaking shall be to place the European Union at the forefront of fuel cell and hydrogen technologies, thus enabling the market breakthrough of fuel cell and hydrogen technologies, so that the substantial benefits expected of such technology can be achieved by the market. Breakthrough-oriented research should also be supported. The research activities should build on the work carried out by the European Hydrogen and Fuel Cell. Furthermore, the participation of SMEs, research centres and universities in the RTD activities should be promoted. In line with the Rules for Participation in the Seventh Framework Programme, MEPs consider that the maximum level of public funding of eligible costs should, in the case of SMEs, research centres and universities, be fifty percent higher than for other entities.

**Community contribution:** the amended text specifies that the initial Community contribution to the Joint Undertaking administrative and operational costs - EUR 470 million - shall be paid from the appropriations in the general budget of the European Union allocated to the "Energy", "Nanosciences, Nanotechnologies, Materials and New Production Technologies", "Environment (including Climate Change)", and "Transport (including Aeronautics)" themes of the Specific Programme 'Cooperation' implementing the Seventh Framework Programme for research. This contribution may be revised during a mid-term review in light of progress made and the achievements and impact of the Joint Undertaking.

The arrangements for the Community financial contribution shall be established by means of a general agreement and annual financial agreements to be concluded between the Commission, on behalf of the Community, and the FCH Joint Undertaking. The part of the Community contribution to the FCH Joint Undertaking for the funding of RTD activities shall be granted following open, competitive calls for proposals and an evaluation, completed with the assistance of independent experts, of the proposed project. The Commission's contribution to running costs shall not exceed EUR 20 million, payable in annual instalments of up to EUR 2 million; any part of this contribution not spent during the current year shall be made available in the following years for the RTD activities. A new recital states that the running costs, and in particular the administrative costs, should be kept to an absolute minimum and full use should be made of the resources and organisational systems of existing bodies.

**Funding:** the FCH Joint Undertaking shall be jointly funded by its Members by way of financial contributions paid in instalments and by in-kind contributions from legal entities participating in the activities. The running costs of the FCH Joint Undertaking shall be covered equally in cash by the Community and the Industry Grouping from the outset. As soon as the Research Grouping becomes a member of the FCH Joint Undertaking, it shall contribute to 1/20 (and not 1/12) of the running costs and the Commission's contribution to running costs will decrease correspondingly. In the event that the Joint Research Centre of the Commission participates in projects, its in-kind contribution shall not be considered part of the Community contribution.

**Financial provisions:** MEPs consider that the financial rules applicable to the Joint Undertaking should not depart from Commission Regulation (EC, Euratom) No 2343/2002 on the framework Financial Regulation for the bodies referred to in Article 185 of the Financial Regulation, unless its specific operating needs so require. The prior consent of the Commission should be required for the adoption of any rules which derogate from this Regulation. The budgetary authority should be informed of such derogation.

**Reports, assessments:** the annual report presented by the Commission shall include the number of proposals submitted, the number of proposals selected for funding, the types of participant (including SMEs) and country statistics. By no later than 31 December 2011 and 31 December 2014, the Commission shall present interim evaluations of the Joint Undertaking carried out with the assistance of independent experts. The Commission shall communicate the conclusions thereof, accompanied by its observations and, where appropriate, proposals for the amendment of the Regulation to the European Parliament and to the Council. No later than six months after the end of the FCH Joint Undertaking, the Commission shall conduct a final evaluation of the FCH Joint Undertaking.

**Personnel:** MEPs stress that the need to ensure stable employment conditions and equal treatment of staff and to attract specialised scientific and technical staff of the highest calibre requires that the Commission be authorised to second as many officials as it regards necessary to the Joint Undertaking. The remaining staff should be recruited by the Joint Undertaking in accordance with the host country employment regulations.

Intellectual property rights: given that this JTI forms part of FP7, the rules on intellectual property rights should be based on the principles set out in the Rules of Participation in FP7.

**Structure:** the Executive Director is added to the bodies of the FCH JU. The Governing Board shall appoint its chairperson from among the representatives of the Industry Grouping. The chairperson shall be appointed for one year and may be re-appointed once. The representative of the SMEs and the representative of the Research Grouping shall be appointed vice-chairpersons.

Lastly, it should be noted that the text has been put in line with the text of the other JTIs in order to have a consistent and horizontal approach. To this aim, amendments have been made moving parts of the main body of the text into the Annex, which would also reduce unnecessary duplication of the text and legal inconsistencies.

## Fuel Cells and Hydrogen Joint Undertaking

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**PURPOSE:** to establish a Joint Technology Initiative (JTI) on 'Fuel Cells and Hydrogen' to stimulate an integrated research, technological development and demonstration effort in fuel cell and hydrogen technologies of sufficient critical mass to contribute significantly to European energy public policy objectives.

**LEGISLATIVE ACT:** Council Regulation (EC) No 521/2008 setting up the Fuel Cells and Hydrogen Joint Undertaking.

**CONTENT:** the Council adopted a regulation setting up a fuel cells and hydrogen joint technology initiative (JTI).

This JTI is aimed at coordinating research efforts by providing a framework encouraging European companies to collaborate between themselves, together with other stakeholders, within the fuel cells and hydrogen field.

Major specific objectives of the initiative include:

- enabling market breakthrough of fuel cell and hydrogen technologies, thereby enabling commercial market forces to drive the substantial public benefits;
- placing Europe at the forefront of fuel cell and hydrogen technologies worldwide;
- reaching the critical mass of research effort to give confidence to industry, public and private investors, decision-makers and other stakeholders to embark on a long-term programme;
- leveraging further industrial, national and regional investment in research and technological development.

This JTI is a research programme that aims to speed up the development of fuel cells and hydrogen technologies in Europe thereby enabling their commercialisation between 2010 and 2020. The EU will contribute EUR 470 million and the private sector is expected to raise a similar amount. The contribution shall be paid from the appropriations in the general budget of the European Union allocated to the "Energy", "Nanosciences, Nanotechnologies, Materials and New Production Technologies", "Environment (including Climate Change)", and "Transport (including Aeronautics)" themes of the Specific Programme "Cooperation" implementing the Seventh Framework Programme. For the implementation of the Joint Technology Initiative on Fuel Cells and Hydrogen is set up for a period up to 31 December 2017. The seat of the FCH Joint Undertaking shall be located in Brussels, Belgium.

Currently the fuel cell and hydrogen technologies are not commercially available and further research and technical development is needed before they can be taken into use.

JTIs were introduced in the EU's Seventh Framework Programme for research (2007-13) as a way of creating public-private partnerships in research at European level.

As regards reports, evaluation and discharge, the Commission shall present to the European Parliament and to the Council an annual report on the progress achieved by the FCH Joint Undertaking. This report shall contain details of implementation including number of proposals submitted, number of proposals selected for funding, type of participants, including SMEs, and country statistics.

By 30 May 2011, but in any case no later than 30 June 2011, as well as by 31 December 2013, the Commission shall conduct an interim evaluation of the FCH Joint Undertaking with the assistance of independent experts, on the basis of the terms of reference established after consultation of the FCH Joint Undertaking. These evaluations shall cover the quality and efficiency of the FCH Joint Undertaking and progress towards its objectives. The Commission shall communicate the conclusions thereof, accompanied by its observations and, where appropriate, proposals to amend this Regulation, including the possible early termination of the Joint Undertaking, to the European Parliament and to the Council.

No later than six months after the winding-up of the Joint Undertaking, the Commission shall conduct a final evaluation of the FCH Joint Undertaking with the assistance of independent experts. The results of the final evaluation shall be presented to the European Parliament and to the Council.

Discharge for the implementation of the budget of the FCH Joint Undertaking shall be given by the European Parliament, upon recommendation of the Council, in accordance with a procedure provided for by the financial rules of the FCH Joint Undertaking.

**ENTRY INTO FORCE:** 15/06/2008.

## Fuel Cells and Hydrogen Joint Undertaking

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Joint Technology Initiatives (JTIs) were introduced by the Seventh Framework Programme. On the basis of Article 187 of the Treaty on the Functioning of the European Union, five JTIs have been set up under 7th Framework Programme (FP7):

Innovative Medicines initiatives ([IMI](#));

Advanced Research and Technology for Embedded Intelligence and Systems ([ARTEMIS](#));

Aeronautics and Air Transport ([Clean Sky](#));

European Nanoelectronics Initiative Advisory Council ([ENIAC](#));

Fuel Cells and Hydrogen (FCH).

In line with the request to the Commission under the various Council Regulations setting up the Joint Undertakings to implement the Joint Technology Initiatives, independent interim evaluations of the operation of the Joint Undertakings have recently been carried out. The [Commission response](#) to the interim evaluations of the ARTEMIS and ENIAC Joint Undertakings has already been presented.

This Staff Working Document presents the detailed Commission response to the interim evaluations of the IMI, Clean Sky and Fuel Cells and Hydrogen Joint Undertakings.

# Fuel Cells and Hydrogen Joint Undertaking

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The Commission presents its annual report on the progress achieved by the Joint Technology Initiatives Joint Undertakings in 2010. These were established as pilots in 2007-2008 under the Seventh Framework Programme in five strategic areas for a limited period up to 31 December 2017:

- [Aeronautics and Air Transport \(Clean Sky\) JU](#) increasing the competitiveness of the European aeronautics industry while reducing emissions and noise, established by Council Regulation (EC) 71/2008;
- [Innovative Medicines Initiative \(IMI\) JU](#) fostering the development of better and safer medicines for patients, established by Council Regulation (EC) 73/2008;
- Fuel Cells and Hydrogen (FCH) JU speeding up the development and deployment of hydrogen supply and fuel cell technologies, established by Council Regulation (EC) 521/2008;
- [Embedded Computing Systems \(ARTEMIS\) JU](#) helping the European industry to consolidate and reinforce its world leadership in embedded computing technologies, established by Council Regulation (EC) 74/2008;
- [Nanoelectronics Technology 2020 \(ENIAC\) JU](#) targeting to achieve a very high level of miniaturisation required for the next generation of nanoelectronics components, established by Council Regulation (EC) 72/2008.

ARTEMIS, IMI and Clean Sky gained officially their autonomy in October-November 2009, followed by ENIAC in May and FCH in November 2010. Thus, 2010 was the first full year of autonomous functioning of most of the JTI JUs.

The report starts with a brief introduction of the JTI JUs, summarises their key achievements in 2010 and outlines the fields for improvement in the future.

Key achievements in 2010: after the relatively slow operational start of the JTI JUs, to a certain extent due to the limitations of the existing legal and the regulatory framework for a "Community body", in 2010 the five Joint Undertakings revealed that the new business model between public and private sectors in research promises to be successful. The JTIs' activities that have been launched and already ongoing were recognised to be overall efficient and of a high quality according to the conclusions of first interim evaluations of the Joint Undertakings performed in 2010 (April 2011 for the FCH JU).

Operational activities: in 2010, the five JTI JUs concentrated efforts on the management of their calls for proposals finalising negotiations, signature of grant agreements and kick-off of the projects coming out from the 2008 and 2009 calls, as well as launch of the 2010 calls, evaluation and selection of the winning proposals and, for some JTIs, start of the negotiation process. The Joint Undertakings worked also on the preparation of the 2011 calls for proposals: based on the lessons learned from the previous calls and consultations with the various stakeholders, they came out with a definition of the next calls' topics.

All JTI JUs were successful in attracting a wide variety of participation in their calls from Europe and FP7-associated countries. Overall, a large number of SMEs took part in the proposals. There were, however, some obstacles which the JTIs had to deal with to further strengthen the SME involvement in their research activities.

Administrative activities: after the initial start-up and preparatory phase before autonomy, the JTI JUs had to then work on their consolidation as a pre-requisite for sustainability and a factor for success. Although the establishment of the five public-private partnerships was a considerable achievement on its own, the Joint Undertakings needed to further develop their internal control frameworks, and introduce, if necessary, additional control mechanisms. This was also pointed out in the reports of the European Court of Auditors which found out that by the end of 2010 none of the entities had completely implemented their internal controls and financial information systems and/or had yet validated their underlying business processes as required by the Joint Undertakings' financial rules.

Moreover, implementation of key performance indicators in 2011 by all JTI JUs had to avoid making the output of the initiatives scattered and diffuse. Their task would be not only to assess and periodically monitor quality in order to maximise impact across research programmes, but also to be tracked by a sound monitoring and evaluation system. An important step towards this in 2011 had to be the implementation or adoption, where not done yet, of comprehensive internal audit plans and the performance of regular ex-ante verifications and ex-post audits. Moreover, as expressed by the European Court of Auditors, the JTI JUs had to clearly define the role of the Commission's IAS in their financial rules.

Concerning the IT and logistics matters, all Joint Undertakings needed to further consider the establishment of formal IT policies and procedures to ensure the proper functioning of the IT planning and monitoring cycle and provide for reliable risk management tools. Also, a host agreement had to be concluded with the Belgian authorities concerning the office accommodation, privileges and immunities, and other support provided by the State. Both comments were taken into consideration by the JTI JUs and actions are already underway.

Among the objectives of the Joint Undertakings in 2011 should have been the enhancement of their communication activities using a more proactive and target-oriented approach, especially within SMEs and the research community to increase their level of participation in the research projects. As recommended in the interim evaluation reports, the JTI JUs should develop and implement clear communication and dissemination plans, obtain a separate identity and work more on the synergy with national programmes and international cooperation with non-EU stakeholders.

Overall assessment: the first interim evaluations of the Joint Undertakings were carried out as planned by the end of 2010 (in April 2011 for the FCH JU) covering the quality and efficiency of their work and assessing the progress towards the set objectives. The overall result of the evaluations is positive, affirming good prospects for achievement of the JTI JU's goals.

As the Joint Undertakings are only now fully autonomous, there needs to be a period of some years of consolidation before the real benefits can be assessed. Nevertheless, the importance of cross-sectoral co-operation in key strategy setting is considered extremely important. In the case of the FCH JU, for example, where there are very specific market entry barriers, the industrial partners have been very effective in organising objective assessment of market potential in relation to other competing technologies. The stable allocation of funds has also underpinned the industry commitment especially SMEs at a time when the Framework Programme funds could easily have been diverted to competing technologies.

In 2011, the five Joint Undertakings had to follow up on the implementation of the ongoing activities and start the next waves of projects, as well as on the preparation and launch of the future calls. Calls topics needed to be defined on the grounds of the revised research agendas, considering the market forces and the quick pace of technology development in their industries.

As recommended by the European Court of Auditors and the experts in the first interim evaluation reports, the entities that experienced initial delays in starting their operations, such as Clean Sky, should have promptly recovered in order to achieve their objectives within the set timeframe. This would have also contributed to shorten the time for payments to beneficiaries and improve the implementation of the budget, which had been perceived overall as being low among all JTI JUs in 2010.

The JTI JUs had to further encourage the wide participation of industrial and academic partners, and particularly of SMEs, in their research activities. They needed to remove the obstacles for SMEs, where such existed. IMI had put on its agenda the development of a methodology for in-kind contribution and calculation of indirect costs, and FCH already initiated the process to adopt an increase in the funding rates, which were considerably lower than those in FP7. Clean Sky, ARTEMIS and ENIAC were challenged to keep the high interest of SMEs in the calls for proposals they were launching.

Taking into consideration that the report is looking at the JTI JUs' development in the first year of their autonomous operations, and at a point where none of their projects are completed, the prospects for the future remain to be considered. The results achieved by the five JTI JUs so far sets them as ambitious European initiatives with the potential to become a new affirmed model of a public-private partnership.

## Fuel Cells and Hydrogen Joint Undertaking

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The Joint Technology Initiatives are public-private partnerships in industrial research at European level. They were set up as pilots in 2007-2008 under the Seventh Framework Programme in five strategic areas: aeronautics and air transport (the Clean Sky initiative), public health (the Innovative Medicines Initiative (IMI)), fuel cell and hydrogen technologies (the Fuel Cells and Hydrogen (FCH) initiative), embedded computing systems (the ARTEMIS initiative) and nanoelectronics (the ENIAC initiative). The SESAR (Single European Sky Air Traffic Management Research) programme should also be mentioned since it is funded under the Seventh Framework Programme.

An annual report on the progress achieved by the Joint Technology Initiatives Joint Undertakings (JTI JUs) is required by Article 11(1) of the Council Regulations setting up the individual JTIs. This report contains details of implementation including number of proposals submitted, number of proposals selected for funding, type of participants, including SMEs, and country statistics. This 2011 annual report follows the first interim evaluations of the Joint Undertakings carried out under Article 11(2) of the Council Regulations.

The European Commission, as a co-founding member, was responsible for starting up the JTI JUs. Once they had built up their legal and financial framework and demonstrated their capacity to manage their own budgets, ARTEMIS, IMI and Clean Sky were given autonomy in late 2009, followed by ENIAC in May and FCH in late 2010. Thus, 2011 was the first full year in which all the JTI JUs operated autonomously.

The first interim evaluation was performed on time and assessed their quality and efficiency and the progress achieved towards their objectives. All the reports concluded with a favourable opinion: the evaluation panels agreed that the JUs should continue beyond 2013. The evaluation panels supported the Sherpa Groups recommendations, in particular that the current legal framework be streamlined to fit the purposes of setting up and implementing future JTIs. In this respect, the current Community body status of JTIs should be reviewed. They recommended reinforcing and streamlining processes and decision-making.

They also referred to the need (i) for more structured coordination and complementarity with FP7 and national programmes and funds; (ii) for improved communication, to enhance the visibility of JTI actions aimed at the general public and at international level; and (iii) for systematic data collection and a monitoring system for key performance indicators.

Progress achieved by the Fuel Cells and Hydrogen JU: for the period 2008-2013, the Commission allocated the Fuel Cells and Hydrogen (FCH) JU a budget of EUR 470 million. This amount is expected to be matched by cash contribution for the running costs and by in-kind contributions for the operational costs from the legal entities participating in its activities. FCH is therefore expected to have a total budget of EUR 940 million.

FCHs main objectives are: (i) to accelerate the development and deployment of fuel cell and hydrogen technologies; (ii) to provide the technology base to start marketing them within the timeframe 2015 to 2020, reducing the time to market, and (iii) to place Europe at the forefront of these technologies worldwide.

FCH uses two types of funding schemes to further a wide spectrum of RTD activities: collaborative projects (for basic research and demonstration) and coordination and support actions (for networking activities, including pre-normative research). Another feature of FCH is its cross-cutting activity: to complement the four scientific application areas it aims to raise awareness, educate the public and support the market. Submission and evaluation are carried out by means of a simple single-stage process.

FCH launched one call in 2011. FCH attracted a wide range of participants of all types, including public authorities (e.g. national/regional bodies, energy agencies) and NGOs. This could be because of their particular interest in the coordination and support actions. The participants were also evenly distributed between research organisations and industry. Of the 667 applicants responding to the call, 225 had their projects funded. The projects selected for funding involved 73 SMEs, representing 25.6 % of total participation. Over the period 2008 to 2011, SMEs accounted for 22.15 % of EU funding in FCH.

A total of 26 countries were represented in the call, led by Germany, the United Kingdom, France, Italy and Belgium. EU-12 countries were well represented, with 10 participations. Switzerland and Norway led the list of associated countries (with seven coordinators each) followed by Iceland and Turkey with one participant each. The international partners included participants from the US, the Republic of Korea, China, Canada and Serbia.

In terms of administrative progress, FCH overcame some of the limits on in-kind contribution when Council Regulation (EU) No 1183/2011 was adopted on 14 November 2011. Recognising the membership of the N.ERGHY Research Grouping, this amendment allowed non-industry participants such as the N.ERGHY Research Grouping to make in-kind contributions counting as matching funding. This amendment was also expected to improve funding levels.

In 2011 the main research objectives evolved to reflect the latest progress in their fields of technology. FCH revised its Multi-Annual Implementation Plan and the targets for the Application Areas were extended to 2020 (from 2015).

## Fuel Cells and Hydrogen Joint Undertaking

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The Commission presented its annual progress report on the activities of the Joint Technology Initiative Joint Undertakings (JTI JUs) in 2012.

The Joint Technology Initiatives are public-private partnerships in industrial research at European level that are now well established and have reached cruising speed. They were set up in 2007-2008 under the Seventh Framework Programme in five strategic areas: (1) Aeronautics and Air Transport ([Clean Sky](#)); (2) Public health - [Innovative Medicines Initiative](#) (IMI) JU; (3) Fuel Cells and Hydrogen (FCH) JU; (4) Embedded Computing Systems ([ARTEMIS](#)) JU; (5) Nanoelectronics ([ENIAC](#)) JU.

Participation and geographical coverage: JUs are successful in funding highly specific, industry-driven research and that stakeholders are getting more acquainted with the modus operandi of these new instruments. Participation in terms of numbers of projects selected for funding remained stable in the last two years while the overall success rate increased from 35.8 % in 2011 to 45 % in 2012. Concerning industrial participation in 2012, large companies represented 31.1% of total participations and SMEs another 30%. SMEs participation increased from 28% to 30% in the last two years (2011 and 2012).

In terms of distribution of participation from Member States and Associated Countries, in 2012 as in the previous year the five JTI JUs involved, on average, 20 different countries in the implementation of their research agendas.

First results and promising advances: in the fuel cells and hydrogen sector, market introduction has been achieved for some early applications such as forklifts and small back-up power units.

For both energy and transport applications, progress has been made in materials performance, durability and cost reduction for both components and systems for transport and stationary power applications.

Within the FCH, a Danish SME has developed and facilitated the commercialisation of two innovative products: H2Station (Hydrogen refuelling stations for automotive, bus and materials handling applications), and H2Drive (Fuel cell systems for materials handling vehicles such as forklift trucks and airport tow tractors). FCH has currently submitted 13 patents.

Among the success stories, the report notes:

- the FITUP is a demonstration project in which a total of 19 market-ready fuel cell systems from two different suppliers have been installed as back-up power sources by final users in Italy, Switzerland and Turkey;
- the project SOFT-PACT (stationary applications portfolio), led by E.ON, is intended to deploy 100 micro-CHP units (Gennex SOFC-based, provided by Ceramic Fuel Cell Limited) in Germany, the UK, Italy and the Benelux and to demonstrate electrical efficiency of at least 60%.

Challenges and perspectives: for the future, a number of challenges remain open:

- relatively small size of the JUs and their relatively high running costs is still a major challenge;
- maintaining the level of commitment from Industry and Member States: certain difficulties have arisen in recent years in matching funds from industry and Member States and only in 2012 did the trend reverse;
- effectively integrating results achieved in research projects into the Commission communication and dissemination system: the JUs will probably be called upon under Horizon 2020 to adopt tools and working arrangements that will enable all parties involved to constantly assess results and to use them.

To summarise the experience gained in the first years of autonomy of all the Joint Undertakings, the following successful results can be highlighted:

- JTIs are continuing at a steady pace to reach their objectives in research and beyond;
- in terms of management, the JTI JUs have gained speed. In 2012, they generally reduced their Time to Grant (TtG), which is now 11.6 months on average;
- the visibility of JTI JU activities was also enhanced in 2012, among stakeholders and beyond;
- the JTI JUs achievements started to be monitored and evaluated against a set of key performance indicators (KPIs);
- SMEs are attracted to the JTI JUs research topics, especially because of the stability and continuity of the research and innovation environments, the funding arrangements and the involvement of larger value chains. Overall, SMEs have received about EUR 170 million, which accounts for roughly 27% of all EU funding available after evaluation;
- industry commitment to the achievement of general objectives remained stable and overall stakeholder participation continues to be well balanced following major updates in 2011;
- the JTI JUs strategic research and innovation agendas now include a more ambitious approach towards innovation, in line with Horizon 2020;
- lastly, respondents especially highlighted the clear European added value of PPPs in specific technological sectors.

Another interesting insight on progress achieved so far will be provided by the second interim evaluation, which will cover the period from setting up until 2013 and will be published as a separate report by November 2013.

## Fuel Cells and Hydrogen Joint Undertaking

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The Commission presents its second interim evaluation of the [Clean Sky](#); Fuel Cells and Hydrogen and [Innovative Medicines Initiative](#) Joint Technology Initiatives Joint Undertakings.

This report summarises the findings and main recommendations provided by the panels of independent experts (IEGs) who conducted the evaluations.

The overall conclusion of the IEG reports is that the Joint Undertakings have been successful in achieving their objectives, that they are relevant to the challenges of Horizon 2020 and they should be continued. The second interim assessments show that the existing Joint Undertakings have successfully demonstrated the viability of the Public Private Partnership (PPP) concept for research in strategic technological areas. They have been effective in delivering on the main objectives and have been able to reinforce Europe's role in aeronautics, pharmaceuticals and fuel cell and hydrogen R&D.

More specifically, the report presents the Commission's observations and recommendations and highlights the areas in which follow-up actions should be planned.

Implementation of the FCH Initiative: on Fuel Cells and Hydrogen, the coupling of the long-term commitment by the EU and the stable funding provided through the instrument have allowed the Joint Undertaking to give confidence to the industry and support the sector in bridging the gap between research and deployment.

As regards financing, Fuel Cells and Hydrogen has a maximum EU contribution for research activities of EUR 470 million. So far, six annual calls for proposals have been launched and a portfolio of projects was subsequently selected. Under the first five calls, approximately EUR 380 million was committed across 131 projects. Negotiations for the 71 projects submitted under the 2013 call for proposals, with a total indicative funding of about EUR 68 million, were still ongoing as this second interim evaluation was being carried out.

Commission's observations: the Commission agrees that decision-making procedures should be as swift as possible, but underlines that proper deadlines should be ensured in the organisation and preparation of Governing Board (GB) meetings. The EU will, as a member of the Governing Board, monitor the proper allocation of resources, the continuous commitment from members and the efficient application of procedures. The Commission's proposed Regulation for Fuel Cells and Hydrogen 2 includes the possibility of sharing a set of administrative functions. Given the autonomous nature of the

Joint Undertakings, however, it would not be possible for the Commission to re-claim the functions as proposed by the IEG.

On the subject of funding, the Commission agrees with the proposed measures. The new proposed Regulation for [Fuel Cells and Hydrogen 2](#) provides that the JU will indeed have access to the guarantee fund, which implies that the participation of SMEs will be facilitated. The Commission will investigate the possibility to include hydrogen infrastructures in the new National Strategic Reference Framework (NSRF) for Structural Funds.

Perspectives: the Commission acknowledges the thorough and in-depth work carried out by the IEGs in undertaking the second interim evaluation of the three Joint Undertakings. It also notes that the IEGs recognised the validity of the PPP approach and expressed positive views about the future prospects for Joint Undertakings under Horizon 2020.

The IEG recommendations are considered valuable for removing or at least reducing the weaknesses identified in the current Joint Undertaking operations. The Commission undertakes to implement corrective measures when appropriate and within its powers of intervention whilst recalling that implementing the recommendations addressed to the next generation of joint undertakings requires the adoption of new Council Regulations.

Since 10 July 2013, when the Commission presented its proposed Regulations, the processes for continuing the JUs are fully underway.