

The logo for HyRaMP, featuring the text "HyRaMP" in a white, sans-serif font. The letter "H" is partially enclosed by a white circular arc that starts on the left and ends on the right, with a small gap at the top. The background of the entire slide is a photograph of a vast landscape covered in white, fluffy clouds under a clear blue sky. A large, faint, semi-transparent white arc is visible in the upper right quadrant of the image.

HyRaMP

European Regions and Municipalities
Partnership on Hydrogen and Fuel Cells

The Local Road to Copenhagen

The role of regions in the development of the use of hydrogen and fuel cells

Marieke Reijalt

*PITER International Seminar
Brussels, December 2, 2009*

Overview



HyRaMP Introduction

HyRaMP's Role in the Promotion of FCH Technologies

Overview

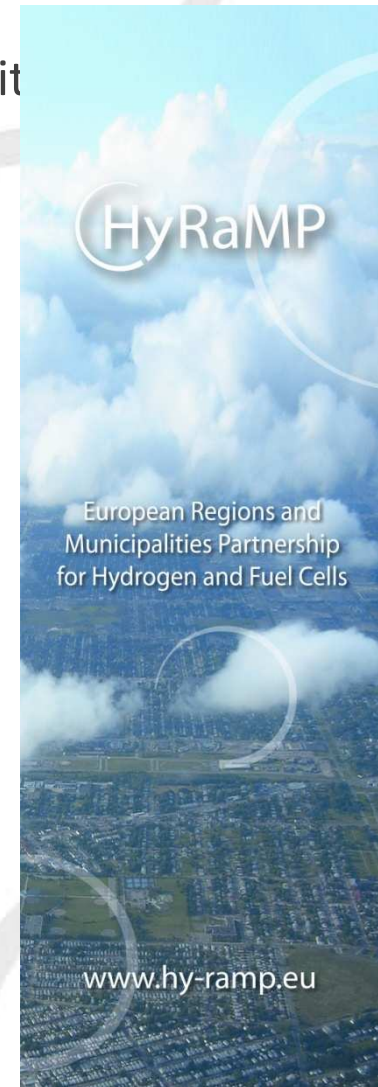


HyRaMP Introduction

HyRaMP's Promotion of FCH Technologies

HyRaMP – Facts

- Founded in April 2008 as the “European Regions and Municipalities Partnership on Hydrogen and Fuel Cells”
- Partnership of 30 European regions and municipalities with relevant activities in the field of hydrogen and fuel cells
- Legal and operational structure (board, office, budget, work plan) hosted by the European Hydrogen Association



HyRaMP Objectives

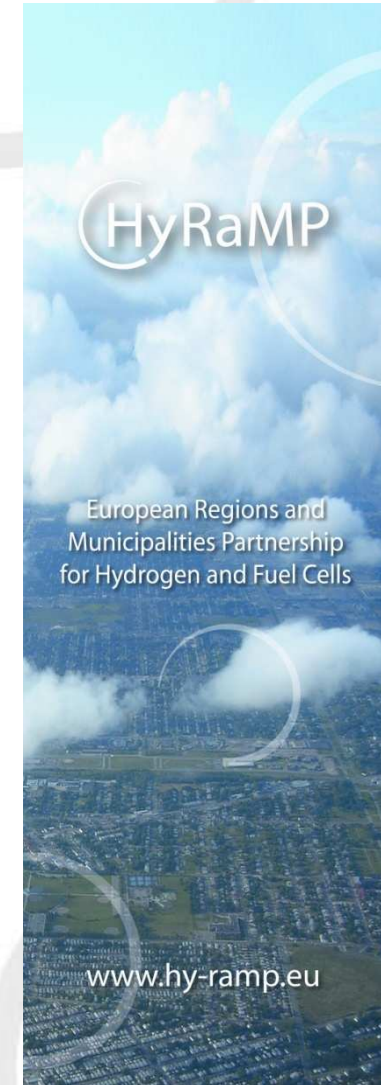


Coordination between the European Regions

- Harmonisation of regional activities across Europe
- Initiation of common and inter-regional projects (actions)

Towards Joint Undertaking for Fuel Cells and Hydrogen (and others)

- Representation of the European regions towards the European funding and organisations on FCH topics
- Harmonisation of regional, national and European activities and funding
- Initiation and implementation of coordinated projects



HyRaMP Members



European Regions and Municipalities Partnership for Hydrogen and Fuel Cells

France

- Rhone Alpes
- Midi Pyrénées

Germany

- Baden-Württemberg
- City of Hamburg
- Hessen
- North Rhine-Westphalia
- Oldenburg
- Wilhelmshaven

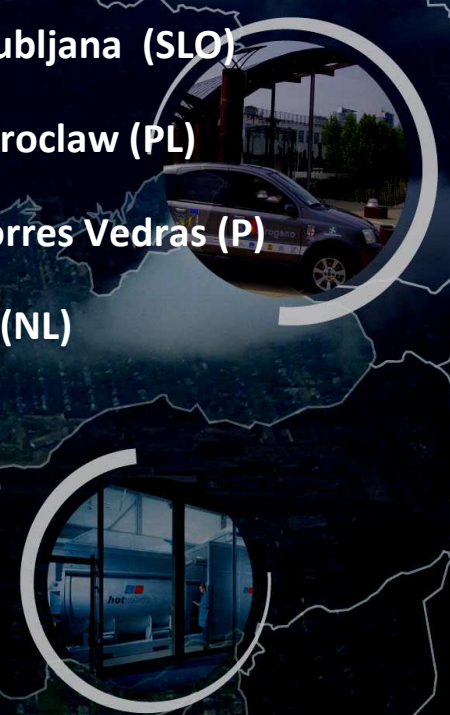
United Kingdom

- British Midlands
- Outer Hybrides
- North East of England
- City of London

Italy

- Abruzzo
- Province of Bolzano
- Lazio
- Lombardy
- Piemonte
- Province of Trento
- Tuscany
- Andalusia
- Aragon
- Castilla La Mancha
- Catalonia
- Galicia
- Madrid

- Scandinavian Regions (N, SE, DK)
- Flanders (B)
- City of Ljubljana (SLO)
- City of Wroclaw (PL)
- City of Torres Vedras (P)
- DutchHy (NL)



Outcome of HyRaMP's 2nd Annual General Meeting



- European progress in FCH is remarkable
- Better coordination between both FCH actors and other significant initiatives (e.g. electric transport, other clean technologies) is needed to accelerate overall development and leverage funding:
 - Provide data for EU Market Observatory for Energy
 - Support Synergies between EU Industrial Initiatives for Energy
 - Support Technology Transfer initiatives discussed at COP 15
- Important partners may become
 - Green Car Initiative
 - SET Plan actors (e.g. Smart Cities)
 - European Investment Bank (EIB)
 - Covenant of the Mayors

Overview

HyRaMP Introduction

HyRaMP's Promotion of FCH Technologies

The HyRaMP logo consists of the text "HyRaMP" in a blue, sans-serif font. The letter "H" is partially enclosed by a blue circular arc on its left side. The entire logo is set against a light gray, thick, curved background element that forms a partial circle.

HyRaMP's Promotion of FCH Technologies



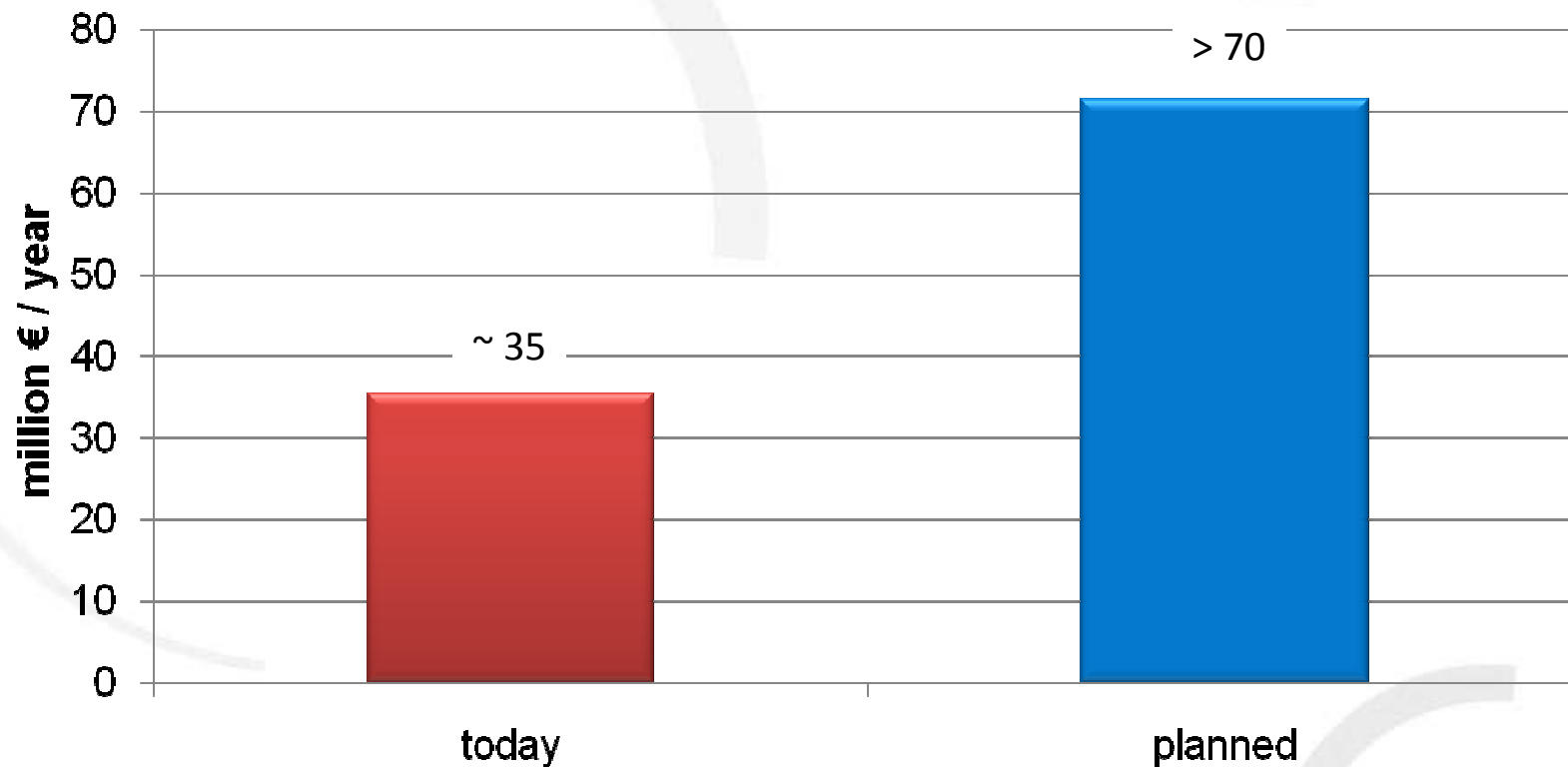
Today, already 30 HyRaMP regions are taking ambitious efforts in implementing FCH technologies:

- HyRaMP members have launched „state initiatives“ or „networks“, that bring together partners from industry and science and initiate projects incl. significant financial resources.
- These state activities pursue economic and industrial policy (e.g. incentives, local regulations, ..) related objectives: **strengthen the business location and safeguard local employment.**
- Common perspective: FCH technology will contribute to climate protection and reduction of the energy dependency. Climate protection technologies like FCH are already considered as a **serious economic perspective for regional economies.**

HyRaMP R&D Budget – A strong Commitment



**Budget of the HyRaMP Regions
for funding projects in the field of hydrogen and fuel cells per year***



*With data from 21 of 30 members

HyRaMP: work in progress



| SPAIN | | | | |
|-----------|---|--|--|---------------------------------------|
| Andalusia | Current: 1 car 1 speciale vehicle Plannend: 1 car 1 speciale vehicle | Plannend fuelling station:1 Current H2 Production: 25 tons/a | Current: 1 sytem (house energy) 1 system (industry) 1 special system Plannend: 1 special system | Current: 2,3M€ Plannend: 1,1M€ |
| Aragon | Current: 3 buses 1 kart 20 bikes | Plannend fuelling station: 1 Current H2 production: 20,008 tons/a | Current: 1 special system (UPS) Plannend: 1 system (house energy) 1 system (industry) | Current: 1,0M€ Plannend: 0,5M€ |
| Galicia | Plannend: 1 bus | Plannend H2 production: 1725Nm ³ | Current: 1 system (house energy) 1 system (industry) | Current: 1,5M€ |
| Madrid | Current: 4 buses | Current fuelling station: 1 | | Current: 1,0M€ Plannend: 1,0M€ |

| ITALY | | | | |
|--------------|--|--|---|-----------------------------------|
| Abruzzo | Plannend: 20 cars | Plannend fuelling stations: 4 Current: H2 Production: 1 ton/a | Current: 1 system (house energy) | Plannend: 0,6M€ |
| Bolzano | Plannend: 5-10 cars 5 buses | Plannend fuelling stations: 3 Plannend H2 Production : 180 tons/a | Plannend: 4 highway overhead signs | Current: 0,1M€ Plannend: 2,5M€ |
| Lombardy | Current: 5 cars Plannend: 20 cars | Plannend fuelling stations: 4 Current: H2 Production: 52,400 tons/a | Current: 1 system (house energy) Plannend: 3 systems (house energy) | Current: 1,5M€ Plannend: 8,0M€ |
| Piemonte | Current: 2 cars 1 bus 12 FC Scooters | Plannend: 1 Fuelling station Current H2 Production: 23,500 tons/a Plannend H2 Production: 100 tons/a | Current: 2 systems (house-energy) 3 systems (industry) 15 special systems | Current: 3,3M€ Plannend: 2,5M€ |
| Trento | | Current H2 Production: 2,2 tons/a | Current: 10 systems (house energy) | Current: 2,5M€ Plannend: 7,5M€ |

| GERMANY | | | | |
|------------------------|--|---|--|---|
| Baden Wuerttemberg | Current: 20 cars 6 buses Plannend: 20-30 cars 1 bus | Current fuelling stations: 5 Plannend fuelling station: 1 | Current: 24 systems (house energy) 4 systems (industry) Plannend: 222 systems (house energy) | Current: 3,0M€ Plannend: 3,0M€ |
| Hamburg | Current: 3 cars 9 buses 4 forklifts 1 ship 1 aircraft 1 boat Plannend: 25 cars 20 buses 50 forklifts | Plannend fuelling stations: 5 Current H2 production: 50 tons/a Plannend H2 production: 300 tons/a | Current: 10 systems (house energy) 1 system (industry) Plannend: 100 systems (house energy) 2 systems (industry) | Current: 3,0M€ Plannend: 5,0M€ |
| Hessen | Current: 2 cars 1 forklift | Current fuelling station: 1 Current H2 production: 3 tons/a Current: H2 production: 30.000 Nm ³ | Current: 10 special systems | Current: 0,2M€ Plannend: 0,7M€ |
| North Rhine Westphalia | Current: 3 midi buses 3 forklifts 20 bikes Plannend: 20 cars 50 buses 30 forklifts 20 bikes 25 LUV | Current fuelling stations: 5 Plannend fuelling station: 10 Current: H2 production: 10 tons/a Plannend H2 production: 40,000 tons/a | Current: 4 systems (house energy) 5 systems (industry) 5 special systems (UPS) Plannend: 30 systems (house energy) 2 systems (industry) 100 special systems (UPS) | Current: 10,0M€ Plannend: 17,0M€ |

HyRaMP: work in progress

- 1.Region of Andalusia:** Hercules project, SHEC Labs (solar and biogas landfill).
Setting up Advanced technologies in Renewable Energy;
- 2.Region of Abruzzo:** developed regional strategy for H₂;
interest in use of CNG/H₂ mixtures for transport, power applications for remote areas;
- 3.Region of Aragon:** funding is € 1 mln per year for hydrogen and fuel cell projects;
- 4.Region of Trento** is developing Hyway A22 and a fuel cell and hydrogen resort;
- 5.Region of Baden Wuerttemberg:** hydrogen alliance;
- 6.Region of Castilla La Mancha** (where Madrid is located) hosts the national centre for hydrogen and fuel cell technology experimentation CNETHPC;
- 7.Region of Madrid:** population is 6.8 mln: participated in CUTE and Hyfleet CUTE,
3 more buses in 2008, R&D network of CO₂ free hydrogen production, decarbonization,
solar thermal water splitting photocatalytic;

HyRaMP: work in progress

- 8. Region of Galicia:** project of windpower management, ends in 2008;
- 9. City of Hamburg:** 20 buses in daily service operating by 2010, fuel ship is scheduled on Lake Aster and FC luggage carriers; are operating since 2007 in the airport; technology cluster Hessia; residential fuel cells in Hafen City
- 10. Region of British Midlands:** established Hydrogen Forum , HARI Project Hydrogen and Renewables integration project (renewable energy and hydrogen energy storage system) H₂/FC vehicles (Microcab, Valeswood and CENEX, stationary systems (Intelligent Energy and Rolls Royce, Baxi Adelan), SCRATCH project (supply chain research applied to clean hydrogen) Midlands Hydrogen Ring (cluster of refuelling stations), hosting UK Technology Institute (big hydrogen and fuel cell activity);
- 11. Region of Rhone Alpes,** SOLHyVert (hydrogen production by solar power) HYBird (aircraft on fuel cells) French norms and regulations are obstacle to development , launch a survey in 2008 to verify potential activity on hydrogen and fuel cells.

HyRaMP: work in progress

12. Region of Lombardy: reformer and refuelling station Bicocca and mixture projects (short term development activities);

13. Region of Midi Pyrenées: an association was created in 2007 with 6 partners (department of municipal waste, general council of Tarn, Ecole des mines, Université de Paul Sabatier, N-HGY (2008/2009), Have contact with the University of Madrid;passenger vehicles additional two stations.

14. Region of Catalonia: government approved the Energy Park one week ago; hydrogen production for renewable energy, transport applications and development of fuel cells;

15. Region of Nord East of England: development agency and regional government are working closely together on hydrogen and fuel cell development, the regions already produces 75.000 tons of H₂ annually and H₂ is stored in the regions, CCS will offer an opportunity to produce a hydrogen as well, 130 companies are working in the H₂ and FC supply chain;

16. Region of North Rhine Westphalia: local fuel cell network, strong collaboration already established not only at national EU but also international level (Canada).

HyRaMP: work in progress

- 17. Region of Oldenburg-Wilhelmshaven:** in Lower Saxony; project Hywind balance (hydrogen storage), H2Port synergy between chemical industry and container harbours (deep water port by 2010), energy cluster, 30 SME involved in RE and hydrogen and fuel cell (adoption of combustion engines to hydrogen), EWE established research center (stationary fuel cell project);
- 18. Scandinavian Regions:** largest collaboration in Europe to create Scandinavian Hydrogen Highway Project status 3 HRS (one opening in Denmark this June) 15 Toyota Prius on H2, 7 niche vehicles and two hydrogen buses. 2015: 15 HRS, 500 cars and 100 buses;
- 19. Region of Piemonte:** main concept in Piemonte is development of a cluster: Total Budget between 2003-2007 € 15 mln ; for 2008-2013 €300 mln set aside for renewable energy and hydrogen and fuel cells;
- 20. City of Ljubljana:** first station has been approved, airport bus on hydrogen, 6 passenger vehicles, additional two stations.

HyRaMP Activity Plan 2010



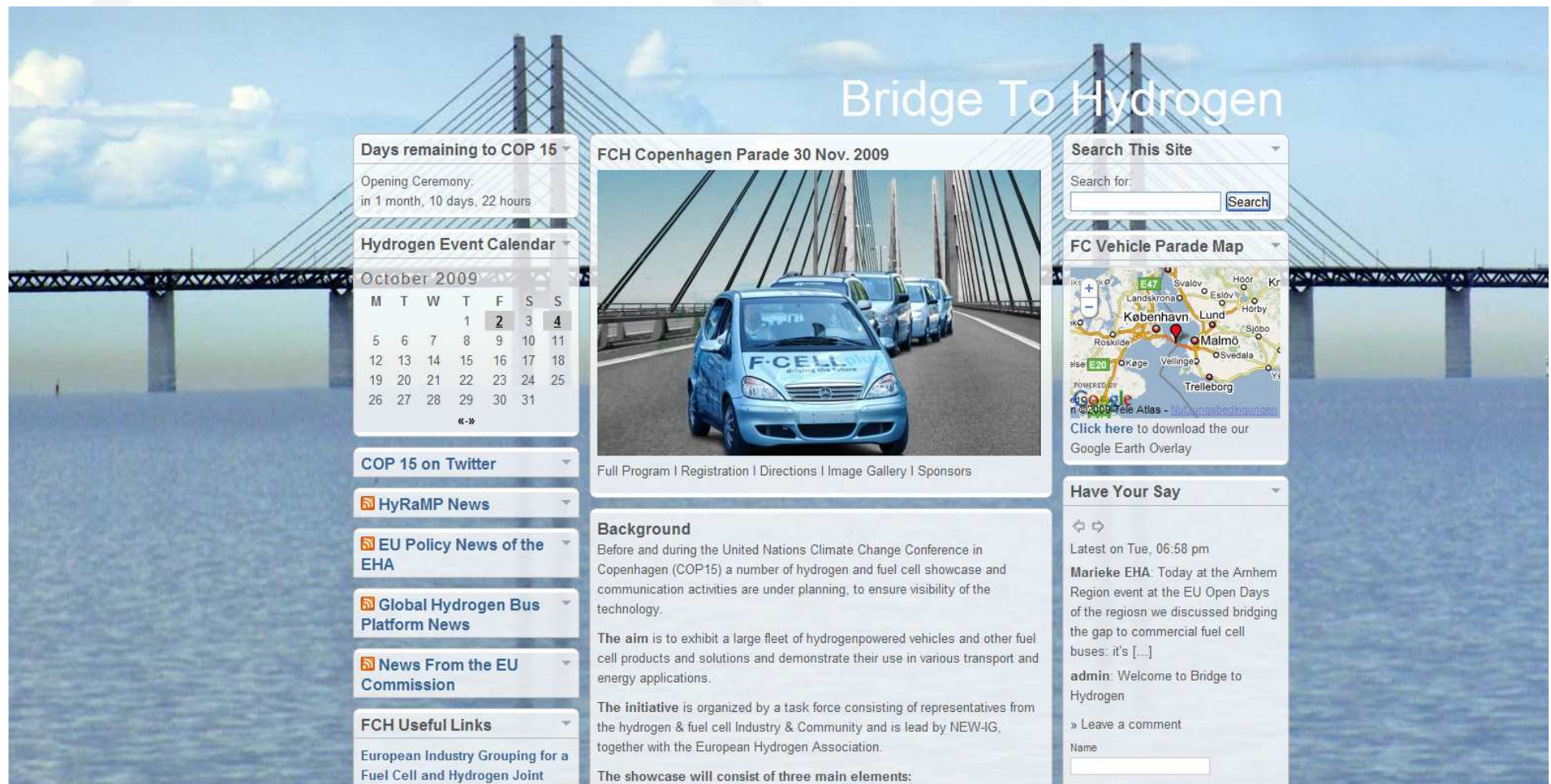
- ... Facilitating HyRaMP to act as **project partner and co-financer** in EC projects and programs.
- ... Following up with activities in the **demonstration** project for hydrogen **buses** (dissemination) and information to HyRaMP (AA 1).
- ... Initiating a **waste hydrogen study** / survey across HyRaMP regions (quantities, qualities and costs) (AA 2).
- ... Setting up of **local supply chain** initiatives (conducting a case study (AA 3)) and facilitate the **incorporation of the regional industry**, with regard to SMEs, to the ongoing projects or proposals (AA 4).
- ... Initiating a survey on suitable **market incentives** (AA 3).

HyRaMP Activity Plan 2010 (2)

- ... Organising of an **education workshop** early 2010 (AA 5).
- ... Contributing to the **hydrogen vehicles event** during COP 15 and evaluation of annual major “**bridge crossing events**” in different parts of Europe each year.
- ... Being at the **WHEC 2010 in Essen**.

Bridge To Hydrogen

- **Hydrogen vehicles event** on the occasion of COP 15: November 30, 2009 (<http://bridge2h.com>).



The screenshot shows the Bridge To Hydrogen website interface. The background features a large image of a cable-stayed bridge over water. The website layout includes several sections:

- Days remaining to COP 15:** Opening Ceremony: in 1 month, 10 days, 22 hours.
- Hydrogen Event Calendar:** October 2009 calendar showing the event on November 30.
- FCH Copenhagen Parade 30 Nov. 2009:** A photo of a blue F-CELL car with the text "F-CELL driving the future". Below the photo are links for "Full Program | Registration | Directions | Image Gallery | Sponsors".
- Search This Site:** A search bar with a "Search" button.
- FC Vehicle Parade Map:** A map showing the route from Copenhagen to Malmö, with a red pin at Malmö. Below the map is a link to "Click here to download the our Google Earth Overlay".
- Have Your Say:** A section for user comments, with the latest comment from "Marieke EHA" dated Tuesday, 06:58 pm. The comment discusses the event at the Arnhem Region event at the EU Open Days of the region.
- Navigation and News Links:** A sidebar on the left contains links for "COP 15 on Twitter", "HyRaMP News", "EU Policy News of the EHA", "Global Hydrogen Bus Platform News", "News From the EU Commission", and "FCH Useful Links".
- Background:** A section titled "Background" explaining the event's purpose: "Before and during the United Nations Climate Change Conference in Copenhagen (COP15) a number of hydrogen and fuel cell showcase and communication activities are under planning, to ensure visibility of the technology." It also states the aim is to exhibit a large fleet of hydrogen-powered vehicles and other fuel cell products and solutions, and demonstrate their use in various transport and energy applications.
- The initiative:** A section stating the initiative is organized by a task force consisting of representatives from the hydrogen & fuel cell Industry & Community and is led by NEW-IG, together with the European Hydrogen Association.
- The showcase:** A section stating the showcase will consist of three main elements.

WHEC 2010

Hydrogen Energy



Essen, Germany,
May 16 - 21, 2010

www.whec2010.com

Objective

- WHEC 2010 should become an international showcase for the capability and advances of H₂ and FC technology

Actions

- Establishing of the H₂ infrastructure and deployment of FC technology in as many applications as possible (NRW Hydrogen Hyway, NIP, JTI, IPHE)
- Invitation of German as well as European and international projects and partners to Essen
- Showcase of concrete projects and products not only to experts but also to the general public

Thank you for your attention!

www.hy-ramp.eu

