



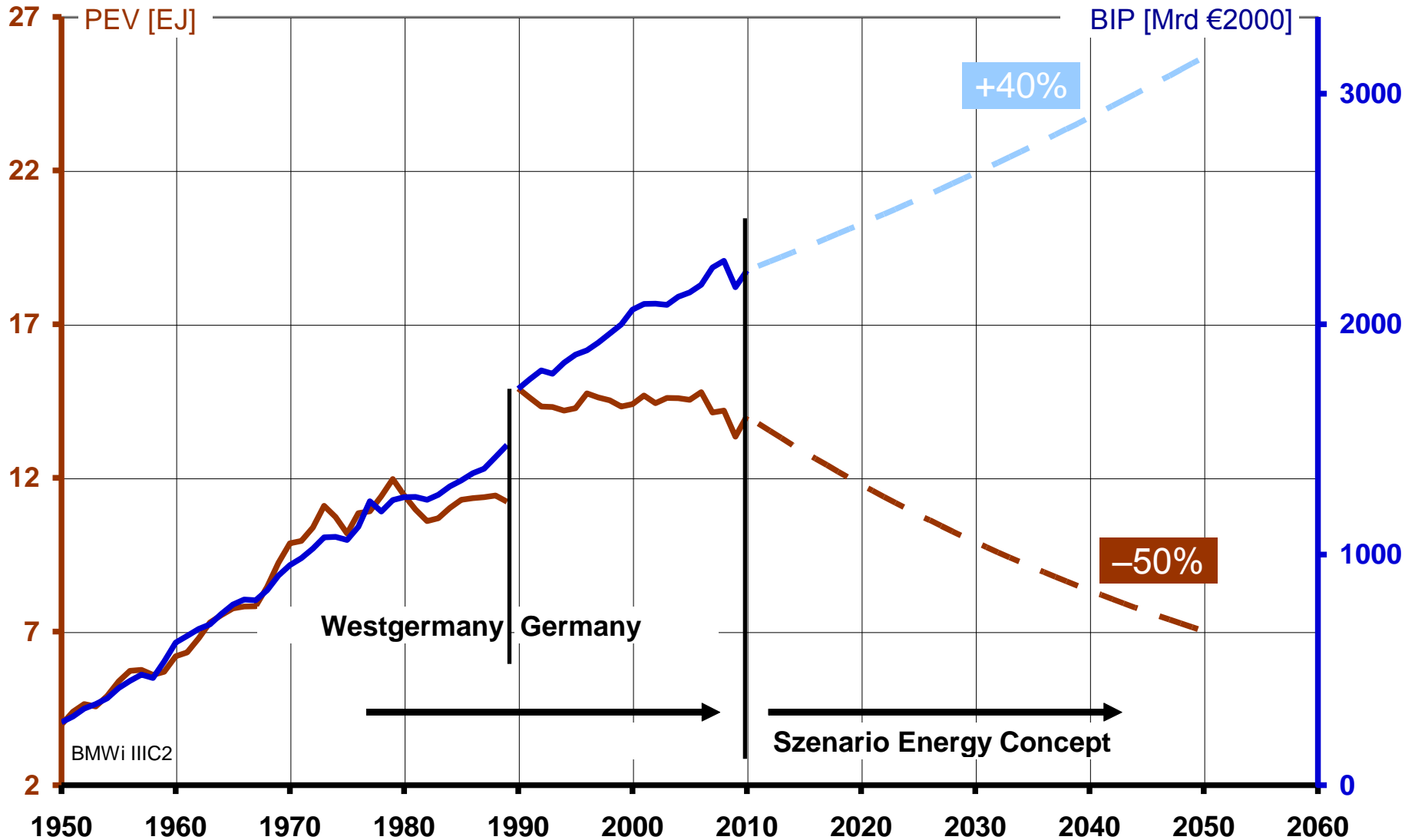
Federal Ministry
of Economics
and Energy

The situation of Energy Policy in Germany and the challenges for the Hydrogen Technology

Dr. Georg Menzen
Federal Ministry of Economics and Energy

Hydrogen as Energy Carrier
Berlin, June 24th, 2014

The German Energy Concept (“Energiewende”)





The “Energiewende”

Objectives for 2050

Primary Energy consumption:
(Basis 2008)

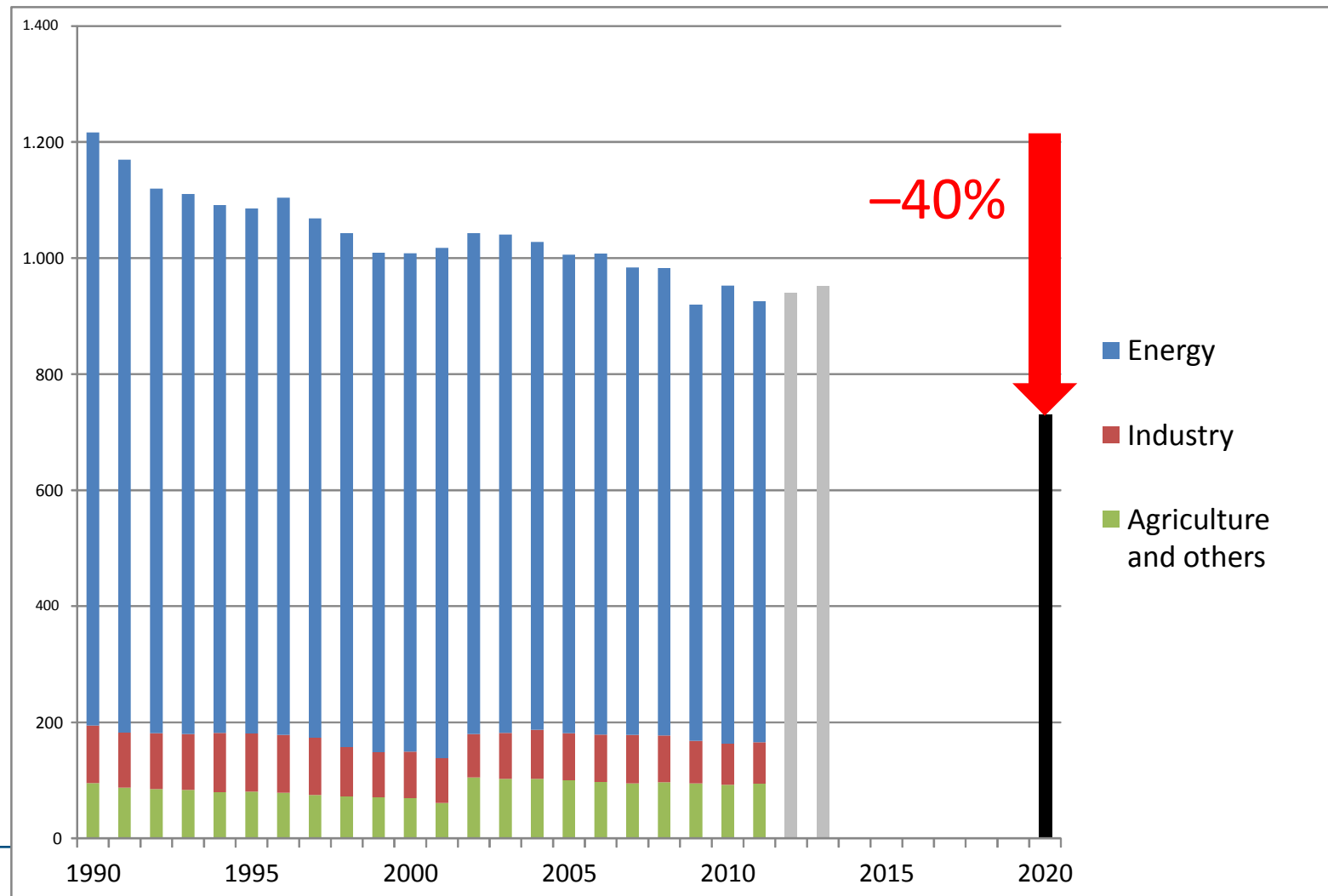
Minus 50 %

Greenhouse gas emissions:
(Basis 1990)

Minus 80 % up to 95 %

Electricity supply from Renewables: Contribution 80 %

CO₂-Emissions in Germany





Objectives of the Energy Research Policy

The 6th Energy Research Programme
“Research for an environmentally sound,
reliable and affordable energy supply”

1. Technological contribution for complying energy related requirements in Germany
2. Maintaining and developing the leading position of German entities in the field of new and modern energy technologies
3. Secure and enhance technological options





„Energy Research will consequently be aligned with the objectives of the Energiewende.“

„... new comprehensive and system orientated research and development approaches will be taken up ...“

„We will perpetuate the public budget for the Energy Research Programme.“

**DEUTSCHLANDS ZUKUNFT
GESTALTEN**

KOALITIONSVERTRAG ZWISCHEN CDU, CSU UND SPD

Update of the 6th Energy Research Programme

1. - Implementation of the Initiative:
„Future Compliant Electrical Grid“
- New Initiative: „Solar Buildings / Energy Efficient City“
2. Strengthening of the European and international cooperation i. e. in Hydrogen and Fuel Cells, Smart Grids, Smart Cities (SET Plan, ERA-NET Cofund, “Berlin Model”, IEA)
3. Intensification of the cooperation with the Federal States
4. Implementation of a centralized information system Energy Research (EnArgus)



The “Energiewende”

Objectives for 2050

Primary Energy consumption: **Minus 50 %**
(Basis 2008)

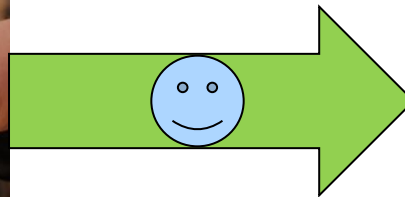
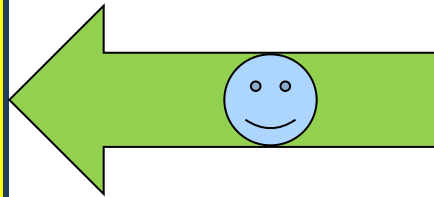
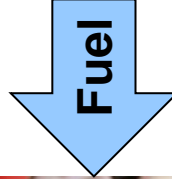
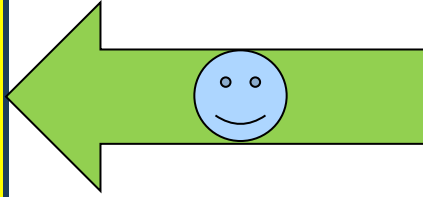
Greenhouse gas emissions: **Minus 80 % up to 95 %**
(Basis 1990)

Electricity supply from Renewables: **Contribution 80 %**



The two columns of the Energiewende

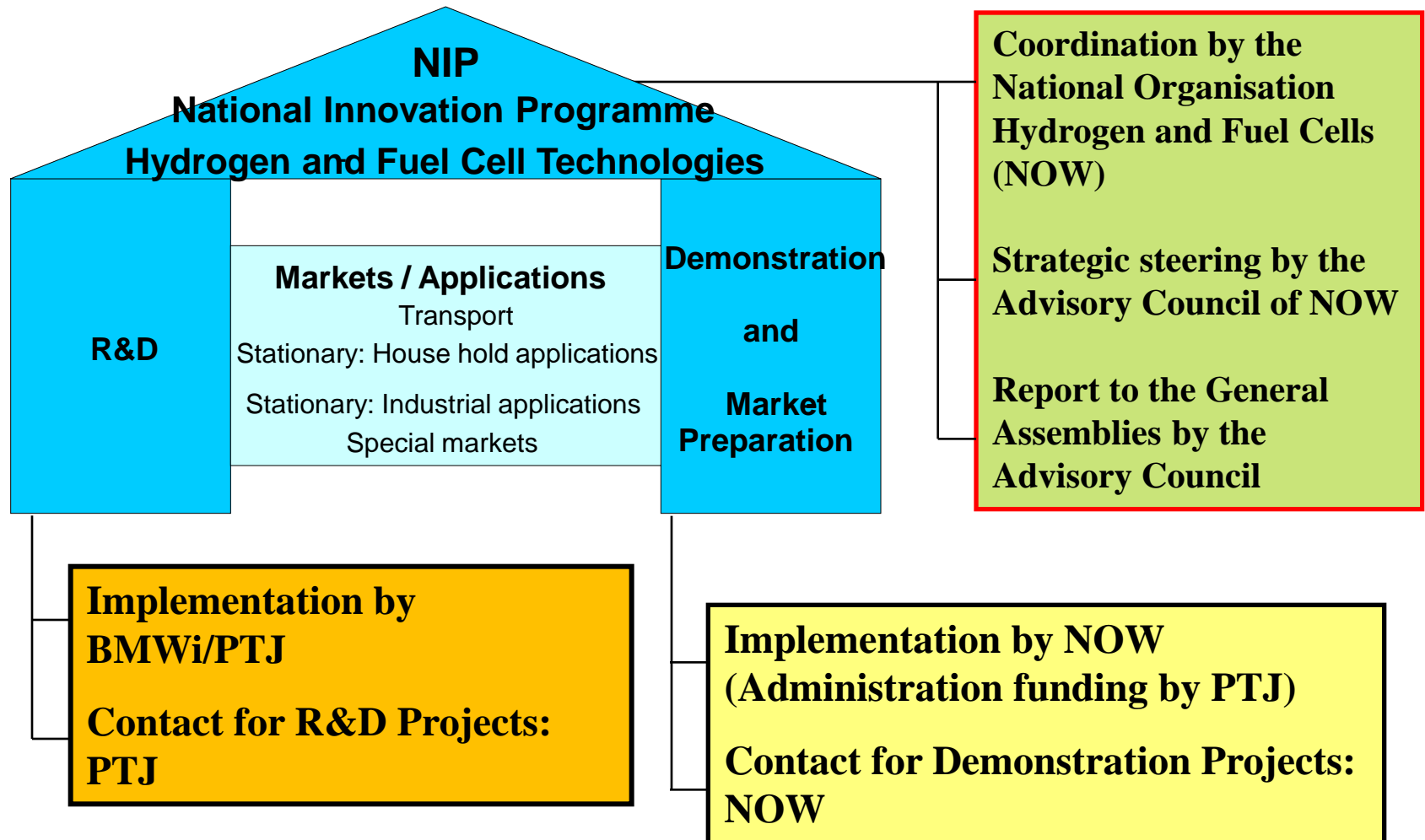
Improvement of
Energy Efficiency

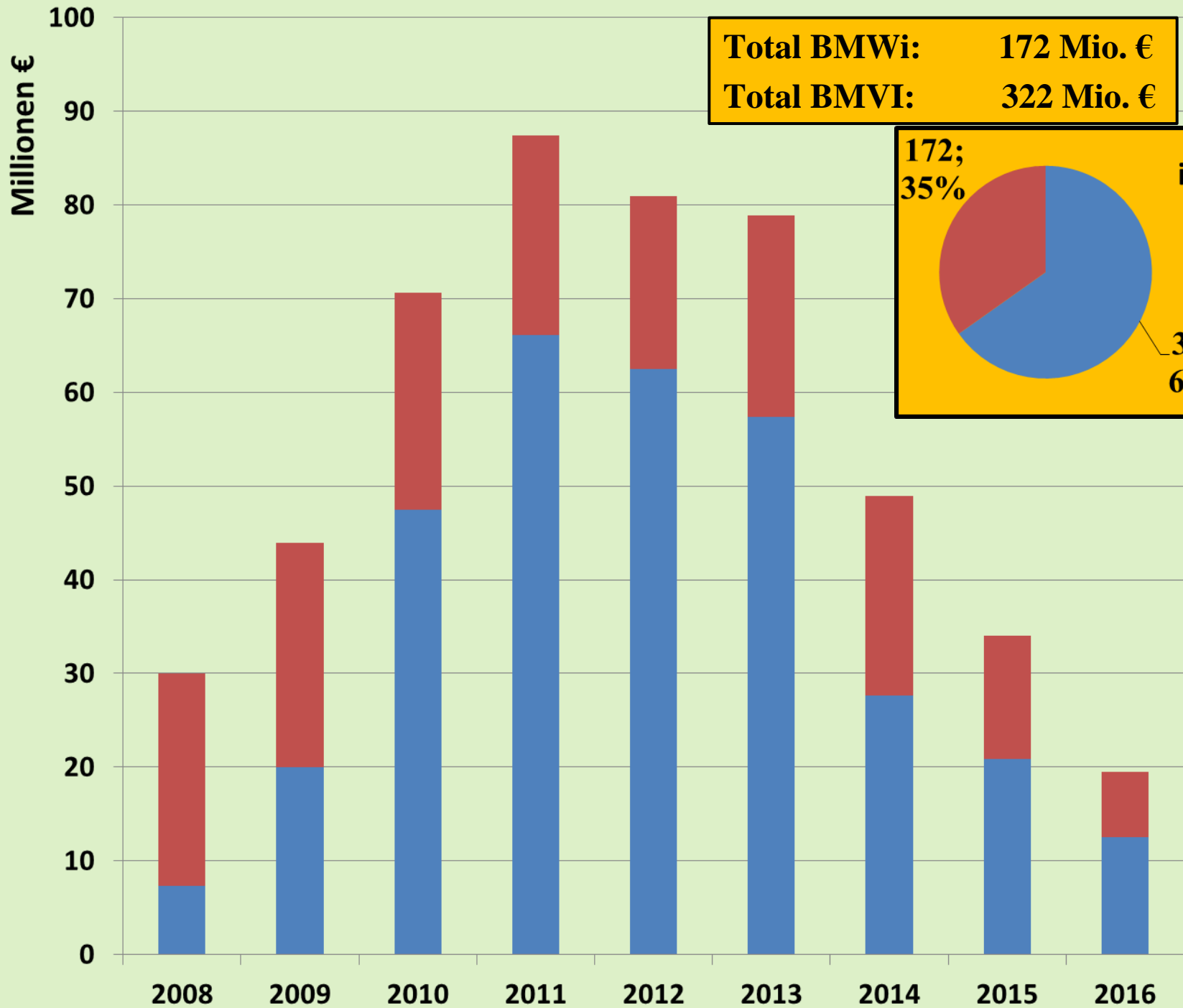


Increase of
Renewable Energies

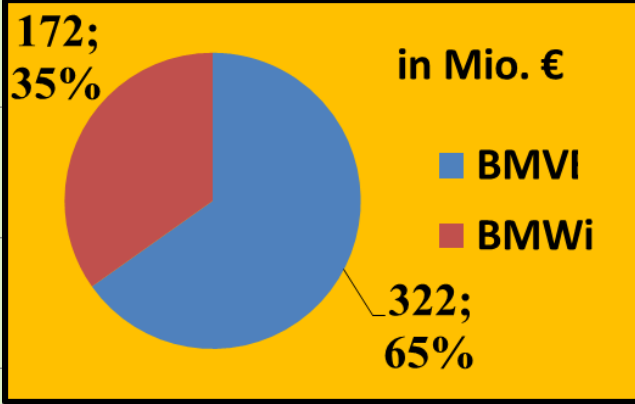


Structures for the implementation of the NIP

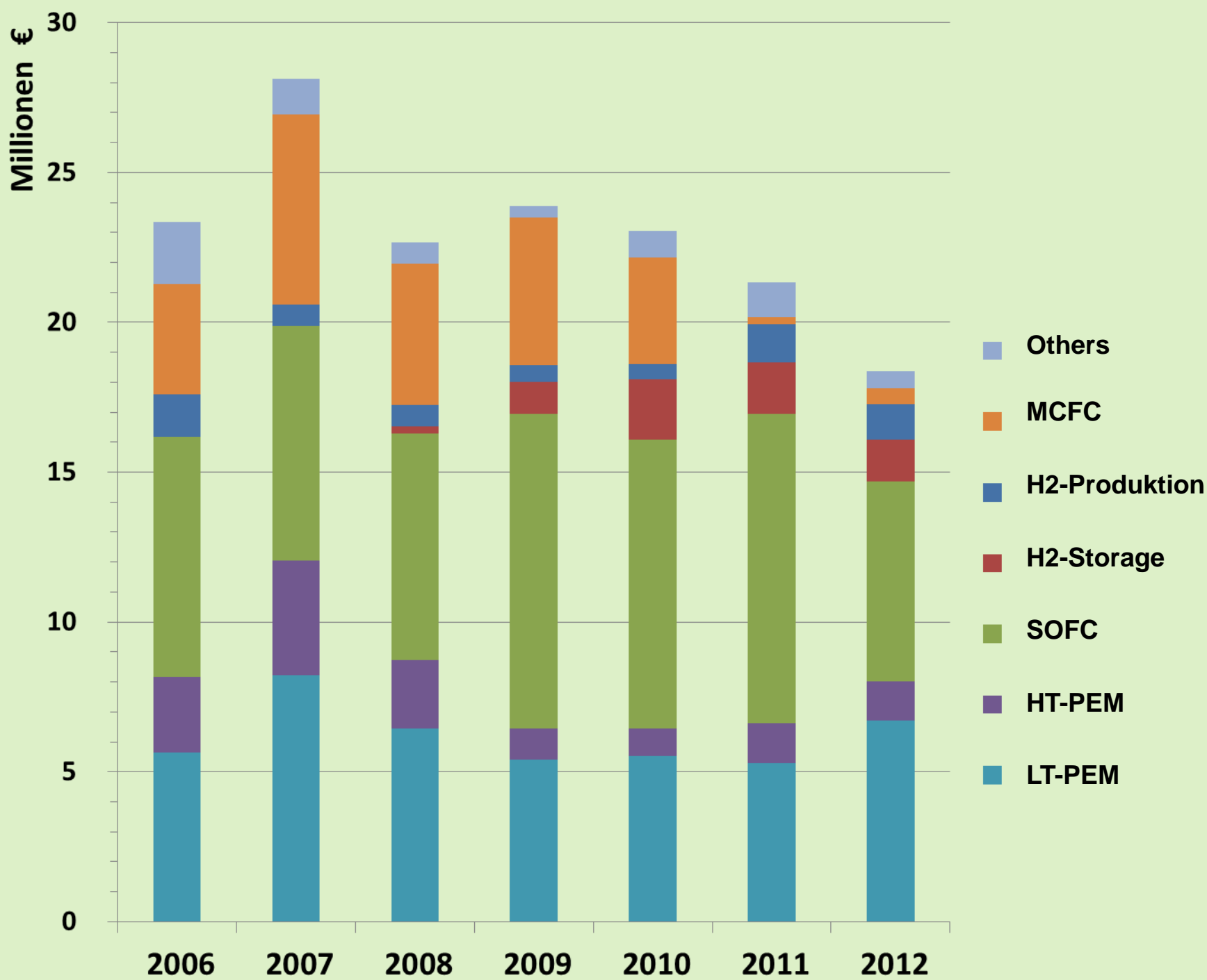




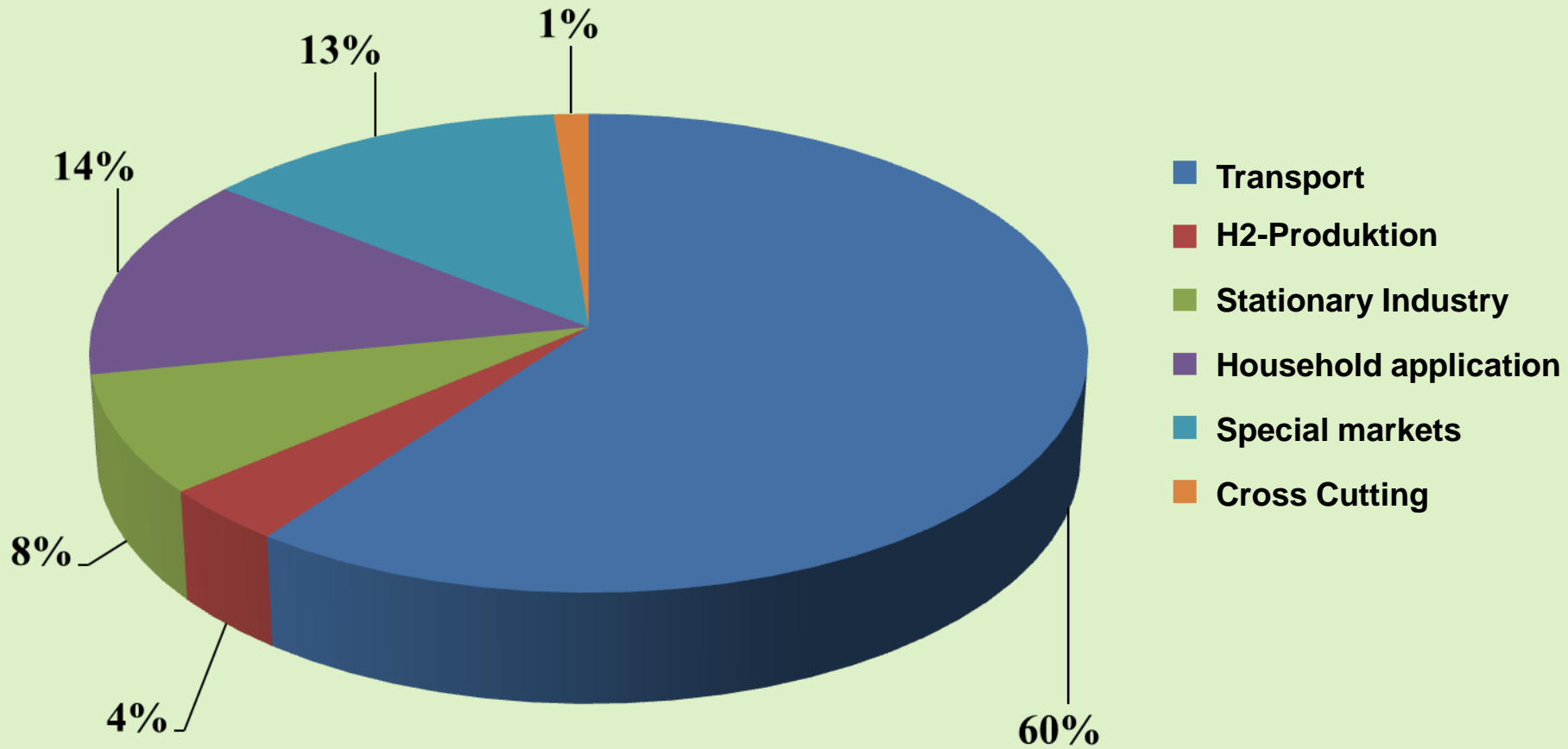
Total BMWi: 172 Mio. €
Total BMVI: 322 Mio. €



■ BMWi
 ■ BMVI



Distribution of the BMVI budget to different applications



Challenges

Strategy paper (elaborated by the scientific and industrial members of the Advisory Council of NOW):
Development of the “National Innovation Programme Hydrogen and Fuel Cells” beyond 2016

Milestones 2023:

1. Fuel cells for electric propulsion (transport sector)
 - More than ½ Mio. fuel cell driven passenger cars in operation
 - 2.000 fuel cell busses in public transport system in operation
-

Challenges

2. Hydrogen filling station infrastructure
 - 500 public filling stations throughout Germany

 3. Hydrogen: Production, storage, distribution
 - 1.500 MW capacity electrolysis of hydrogen from renewable energies
-



Measures

- Support of the technological basis:
Continuation of the up to now measures of the NIP:
 - Applied research and technological development (within the framework of the 6th Energy Research Programme of BMWi)
 - Demonstration and market preparation (BMVI)
 - Market activation as a new element:
 - Implementation of Hydrogen filling stations infrastructure
 - Securing of sufficient production- and storage capacities for Hydrogen from renewable energies
 - (Technology introduction of Combined Heat and Power fuel cell systems)
-

Most crucial challenge

Germany can overcome all the mentioned challenges 1 – 3, nevertheless the implementation of hydrogen technology and fuel cell vehicles will fail

- if we do not succeed in constructing EU wide Hydrogen infrastructure (first step: core member states)
- because fuel cell vehicles will not be bought if users cannot drive outside of Germany



European cooperation i. e. within the Fuel Cells and Hydrogen Joint Undertaking is of crucial importance.



**Thank You
for your
Attention**
