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Future prospects for RTD on Hydrogen and Fuel Cells at EU level: the Joint Technology Initiative

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Outline

- *EU Energy Context: the challenges ahead*
- *The EU RTD&D Framework Programme: activities on hydrogen and fuel cell technologies*
- *The Fuel Cells and Hydrogen Joint Technology Initiative: Background and practicalities*

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EU Energy context

TODAY

- Rising prices for oil and gas
- The EU **imports 50%** of the total energy consumed
- Energy accounts for **80% of all GHG**
- Lower investments in Energy RTD in the EU compared to 1980

BY 2030, and with current policies,

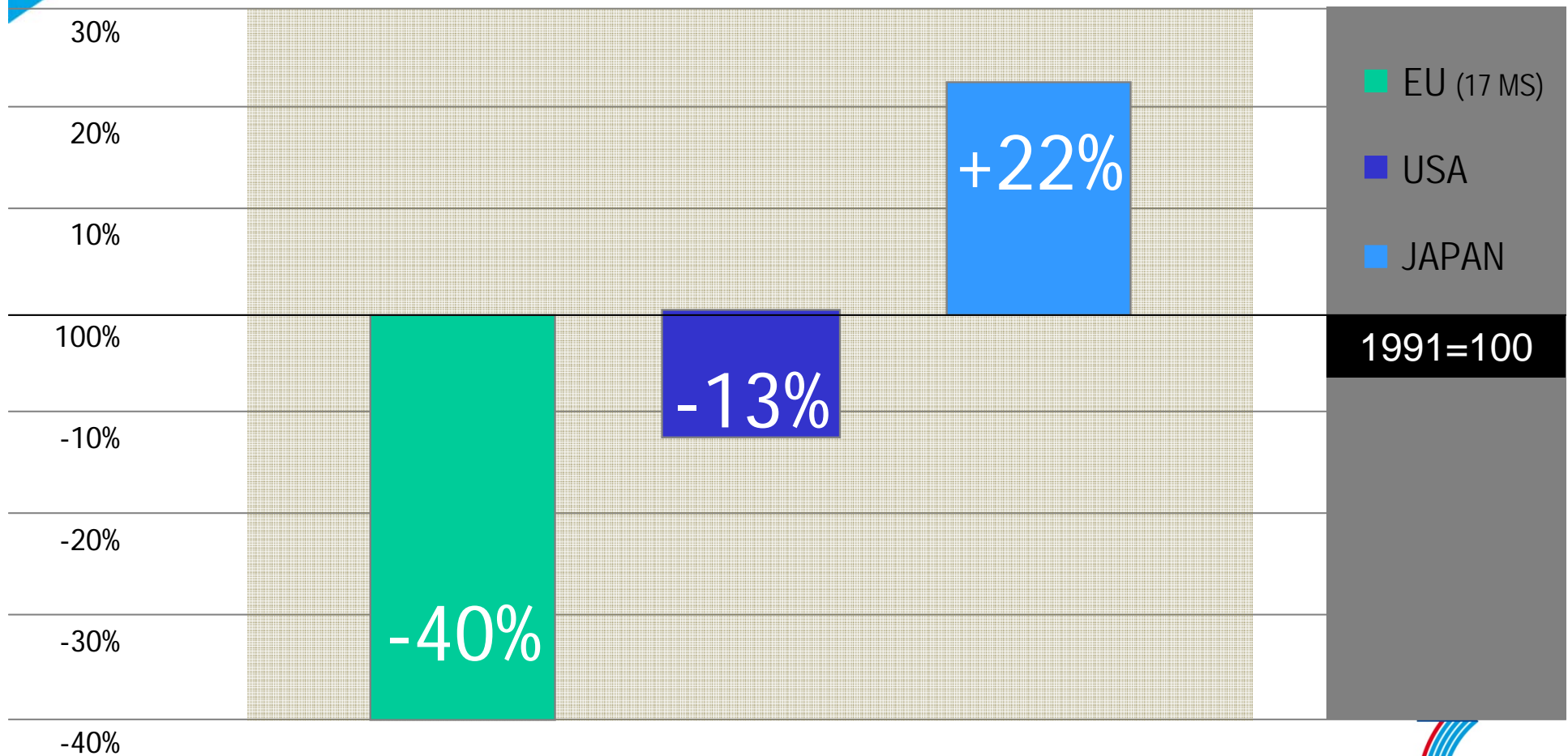
- **CO2 emissions** will increase by **5%** and GHG global emissions by 55%
- **Energy imports** will jump to **65%** of total consumption (gas: from 57% to 84%; oil from 82% to 93%)
- **Electricity demand** will raise **1.5 % per year**



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Evolution of public energy R&D EU, USA and Japan 1991-2005



Source: International Energy Agency (IEA) and own calculations

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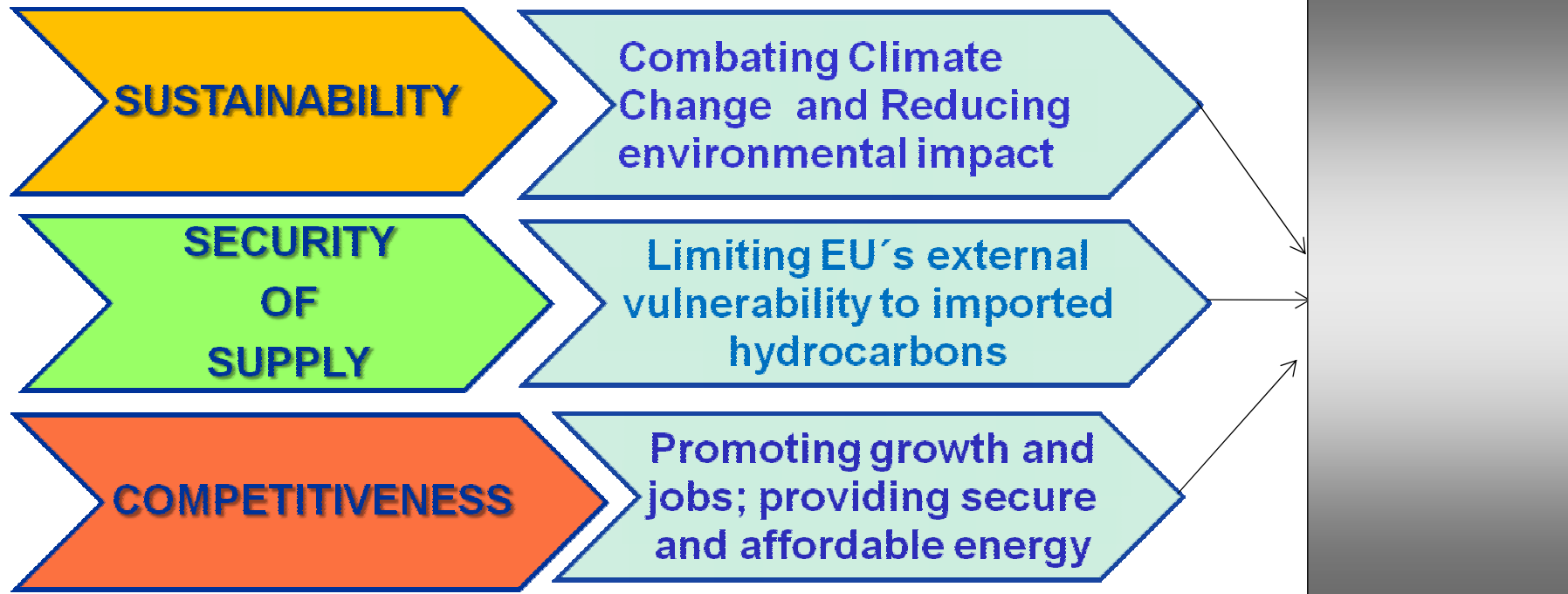


EU Energy Challenges

Challenges

Priorities

Need



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EU Energy Action Plan

The first step of the European Energy Policy is the adoption* of a comprehensive **Action Plan** comprising measures to address the following priorities:

- **Internal Market** for Gas and Electricity
- **Security of Energy Supply** (for the EU as a whole and for each MS)
- **International Energy Policy** (“*act with a common voice*”)
- Energy **Efficiency** and **Renewable** Energies (set binding ambitious targets, e.g. the 20%’s by 2020)
- *European Strategic Energy Technology Plan* (**SET-Plan**)

(*) Brussels European Council (8/9 March 2007)



The three 20s by 2020

- 20% reduction in greenhouse gas emissions compared to 1990 levels (30% if global agreement)
- 20% reduction in global primary energy use (through energy efficiency)
- 20% of renewable energy in the EU's overall mix (minimum target for biofuels of 10% of vehicle fuel)

energy for a changing world



SET-Plan: Overview of measures*

- Joint strategic planning – Steering Group and information system
- Effective implementation:
 - **European Industrial Initiatives: strategic technology alliances**
 - **European Energy Research Alliance**
 - **Trans-European Energy Networks and Systems of the Future – transition planning**
- Increase in resources, both financial and human
- Reinforce international cooperation

(*) COM(2007)723 – SET-Plan Communication

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SET-Plan: *European Industrial Initiatives*

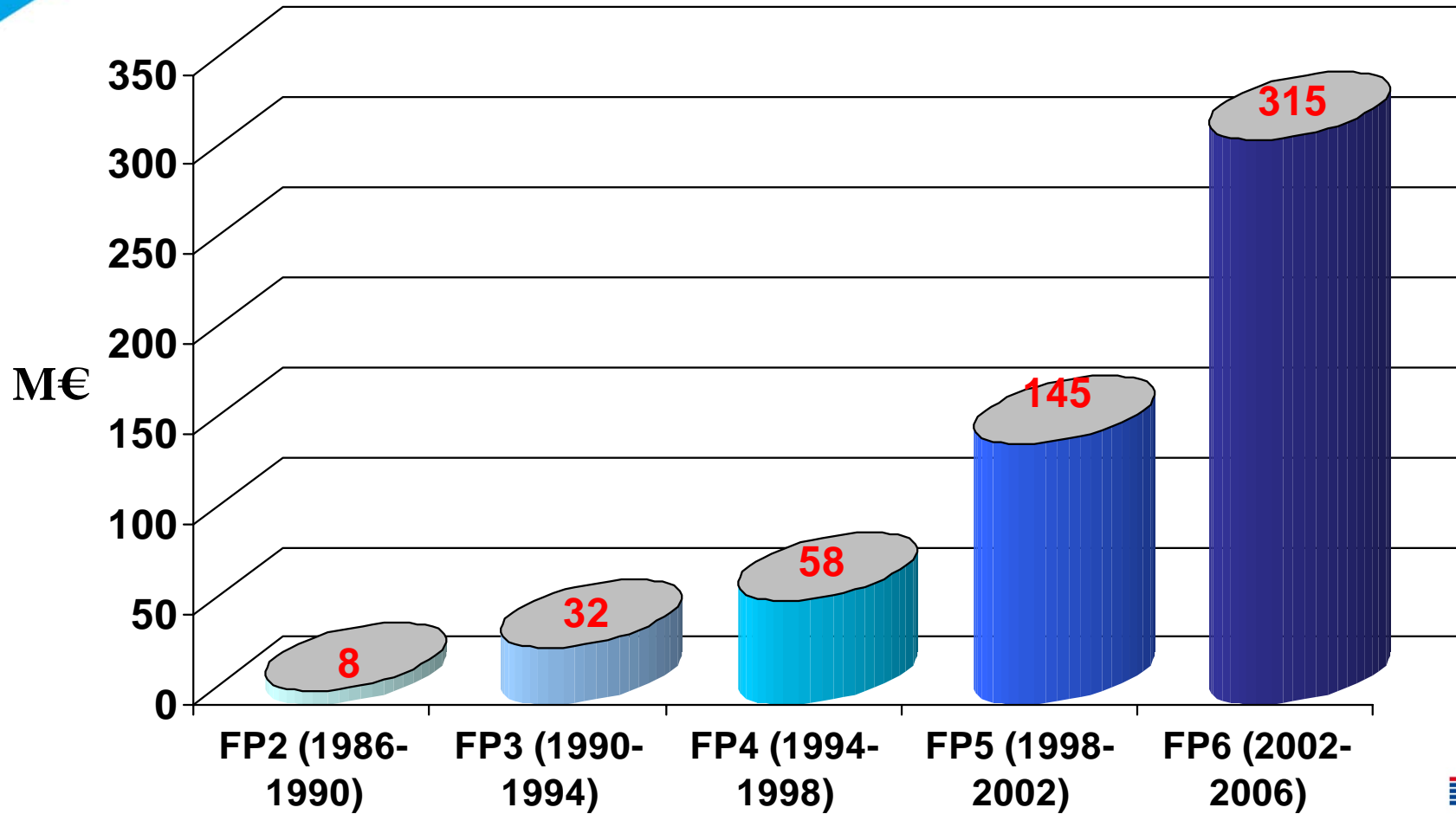
- European Wind Initiative
- Solar Europe Initiative
- Bio-energy Europe Initiative
- European Electricity Grid Initiative
- European CO₂ capture, transport and storage initiative
(Communication in Jan. 2008)
- Sustainable fission initiative (Gen IV)
- Fuel cells and hydrogen (JTI)
- Fusion (ITER on-going)



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EC Support to Fuel Cell and Hydrogen RTD in Framework Programmes

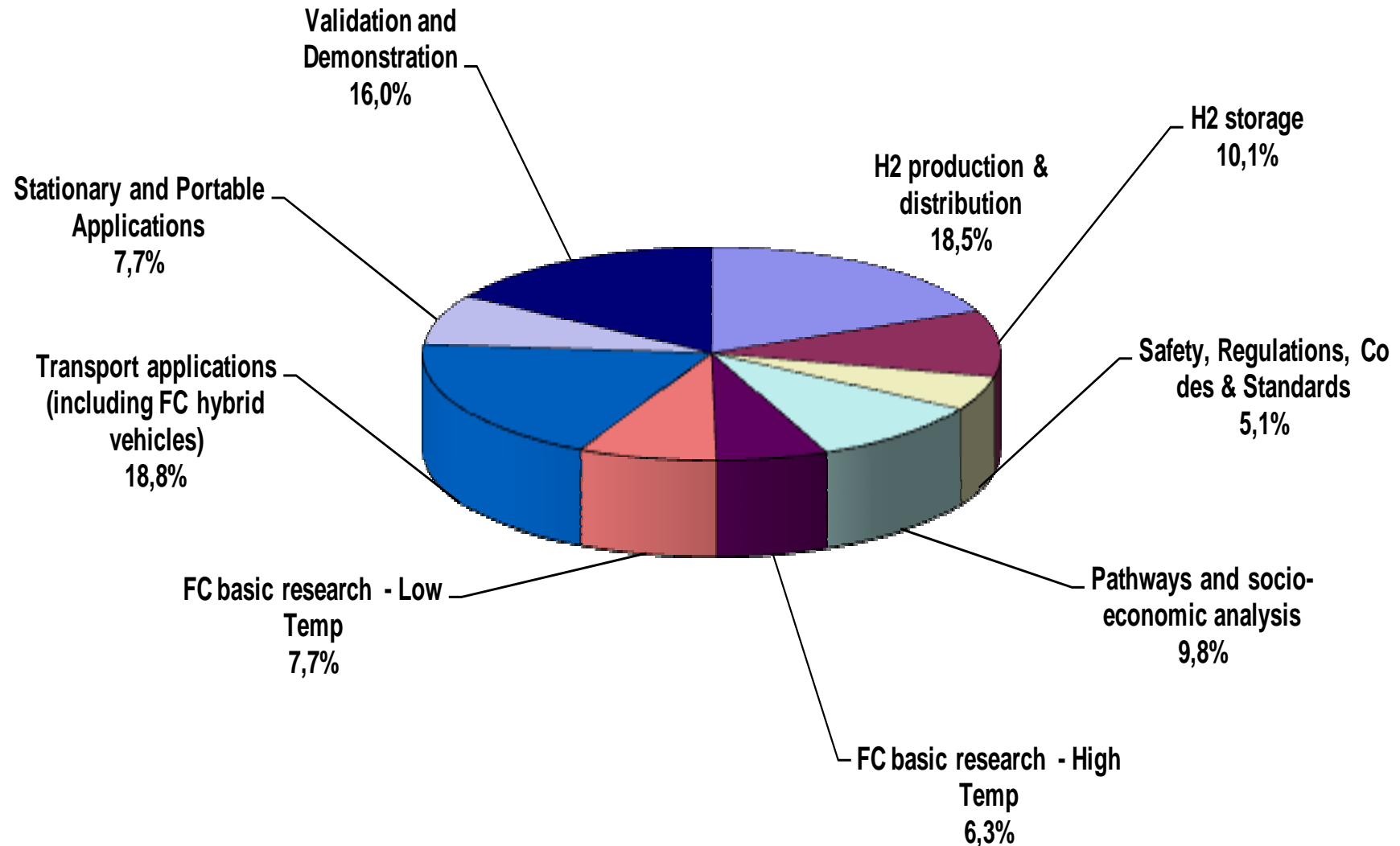


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FP6 Budget Breakdown for H₂/FCs *Total EC Contribution ~ 315M€*





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Important R&D FP6 Projects

CHRISGAS» fuels from biomass



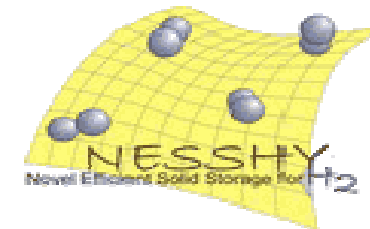
FURIM



> 80 projects

HyWays

A European Roadmap



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What's new in FP7?

- **Duration** increased from 4 to 7 years
- Annual **budget** increased (e.g. for **Energy**: ~M€ **225** ⇒ ~M€ **335**)
- Frontier research managed by 'new' **European Research Council** (~ €1 billion per year)
- New structure: "*Cooperation*", "*Ideas*", "*People*", "*Capacities*"
- **Annual Work Programme** (already a 1st call in Energy)
- Important role of **Technology Platforms** to define R&D priorities
- **Joint Technology Initiatives (JTI)**: Public-Private Partnerships at European level – implementation led by industry. Only a few areas.



JTI Background

- **JTI's objectives**
 - Establish long-term **public-private partnerships** in research at European level
 - Co-ordinate research efforts and respond to **industry needs**
 - Focus on fields of high **industrial and policy relevance**
- Already identified in the **Council decisions** concerning FP7
- To be established by a Council Regulation as a "**Joint Undertaking**", according to **Article 171** of the EC Treaty.
- Build on European **Technology Platforms** (ETPs)
- EC budget to be drawn from FP7 "Cooperation" Programme"
- Proposals for **6 JTIs**, including **Fuel Cells and Hydrogen** (FCH). Four JTIs already operational; FCH JTI just adopted.



JTI criteria

- Added value of **European-level** intervention
- Degree and clarity of **definition of objective**
- Strength of commitment from **industry**, industrial lead
- **Scale of impact** on industrial competitiveness and growth
- Importance of contribution to broader **policy objectives**
- Capacity to attract **additional** national **support** and leverage industry **funding**
- **Inability of existing instruments** to achieve objective

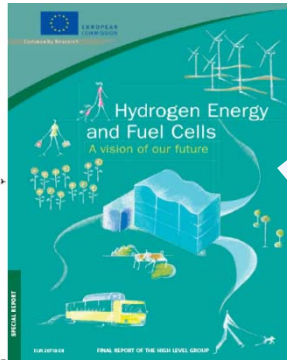


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Role of the European Hydrogen and Fuel Cell Technology Platform (HFP) in the JTI

VISION
Hydrogen Energy And Fuel Cells (2003)



STRATEGY

- Strategic Research Agenda
- Deployment Strategy
- Strategic Overview (2005)

100 Stakeholders invested more than €10 m for the JTI preparation

IMPLEMENTATION
Implementation Plan (March 2007)



Documents available at:
www.hfpeurope.org/hfp/keydocs



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FCH JTI Short Chronology

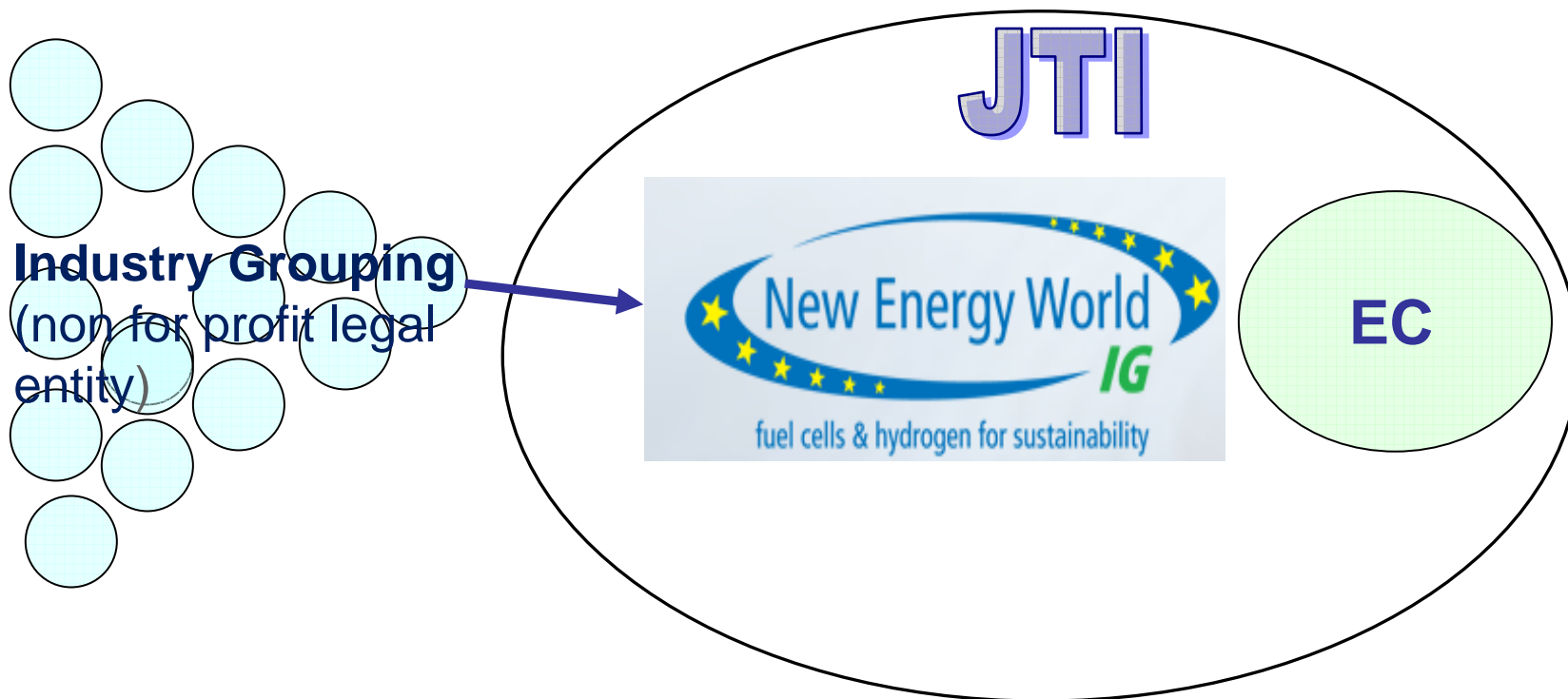
- **Proposal** for a Regulation for the FCH Joint Undertaking submitted by Commission to Council on 9 October 2007.
- **General Approach** reached in Competitiveness Council on 25 February 2008
- European **Economic and Social Committee** presents final opinion on 12 March 2008
- **Final EP plenary vote** on 20 May 2008. Amended text adopted by an overwhelming majority.
- **Adoption** of Regulation at **Competitiveness Council** on 30 May 2008



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Joint Undertaking for the FCH JTI (Founding Members)





Joint Undertaking for the Fuel Cells and Hydrogen JTI

- Located in **Brussels**
- The **Research community** may establish a representative association and also become a member of the JU
- It will operate in **2008 – 2013 (2017)**
- **Budget : 470 M€ from FP7** (Energy, Transport, Materials and Environment) matched by at least **470 M€ from the private sector**
- **Financing**
 - **Administrative costs** shared 50/50 between the private and public sectors (cash contributions)
 - **Operational costs** (project funding) shared between the private and public sectors (in-kind contributions and cash contributions respectively)
 - Close **follow-up of in-kind contributions** to monitor the principle of 50/50 financing



Bodies of the FCH Joint Undertaking

- **Executive bodies**
 - **Governing Board** [6 representatives from the Industry Grouping 6(5) from the EC, (1) from the Research Grouping]
 - **Executive Director** (assisted by Programme Office)
- **Advisory bodies**
 - **FCH State Representatives Group** (MS and AC)
 - **Scientific Committee**
 - **Stakeholders' General Assembly**



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Joint Undertaking for the Fuel Cells and Hydrogen JTI

The Joint Undertaking will have its own:

- multiannual/annual programming
(**Implementation Plan** as the starting point)
- staff establishment plan and accounting system
- provisions on evaluation and selection of proposals
- information and dissemination of activities

.....based on principles of **transparency** and
openness

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FCH JTI - Participation in projects

- Open **calls for proposals**
- Minimum **3** independent **legal entities** from **different MS/AC**
- At least **one legal entity** belonging to the **Industry Grouping** or **Research Grouping** in each project
- **All** legal entities and international organisations **can participate**
- As a rule, **third country** participants are **not eligible for funding**
- As a rule, project **coordinator** will be IG/RG member
- Grant agreement to be signed with the Joint Undertaking



What's next?

- A "**bridging structure**" (a Co-ordination and Support Action with the Industry Grouping under FP7) is in place since October 2008 with the goal of ensuring a quick start-up of the activities.
- Together with the EC staff they are defining all the necessary administrative and financial procedures needed for the JTI operation
- Until the permanent Executive Director is appointed, an **Interim Executive Director**, with officials seconded from the Commission, will be responsible for the operations of the Joint Undertaking
- The JTI **Multi-annual and Annual Work Programmes** should be commonly agreed by the Commission and the Industry and Research Grouping by the end of June.
- First **call for proposals** expected to be launched early autumn 2008.
- The first **Stakeholders' General Assembly** will take place in Brussels on 13-15 October 2008



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Energy - Staying informed

Energy Research web site and Energy Helpdesk

http://ec.europa.eu/comm/research/energy/index_en.html

rtd-energy@ec.europa.eu



Energy Policy

http://ec.europa.eu/comm/energy/index_en.html



Seventh Framework Programme

<http://cordis.europa.eu/fp7/>



Calls for proposals

<http://cordis.europa.eu/fp7/>



Conferences, proceedings, Newsletter



http://ec.europa.eu/comm/research/energy/gp/gp_events/action/article_2790_en.htm

<http://ec.europa.eu/comm/research/energy/pdf/renews5.pdf>



National Contact Points

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Information on the HFC and the “NEW Industry Grouping”



European Hydrogen and Fuel Cells
Technology Platform (HFP)

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



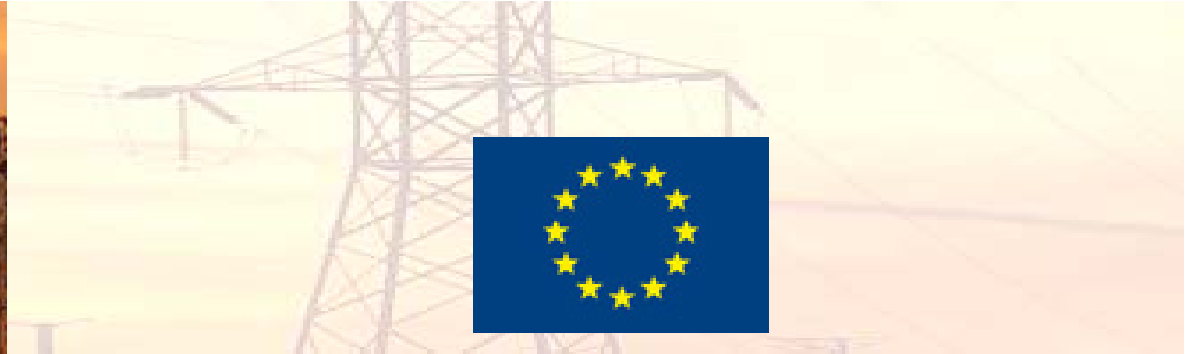
New Energy World Industry Grouping
(NEW-IG))

<http://fchindustry-jti.eu/>

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Thank you
for your attention



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