

German Hydrogen & Fuel Cell Technology Update

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IPHE Implementation & Liaison Committee

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Government Funding in Germany (2006)

- **Federal Ministries: 60 million €/year**
- **Federal States: 20 million €/year**

- **Total amounts:**

	2004	2005	2006	2007
	70 million €	70 million €	80 million €	115 million €*

* Subject to change

- **Federal State of Nordrhein-Westfalen (since 2000):**
 - ⇒ 64 projects
 - ⇒ 121 million € budget and 74 million € funding
 - Development and demonstration (110 million €)
 - (Basic) research (11 million €)

Federal Government Funding in Germany

- **Relevant Programmes**

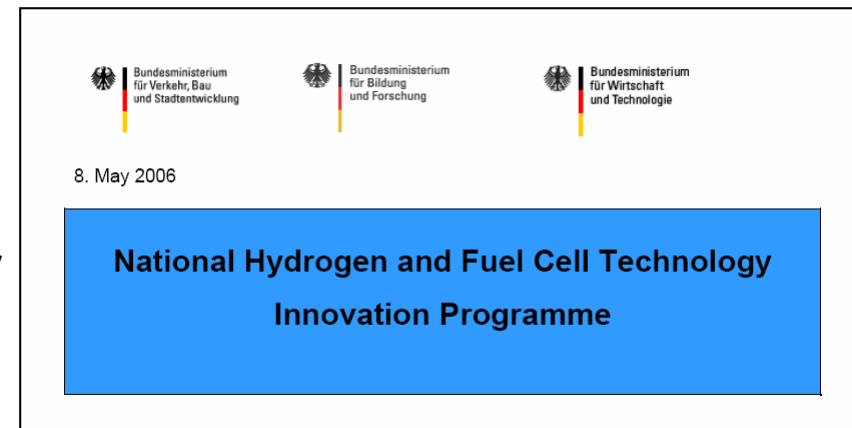
- **5th Federal Energy Research Programme (July 2005)**
- **National Innovation Programme on H₂/FC (NIP) (May 2006)**

- **Responsibilities**

- **Federal Ministry of Education and Research (BMBF):**
Basic research, Programme for micro fuel cells, Institutional funding; 5th Federal Energy Research Programme
- **Federal Ministry of Economics and Technology (BMW):**
Applied research & development; 5th Federal Energy Research Programme
- **Federal Ministry of Transport, Building and Urban Affairs (BMVBS):**
Demonstration & deployment; National Innovation Programme on H₂/FC

National Innovation Programme on H₂/FC (NIP)

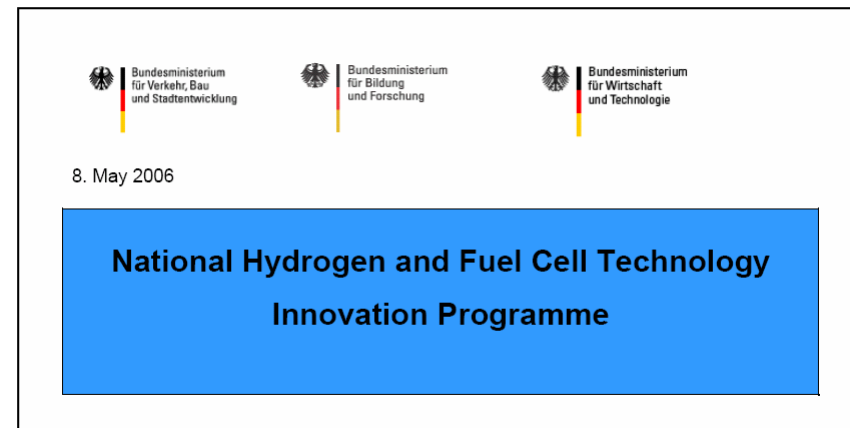
- **Goal:** Bridging the gap between R&D and market development
 - **Additional funding:** 500 million € over the next 10 years, i.e. nearly a **doubling** of public funding
 - **Implementation:** through public-private-partnerships with average public funding of 50 %, i.e. additional 1 billion € over next 10 years
 - **Focus:** market preparation with demonstration / lighthouse projects (2/3), accompanied by R&D projects (1/3)
 - **Link:** implementation in close coordination and cooperation with EU / further international activities and regions



www.nkj-ptj.de and www.iphe.net/germany.htm

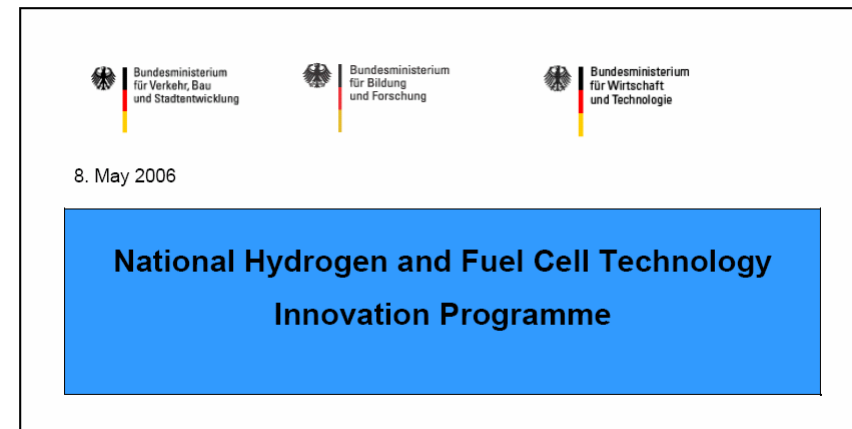
Criteria for Lighthouse Projects in NIP

- Lighthouse projects should bridge the gap between today's **prototypes** and full-scale **commercialisation**
- Use of extensive **experiences, capacity, (financial) commitments** and **existing infrastructure** in individual **regions** (“**starter regions**” Berlin, Hamburg, NRW)
- Advancement of **existing R&D** and **demonstration projects**
- Concentration on a few sites (**clusters**) in the beginning, **broadening of activities** and linking up with those in other **European regions**
- Cooperation of a wide range of **companies** including **SMEs**



Current Status of the Implementation of NIP

- **Commitments** of industry (Protocol declaration of **24 companies**) for matching the public funding (in place since October 2006)
- Discussions and agreements with the Federal States concerning their participation (ongoing since September 2006)
- Overall **programme of work** by Strategy Council H2/FC (**transport, stationary and early market**) (by February 2007)
- **EU-Notification** of the NIP (expected February 2007)
- Plenary **meeting** (March 2007)
- Foundation of **Programme Management Association (NOW)** and begin of **operational activities** (after **March 2007**)

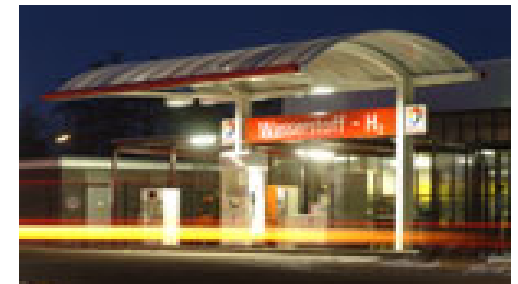


Transport – Clean Energy Partnership (CEP)

www.cep-berlin.de

Hydrogen demonstration project in Berlin
to demonstrate the reliability of hydrogen in
everyday motor vehicle operation

- Duration
- Two phases
- Hydrogen, gaseous and liquid
- **CEP could be extended in the NIP (CEP plus)**
- 17 passenger cars from BMW, DaimlerChrysler, Ford, GM/Opel and Volkswagen
- Total cost: 33 million €, funding of 5 million € by Federal Government
- 14 busses from MAN with ICE projected (within EU-project HyFleet:CUTE)



Early Market Applications – Some Examples from NRW

Partners in NRW have already proposed more than 20 projects for the NIP

www.fuelcell-nrw.de

Masterflex
Brennstoffzellentechnik

HYDROGENICS
CORPORATION

HOPPECKE
POWER FROM INNOVATION

STILL

ZBT

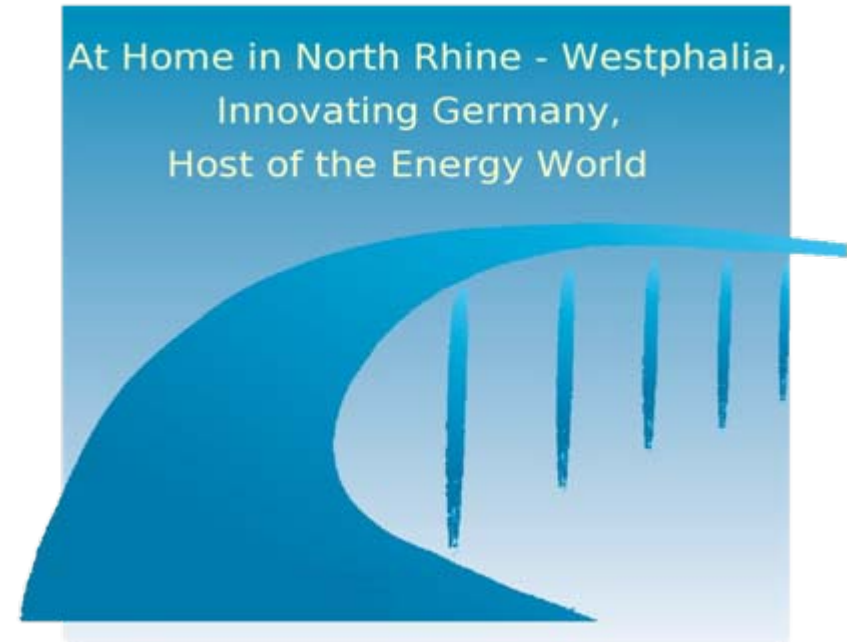
LIETEC
FUEL CELL TECHNOLOGIES

RITTAL

IdaTech

Images include: a bicycle with a fuel cell power pack, a hydrogen fuel cell bus, a forklift, a small orange utility truck, a row of colorful fuel cell cars, a fuel cell power station with red gas cylinders, and a fuel cell power pack for a mobile phone.

The next long-term milestone ...



18th World Hydrogen Energy Conference 2010
Essen, Germany, May 16 - 21, 2010

www.18whhec2010.de info@18whhec2010.de

Backup slides