

# Lighthouse and Cluster Projects

IPHE Steering Committee | Brussels | 15.10.2008 |

Dr. Klaus Bonhoff | Managing Director (Chair) |

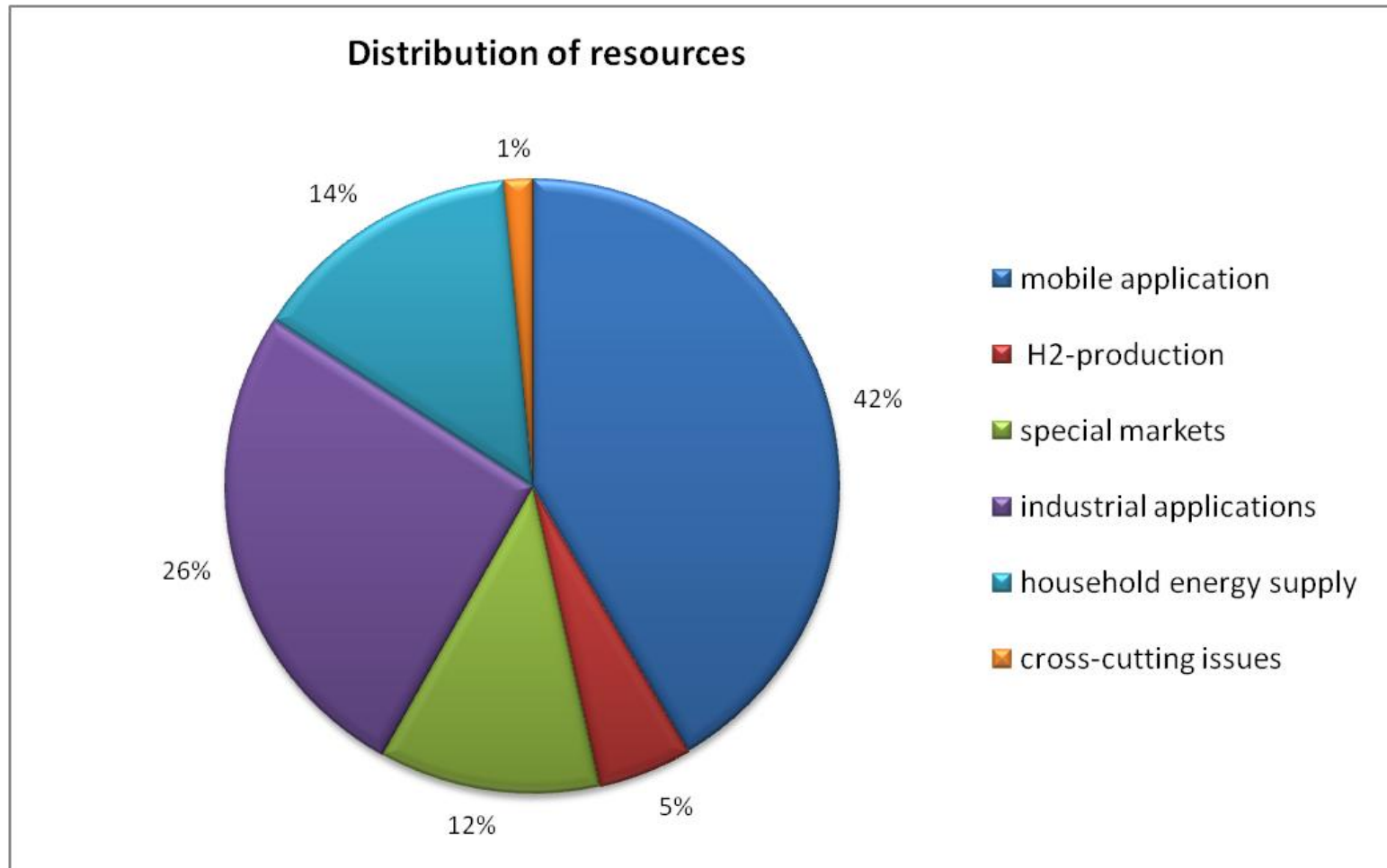
# National Innovation Programme Hydrogen and Fuel Cell Technology



- **200 M€** public funding  
focus R&D  
BMWi, NOW, PtJ-Jülich
  - **500 M€** aid  
focus demonstration  
BMVBS, NOW, PtJ-Berlin
  - **700 M€** contribution of  
industry
- 
- **1.400 M€** total budget
  - 2007-2016

# Distribution of resources

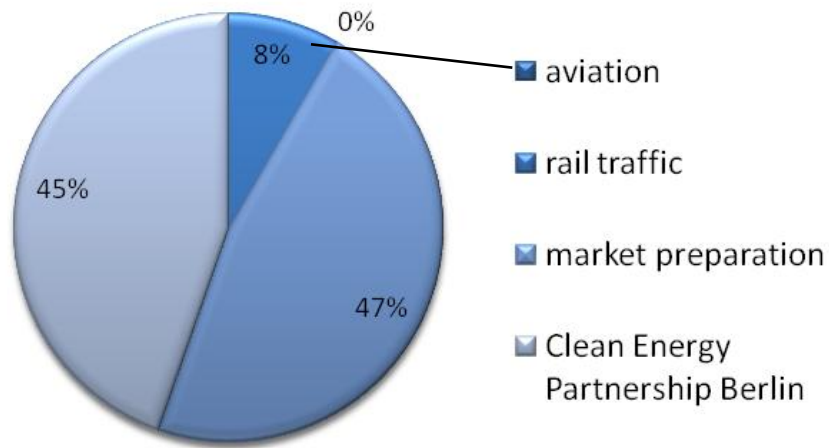
current status Sept. 2008



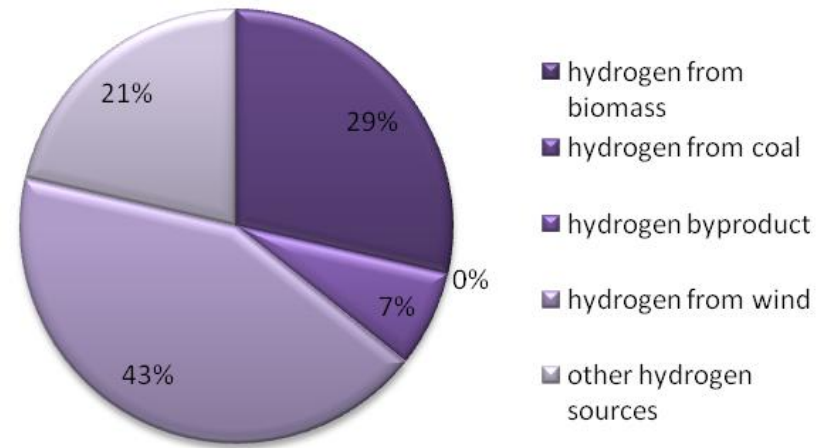
# Distribution of public funding I

## current status Sept. 2008

### mobile application



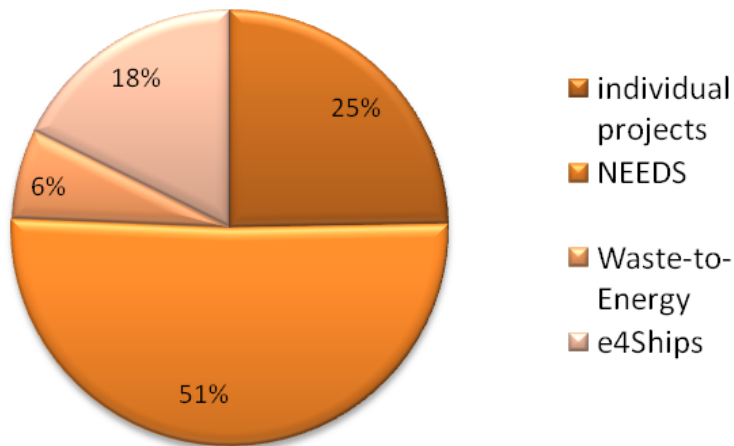
### H2-production



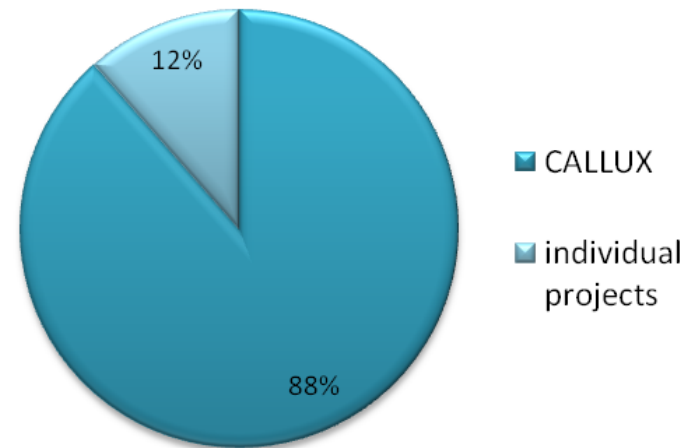
# Distribution of public funding III

## current status Sept. 2008

industrial applications



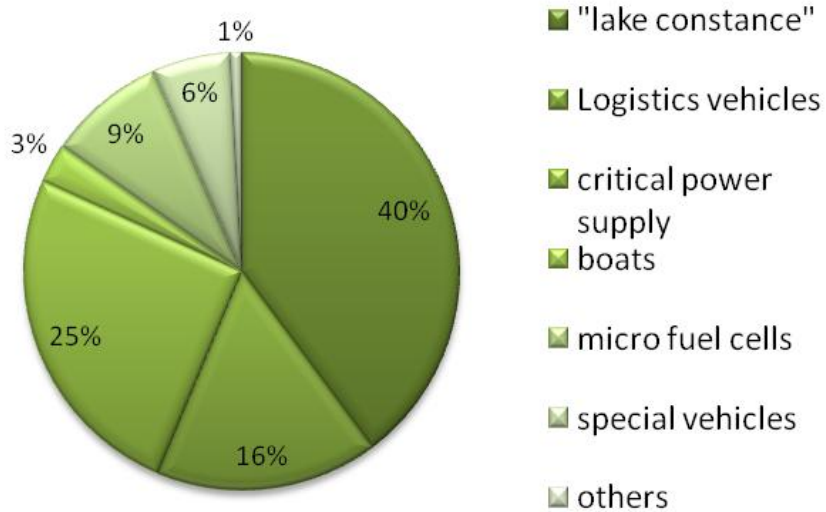
household energy supply



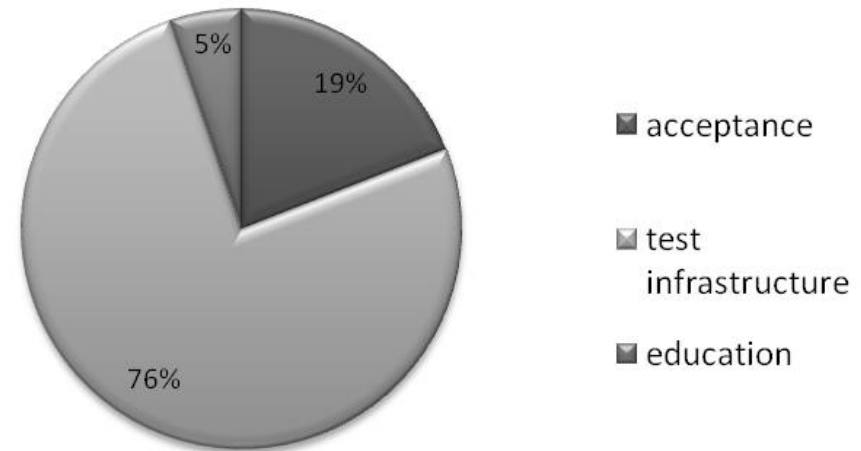
# Distribution of public funding III

## current status Sept. 2008

### special markets



### cross-cutting issues



# Characteristics of Lighthouse Projects

## technology

- degree of maturity
- no unicums
- accompanying R&D for optimization
- communication of results
- exploitation of results (value creation in Germany)

compulsory

## overarching issues

- infrastructure
- training / further education
- RCS
- public relations
- market introduction
- energy-efficiency
- closed systems
- Kyoto und legal requirements

desired

## organization

- private sector participation
- effective management
- local concentration where possible
- involvement all actors innovation process
- attention to whole value chain

compulsory

# Lighthouse and Cluster Projects



CEP



CALLUX



NEEDS



e4Ships



leisure applications Lake Constance

critical electricity supply



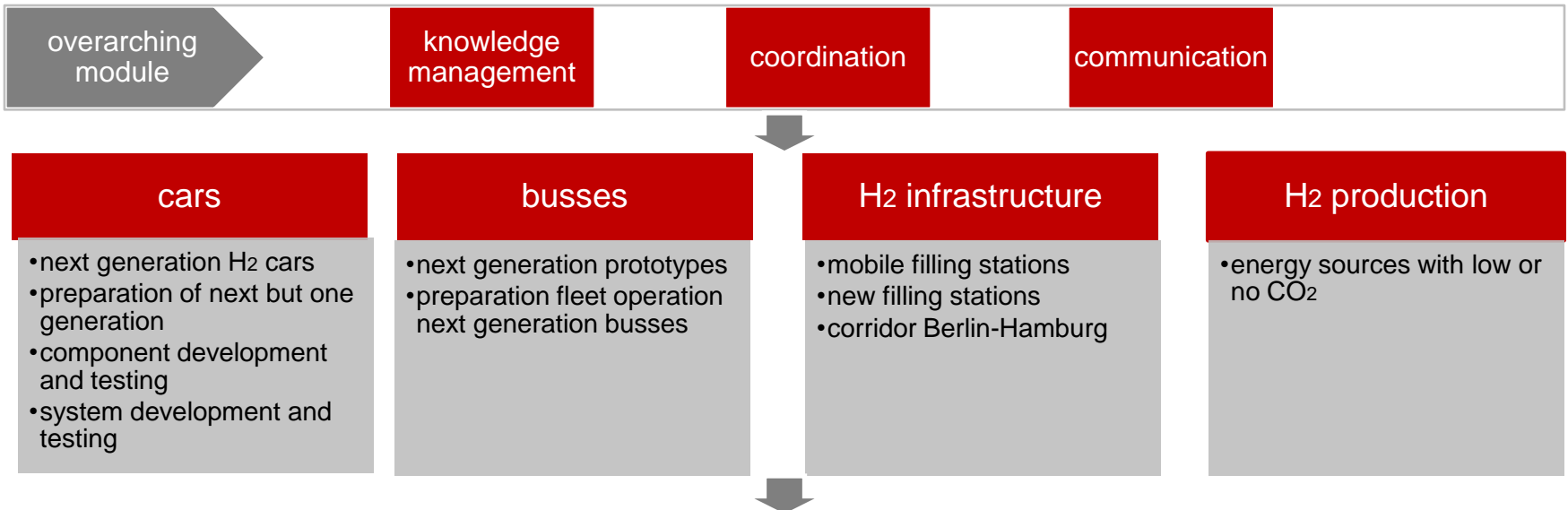
# Clean Energy Partnership II

use of hydrogen for road transport



started

Ein Projekt im Nationalen Innovationsprogramm Wasserstoff- und Brennstoffzellentechnologie (nip)



**aims:** technical updating of vehicles, extension of infrastructure, realization of potential for technological and operative improvements by putting into practice the 'lessons learned' in CEP phase I

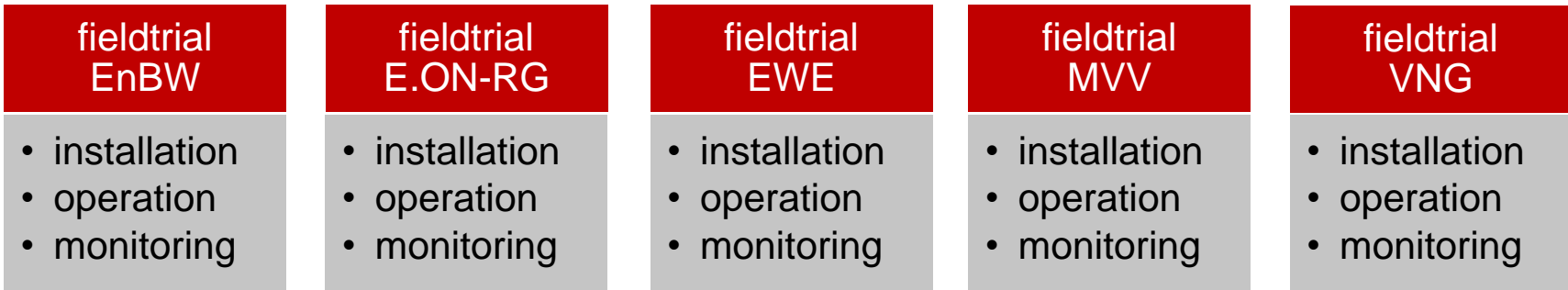
# Callux

trial of household-energy FC-CHP 1-5 kWel

started

EnBW, E.On-Ruhrgas, EWE, MVV, VNG

Baxi Innotech, Hexis, Vaillant, Viessmann, ZSW, ... and others

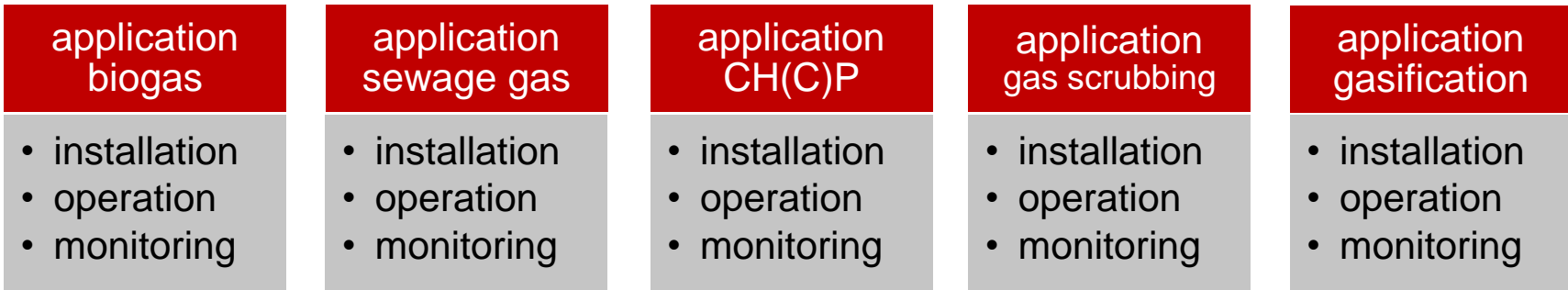


aims: prepare market for household fuel cell combined heat / power systems, trail and optimization of technology, align framework conditions

# NEEDS

trail of industrial FC-CHP 100-500 kWel

Dalkia, Gasunion, ... and others  
MTU ... and others



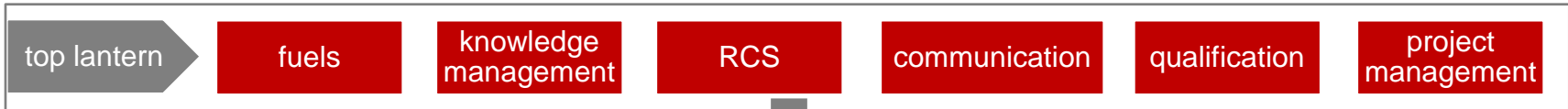
aims: market preparation for fuel cell combined heat and power plants, trail and optimization of technology and production, align framework conditions

# E<sup>4</sup>Ships

planned

onboard-energy supply with FC-CHP 100-500 kWel

Aida, Beluga (BG), Calypso, Braren (BR), Meyer-Werft (MW), Lürssen (FL), Flensburger Schiffahrtsgesellschaft (FSG), ThyssenKrupp Marine Systems/Blohm + Voss (TKMS), HDW-Hagenuk, Shell, MTU, Proton-Motor (PM), VSM, CMT, DNV, GL ... and others



**PaXell** (MW,FL,FSG)  
passenger vessel

- R&D, marine conditions
- system integration
- decentralization
- demonstration

**SchIBZ** (TKMS)  
yacht, special ships

- R&D, marine conditions
- system integration
- XTL-diesel
- demonstration

**HyFerry** (BG, PM)  
harbour ferry

- 150 kW PEM + H<sub>2</sub>
- propulsion and APU
- demonstration

aims: strengthening of position of German wharfs in construction of special ships (cruise ships, gas tankers, yachts, ferries, research vessels), reduction of emissions and energy costs, increase in comfort

# Overview Special Markets

special markets  
assume a key  
role in the NIP:

- chances to serve early markets, especially for supply industry
- attract public attention and create trust in new technology

## materials handling

- fork lift trucks
  - apron vehicles
  - etc.
- for production, trade fairs, airports, ...

## special vehicles

- cargo bikes
- communal vehicles

## USV

- mobile phones
- railway applications

## boats / coast

- leisure

## APU

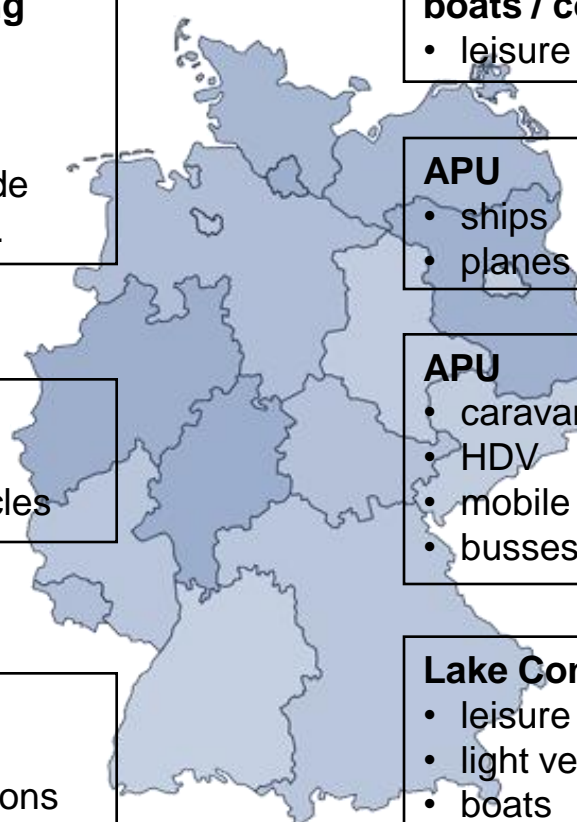
- ships
- planes

## APU

- caravans
- HDV
- mobile homes
- busses

## Lake Constance

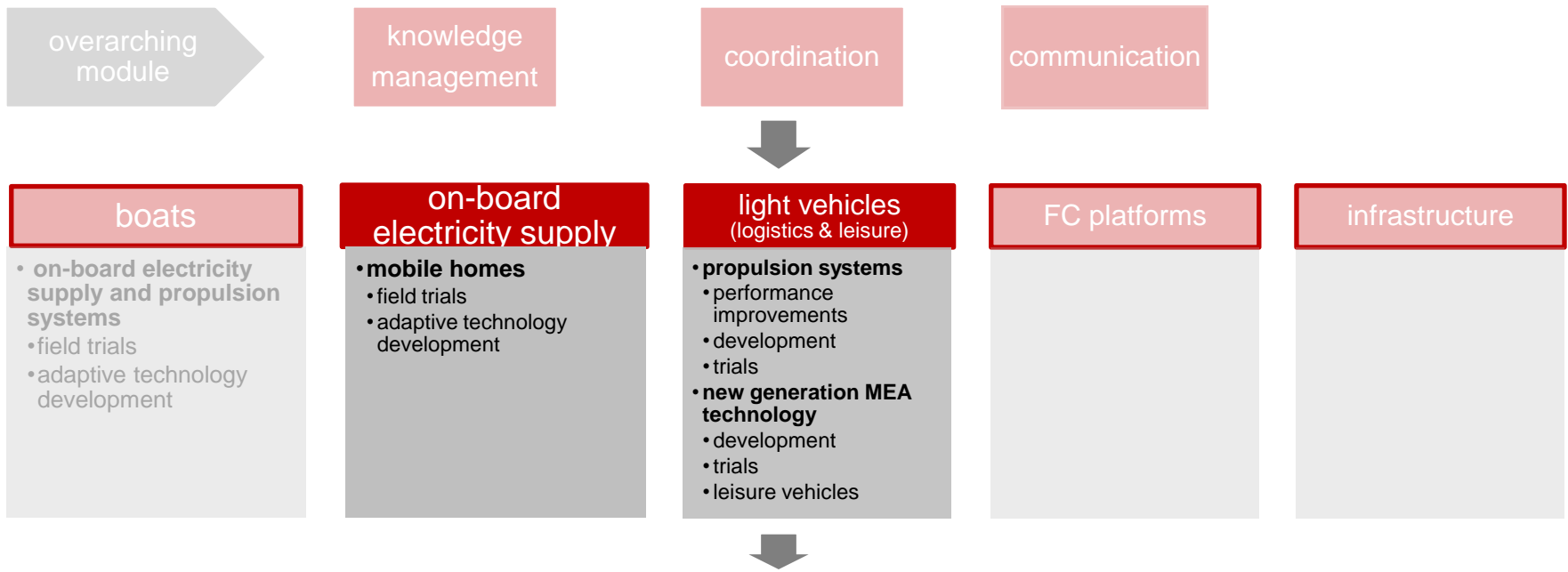
- leisure
- light vehicles
- boats



# Lake Constance

fuel cell application cluster leisure and tourism

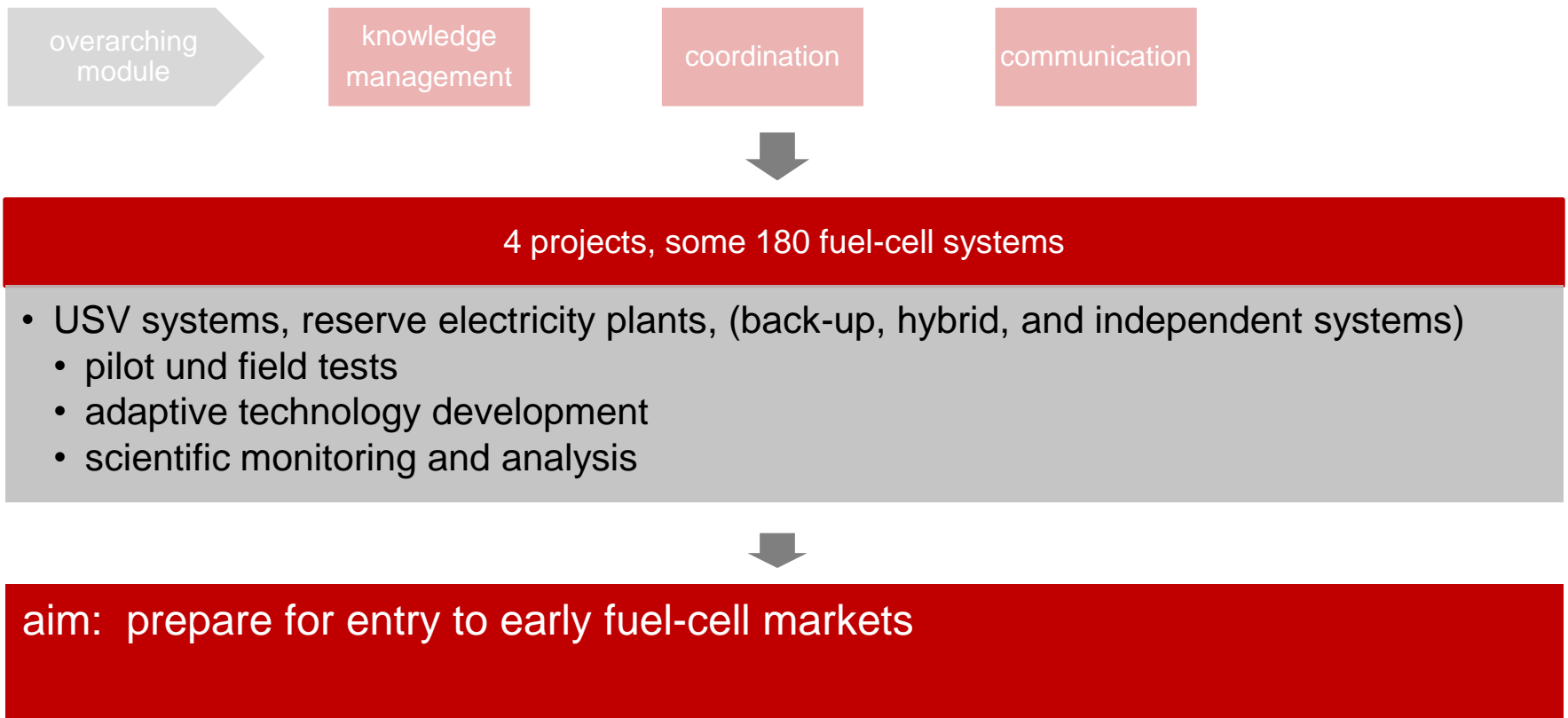
planned



aim: trial fuel-cells for leisure applications under market conditions

# Critical Electricity Supply

planned



**Thank You for your attention!**

**Contact:**

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[www.now-gmbh.de](http://www.now-gmbh.de)