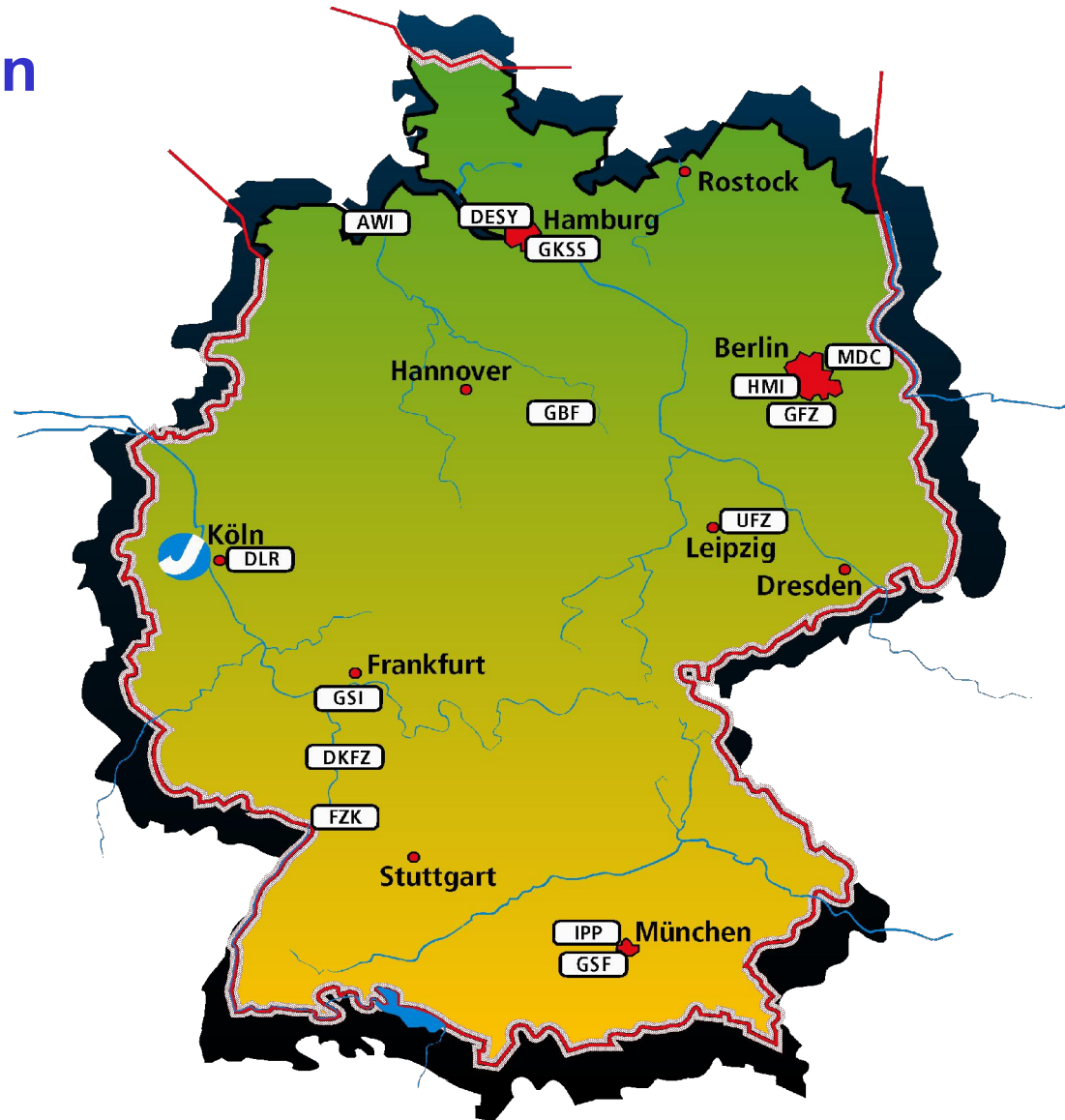


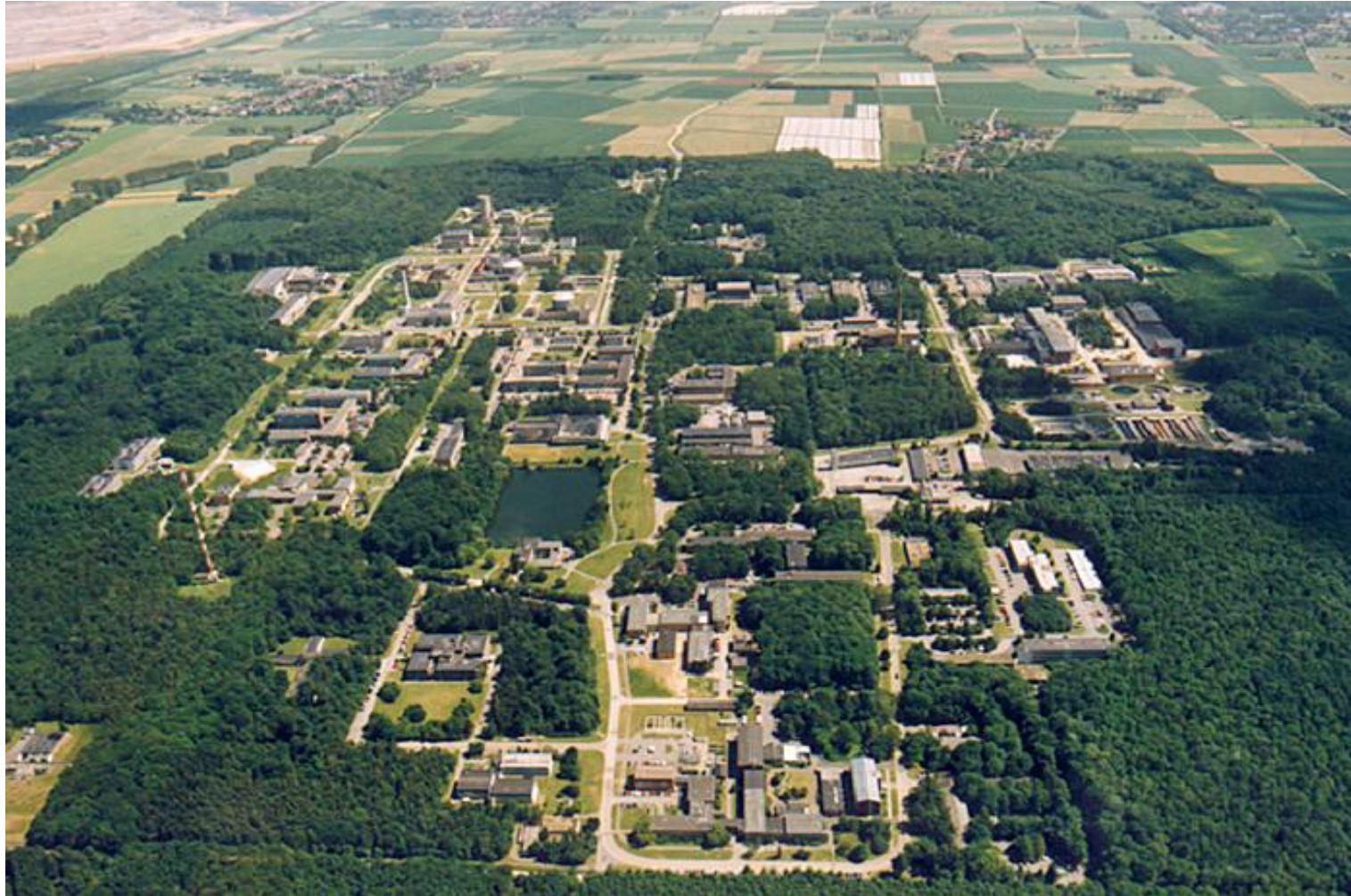


Helmholtz Association in Germany





Research Centre Juelich (FZJ)



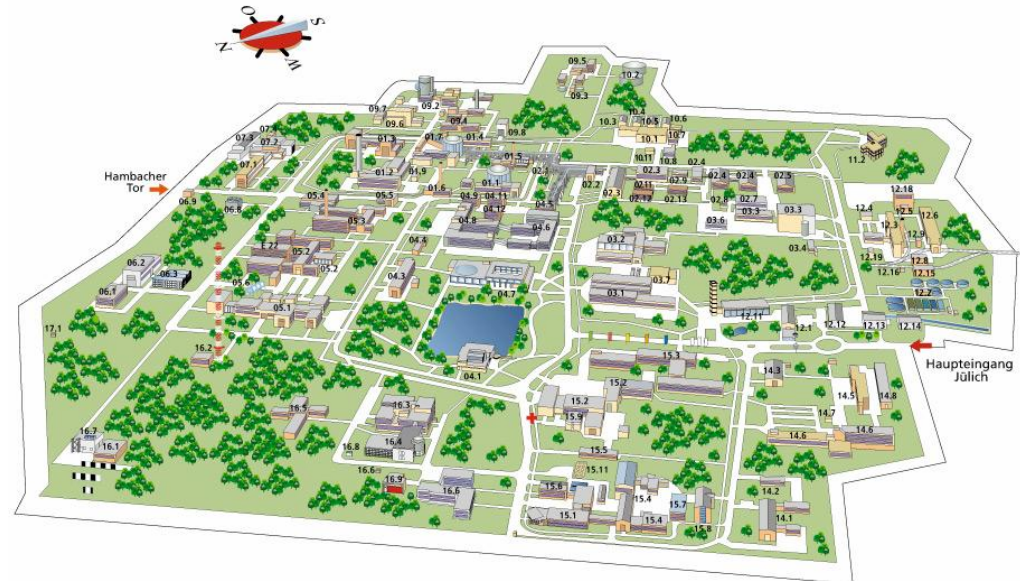
Research Centre Juelich (FZJ)

FZJ was founded by the Federal Republic of Germany and the State of North Rhine Westphalia in 1956.

Today, ca. 4400 employees in 5 departments, 12 Institutes, 2 Programme Groups and 2 Project Managements
(940 Scientists, 350 PhD students, yearly: over 800 visiting scientists)

Research areas

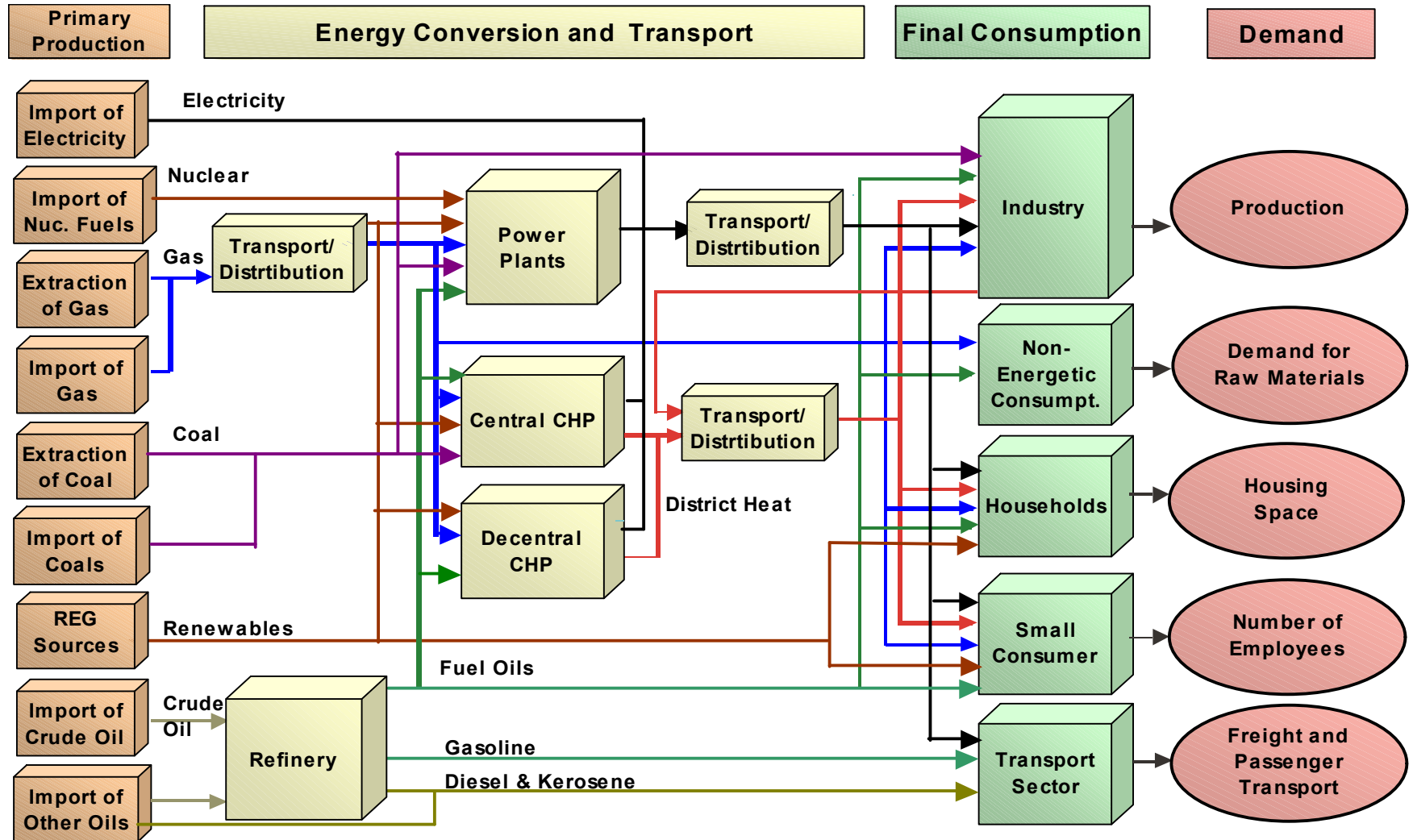
- Health
- Key Competencies
- Earth and Environment
- Energy
- Structure of Matter



Annual budget: 360 Million EURO p.a.

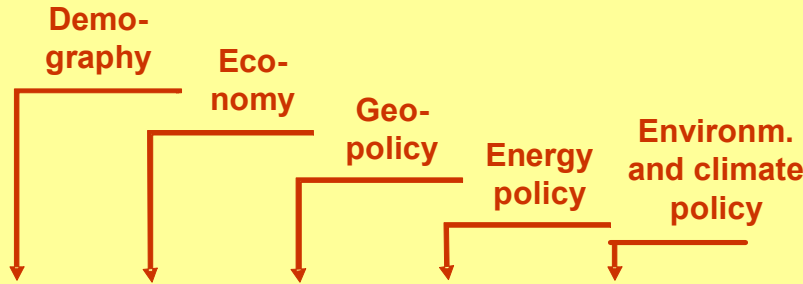


Future Energy Demand and Supply – The Systems Approach



Future Energy Demand and Supply – The Systems Approach

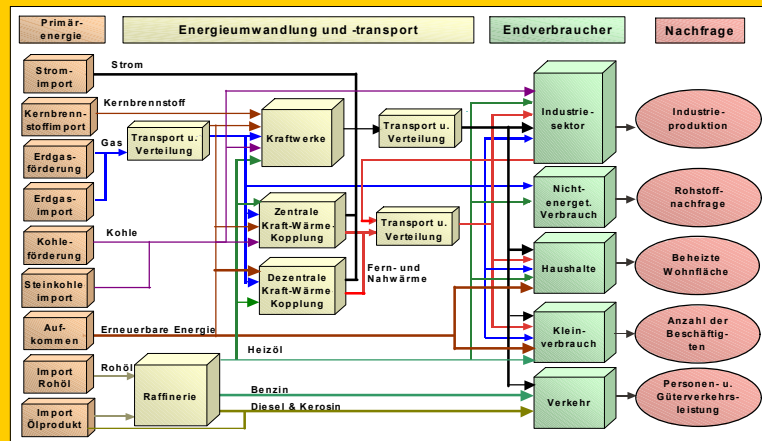
Socio-economic and environmental drivers



The Energy Systems Approach comprises expertise about

- technical processes and
- driving forces

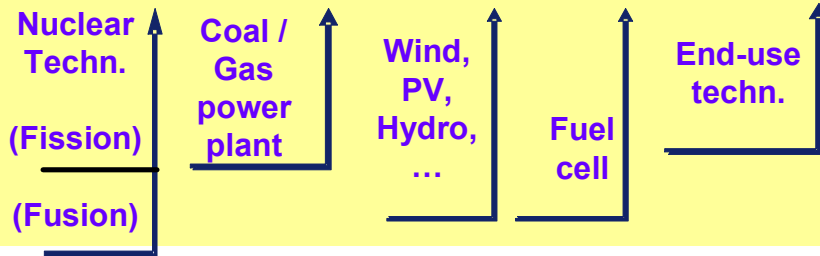
Energy technologies system



aiming at

- higher competitiveness,
- mitigation of environmental damages, and
- societal acceptance of future energy systems.

Technical drivers / maturity





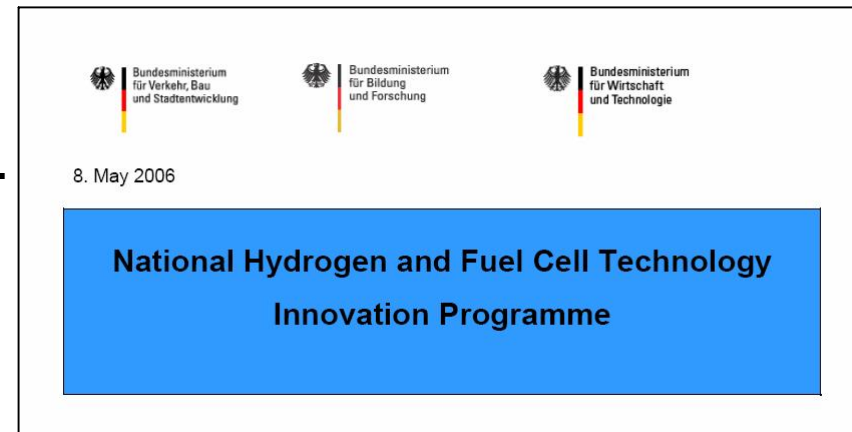
Government Funding in Germany

- **Relevant Programmes**
 - **5th Federal Energy Research Programme (July 2005)**
 - **Hydrogen & Fuel Cell Technology Innovation Programme (August 2006)**
- **Responsibilities**
 - **Federal Ministry of Education and Research (BMBF):**
Basic research, Programme for micro fuel cells, Institutional funding
 - **Federal Ministry of Economics and Technology (BMWi):**
Applied R&D, Demonstration & deployment (stationary)
 - **Federal Ministry of Transport, Building and Urban Affairs (BMVBS):**
Demonstration & deployment (transport)



Hydrogen and Fuel Cell Technology Innovation Programme

- **New Programme from Federal Government (since August 2006)**
 - **Additional funding: 625 M. USD (500 million €) over the next 10 years, i.e. nearly a doubling of the actual public funding**
 - **Implementation: through public-private-partnerships with average public funding of 50 %, i.e. 1,25 B. USD (1 billion €) over next 10 years**
 - **Goals: maintenance and expansion of Germany's good starting position**
 - **Focus: market preparation with demonstration and lighthouse projects, accompanied by targeted R&D projects (basic and applied research)**



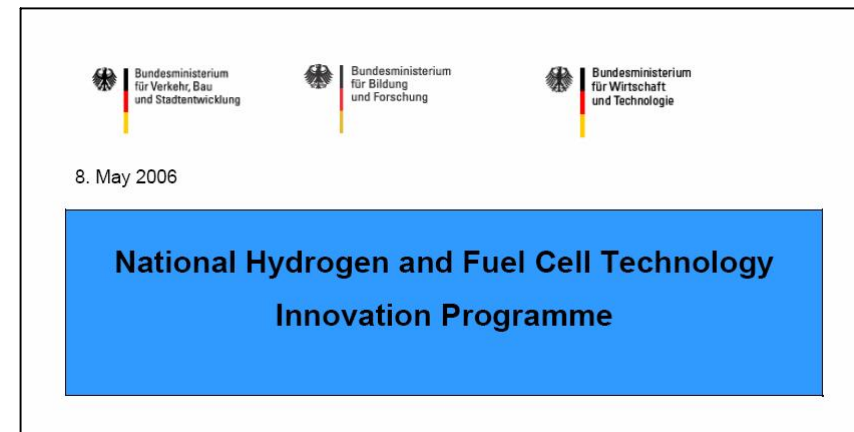
www.nkj-ptj.de



Hydrogen and Fuel Cell Technology Innovation Programme

- **Next Steps for Implementation**

- Overall **programme of work** (roadmap, proposals for lighthouse and R&D projects) by **Strategy Council Hydrogen and Fuel Cells** differentiated for **transport, stationary** (domestic and industrial) and **early market** applications
- **Commitments of industry** (Letters of Intent) for a principle participation (binding financial contributions later within concrete projects)
- **Discussions and agreements with the Federal States** concerning their participation
- **Constitution of a professional programme management**



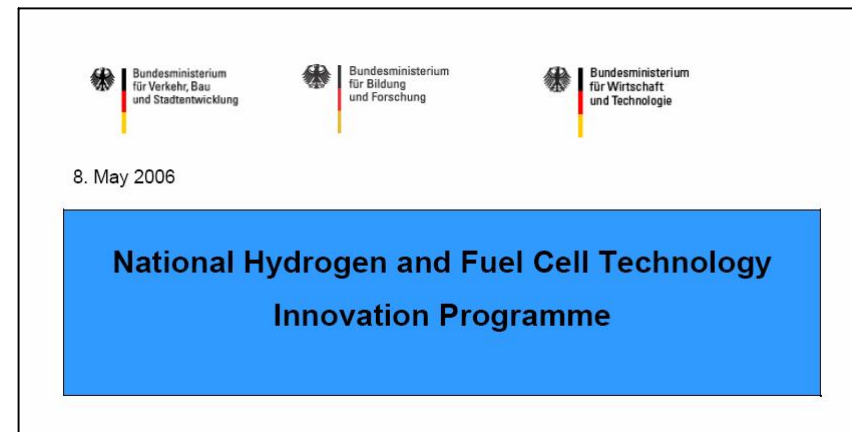
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Hydrogen and Fuel Cell Technology Innovation Programme

- **Criteria for Lighthouse Projects**

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



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