



Agenzia nazionale per le nuove tecnologie,
l'energia e lo sviluppo economico sostenibile



LE CELLE A COMBUSTIBILE E L'IDROGENO IN ITALIA STATO DELL'ARTE E SVILUPPI FUTURI
, ENEA, CNR, RSE - Centro Congressi Roma Eventi, Fontana di Trevi , Roma 13 Dicembre 2011

«Come sviluppare un'industria Cleantech in Italia..

..in un'era post-sussidi ?»

- **IPHE Status of the art**
- **Update on Fuel Cells "Stationary Coalition".**

Alberto Ravagni

Chairman of Stationary session in the IPHE meeting in Berlin. Member of the Stationary Coalition.

❖ We are all here to experience the day when we will make this announcement:

*«...The fuel cells industry takes orders for 100s of MW,
and it is ramping up production.*

*Stationary fuel cells will generate more power than a nuclear power plant¹, in
a shorter time than building one¹,*

*Every GW **production** capacity will create ca. 3000-6000 jobs²*

*Every GW of **installed** capacity will create ca. 1500-3000 jobs²...»*

❖ Can this day be today?

2 factors are necessary AND sufficient:

- 1. Grid parity**
- 2. Market visibility**

*(I'm sure you have noticed...
subsidies are not in the list)*

1) 1 GW, 7-12y, Nuclear Energy information Service <http://www.neis.org/literature/Brochures/npfacts.htm>
2) Data from own production and from the supply chain.



IPHE Background

- IPHE was founded in 2003 to foster international cooperation on hydrogen and fuel cell R&D, common codes and standards and infrastructure development
- 17 member countries plus the European Commission
- IPHE provides a forum for member Governments to share information and policy experiences with the goal of integrating hydrogen and fuel cell (H₂FC) technologies into the future energy portfolios
- Member have substantial, long-term resource commitments to H₂FC technology research and development activities as well as policies and strategies that effectively advance private sector development of a hydrogen economy
- IPHE members collectively account for over 85% of global GDP, over 75% of the global electricity, and more than 65% of global greenhouse gas emissions

IPHE members:

Australia, Brazil, China, European Commission, France, Germany, Iceland, India, Italy, Japan, Republic of Korea, Republic of South Africa, New Zealand, Norway, Russian Federation, United Kingdom, United States



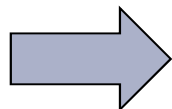
IPHE Roundtable with Stakeholders

IPHE Roundtable Meeting with Stakeholders

- November 17th, 2011, Berlin, Germany
- 80 selected high level representatives from industry and politics

Goal

- Facilitate and stimulate a constructive dialogue between senior representatives from the H2FC stakeholder's community (industry) and governments
- Gain insights from key stakeholders on the status of H2FC technology, the progress made today and remaining commercialization challenges
- Discuss the role that public sector can play to support industry's efforts



Results will be summarized in a report. For further information please contact: secretariat@iphe.net



Overall Summary

Key Messages

- **Technology maturity demonstrated** – **market maturity pending** (challenges: **costs / H2-infrastructure** / customer acceptance ...)
- **Political support** still needed for “market activation” / harmonized programs (EU/globally) / market preparation: start with a cluster approach / regional.
- **Investment needed**: public-private approach / Identify sustainable support schemes and/or regulatory instruments (stationary and transportation)
- Hydrogen needs to play a larger role in government future energy scenarios – benefits for decentralisation / energy autarky / Hydrogen as storage
- **HFC potential is poorly understood** and not widely known in public, but is key for the future (the “usual suspects” meet)
- Potential for emerging markets needs to be developed!



Educate Governments and Public (perspectives and benefits with regard to energy, CO₂, jobs ...)

Conclusioni 1/2

- **Idrogeno e Mobilità:**

- Necessitano di investimenti pubblici per infrastruttura

- **Fuel Cells:**

- Hanno dimostrato la maturità tecnologica, ora servono i volumi per ridurre i costi

- **Stazionario**

- NON sussiste la barriera dell'infrastruttura.
(uso di Idrogeno, gas naturale, biogas...)
- Cattura CO₂ con FC
- Stoccaggio Energia
(H₂, uso infrastruttura metano)

Conclusioni 2/2



1. Dimostrare Grid Parity
 2. Conferma del Mercato&Volumi attraverso normative
- Feed in Tariff «corretta»
 - NON sussidi addizionali

➔ Creazione della «Power Coalition»

Power Coalition

The coalition comprises over twenty European technology developers, power businesses and fuel businesses;
we are seeking European, Asian and North American businesses; we are seeking to recruit more;

Company	
1. AFC	14. ITM
2. Air Liquide	15. IRD
3. Alstom	16. Johnson Matthey
4. Ceres Power	17. Nedstack
5. Dantherm	18. Prudential
6. Diverse Energy	19. RRFCs
7. Electro Power Systems	20. Shell
8. ENEL	21. SOFC Power
9. EOn	22. Topsoe Fuel Cells
10.Hexis*	23. TRE-FOR *
11.Hygear	24. Vattenfall
12.Iberdrola	25. Wartsila
13. INEA	

* This business has indicated that it will not proceed to the Fact Based Study stage

Power Coalition

- This is an **industry led** initiative, industry funded using industry data and information;
- It is focused on **Stationary Power generation technologies** and **not just fuel cells**,
- we are looking for a range of technology developers and suppliers with three markets: **domestic CHP, Small scale commercial and large scale commercial DG units**;
- Among the objectives is to undertake a **fact based study for stationary power and heat generation** technologies using a model **similar to the European Power Trains study**;
- **Key performance and cost data (GRID PARITY)** are expected to be critical outputs; with work to be undertaken in the first half of 2012; to be followed by further activity in the second half of 2012;
- The coalition has decided to work with **McKinsey** (they undertook the work for the European Power Trains study);

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