



# Energy Research in Norway and Strategy for international cooperation

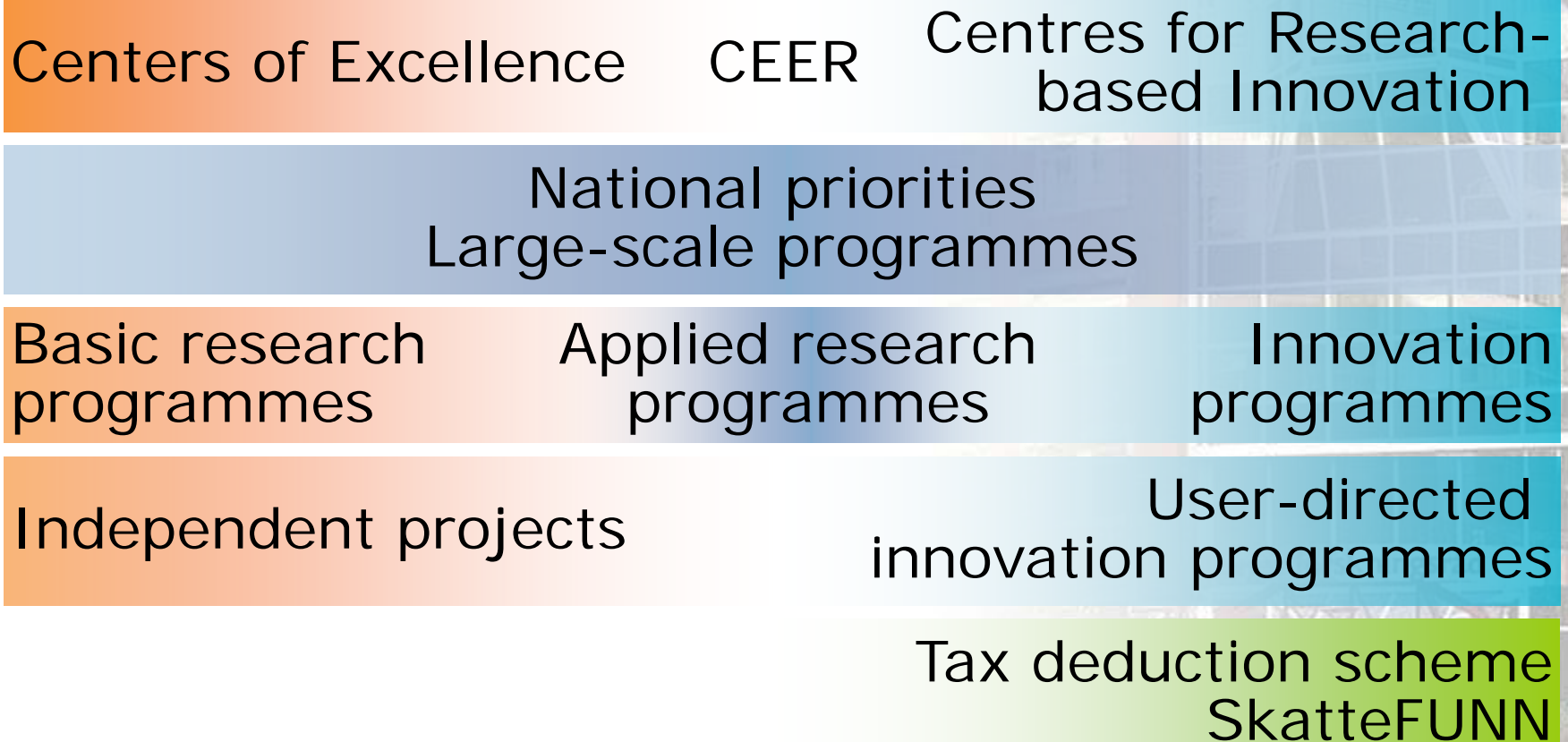
Director Rune Volla  
Department for Energy



# The Research Council's roles

- Adviser to the government
- Covers all scientific and technology fields
- Research funding
  - Support basic research
  - Implement national thematic priorities
  - Support private R&D
- Networking and dissemination
- International collaboration

# Several funding schemes



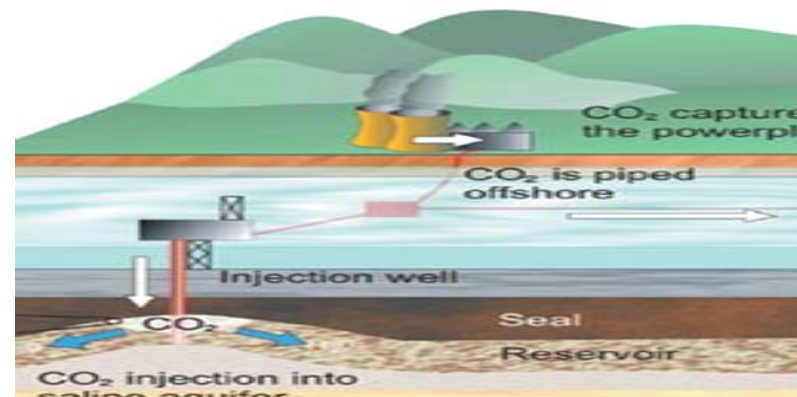


# RCN's main instruments for energy R&D

- RENERGI
- CLIMIT
- PETROMAKS
- DEMO2000
- GASSMAKS
- Centres for Environmentally friendly Energy Research

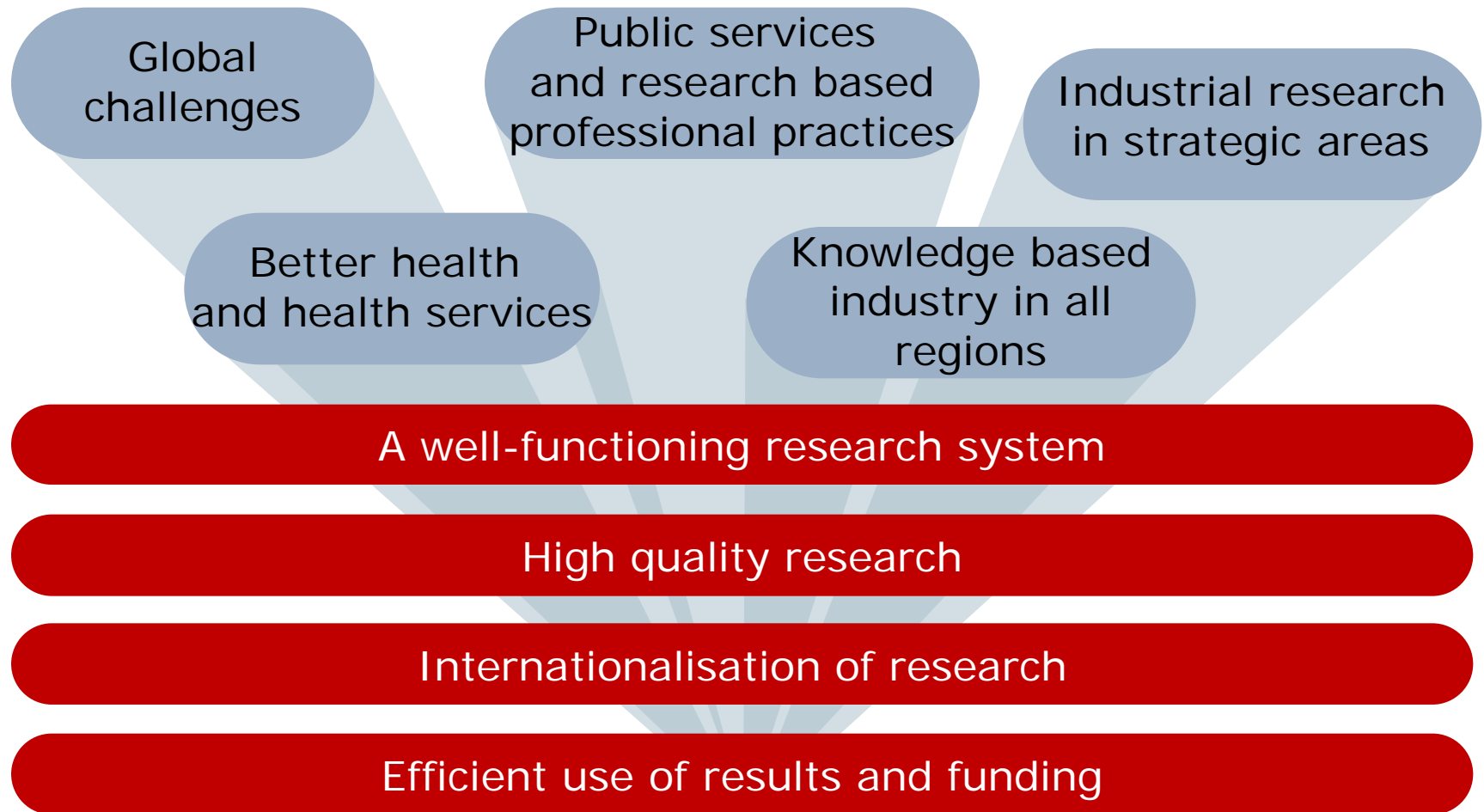
## Interaction with other funding agencies:

- Enova
- Gassnova
- Innovation Norway



# White Paper April 2009

## Future goals for Norwegian research



# White Paper April 2009

## Future goals for Norwegian research

Global  
challenges

Public services  
and research based  
professional practices

Industrial research  
in strategic areas

Better health  
and health services

Energy and climate

Knowledge based  
industry in all

Industrial innovation

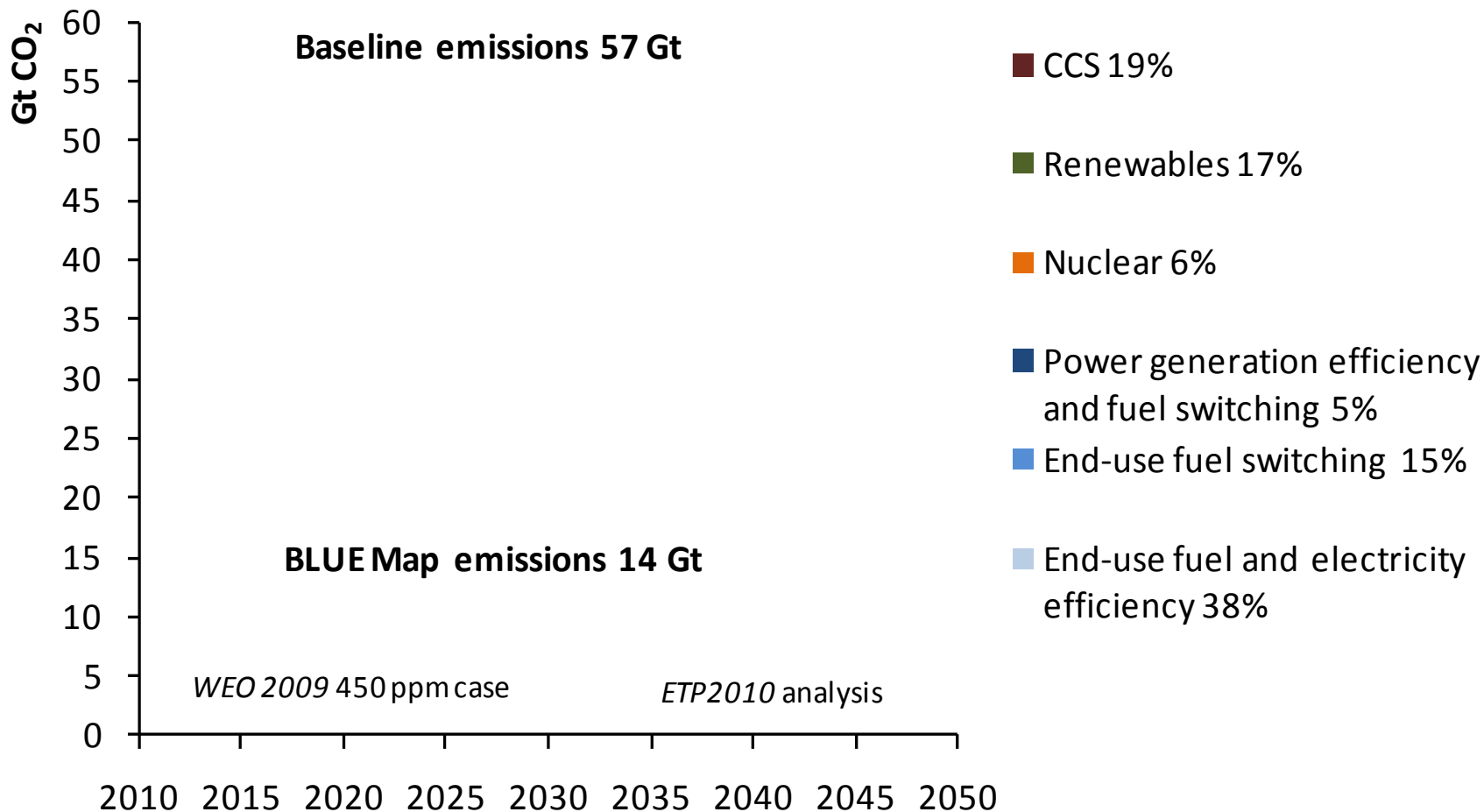
A well-functioning research system

High quality research

Internationalisation of research

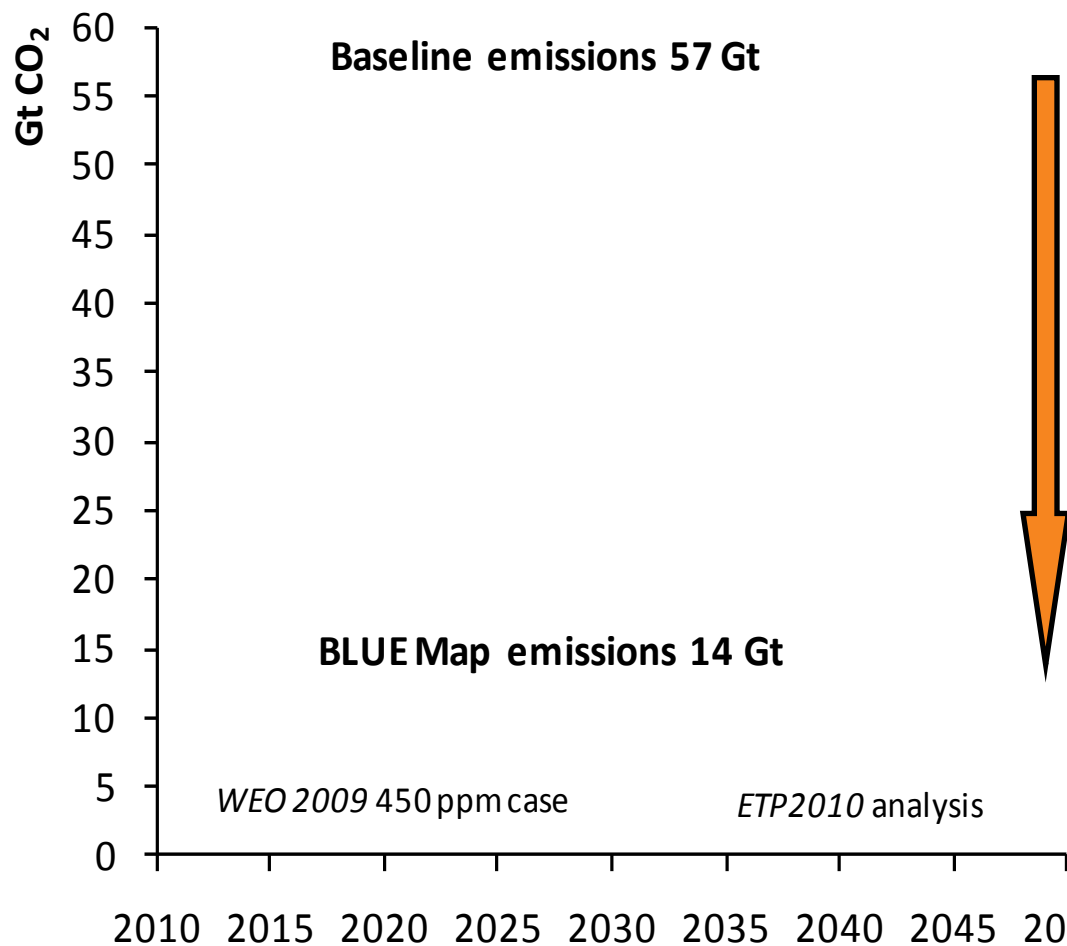
Efficient use of results and funding

# The need for an Energy Revolution



# The Revolution will require heavy investments

## *But gives large market opportunities*



- \$45 000 billion increased investment cost to 2050
- \$1100 billion on average each year
- Shift from energy expenditures to investments
- **Opens enormous markets for new technology!**



# Energy & Climate R&D

## Norwegian strategic model

- Strategic, long-term, involving key players and politically rooted
- National strategies designed and developed by industry, government and research institutes
- **OG21** - technology strategy for the Norwegian Continental Shelf and the Norwegian supply industry
- **Energi21** - R&D strategy for the energy sector
- **Climate21** – Strategy for climate research

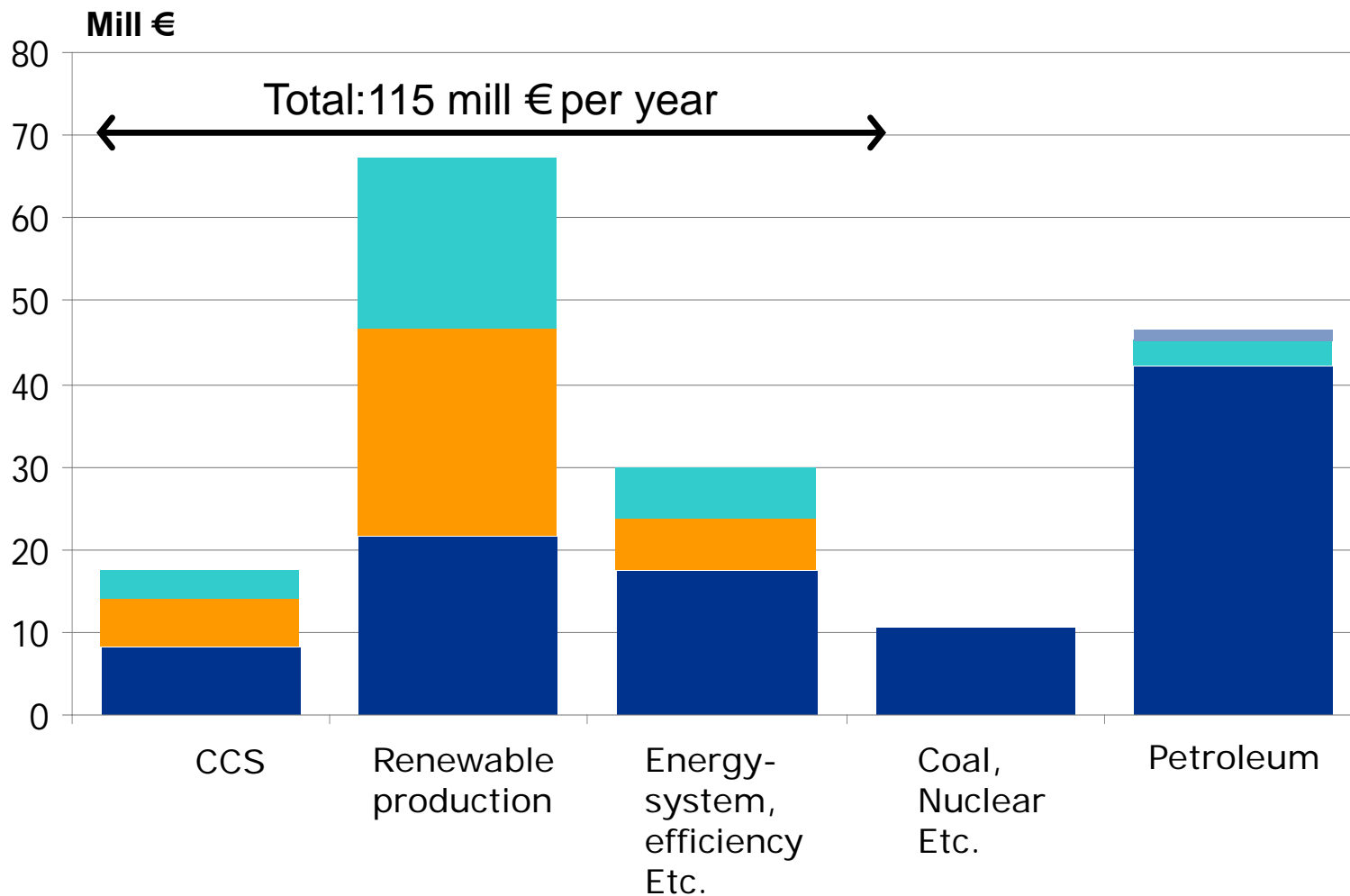
# Energi21 Recommendations 2008

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- Call for rapid stepping up of R&D funding
- Affirm Norway's qualifications as a leading nation in environmentally friendly energy:
  - From national energy balance to green export
    - Renewable power to Europe
    - Technologies in a global market
  - Home of some of the world's leading energy and technology companies

# A significant increase in energy R&D portfolio

2008 + Climate agreement 2009 + Climate agreement 2010

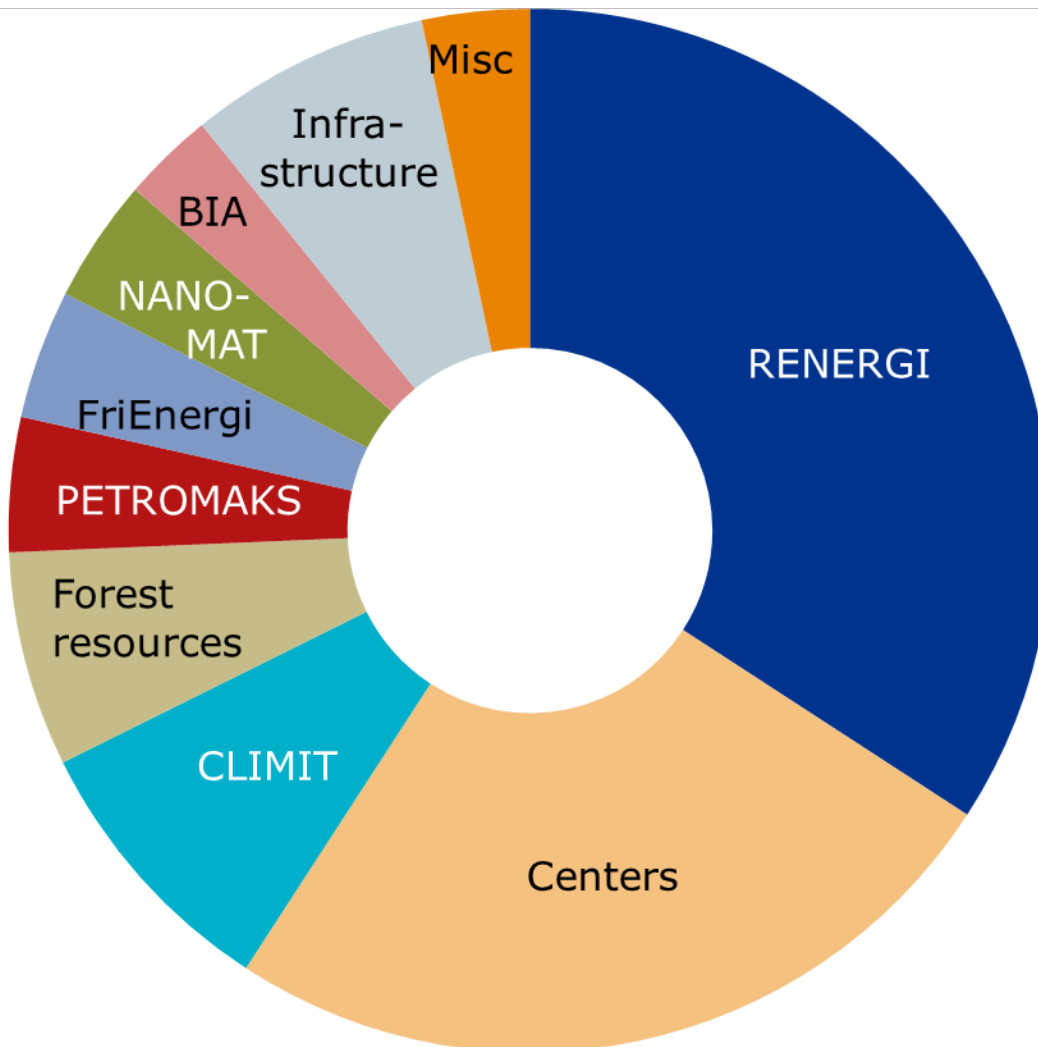


# Priority Setting for Implementation

- Priorities - topic
  - Energi21 recommendations
  - Areas important for national energy and climate policy
  - Areas with potential international markets where Norway has advantages
  
- Priorities – instruments
  - New Research centres
  - Programs – Basic Science – Innovation
  - Infrastructure
  - Test/pilot projects
  - International collaboration

# Climate Agreement

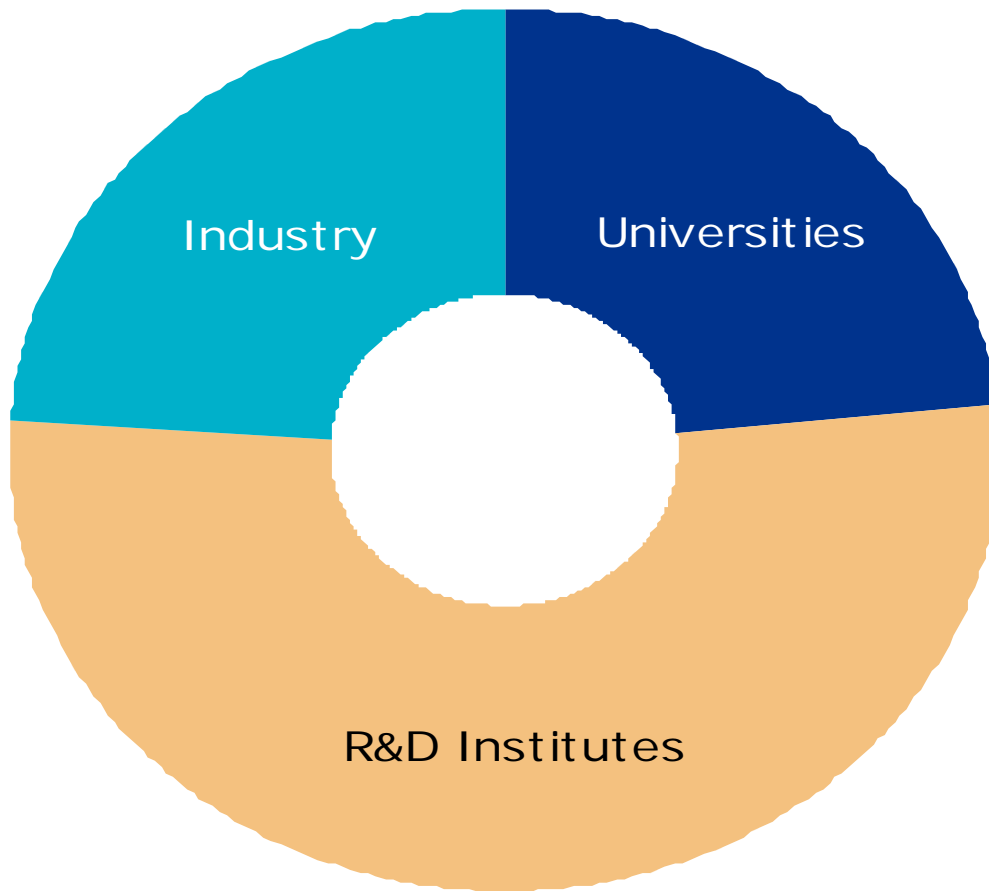
## Growth 2008-2010 – by Instruments





# Climate Agreement

## Growth 2008-2010 – by Sector



# Research Centers as a driving force

- Concentration of the best Norwegian competence in a long-term and concentrated effort
- Provide a platform for taking R&D results to the market
  - Innovation through clustering the country's leading companies, research institutes and universities
- Increase the visibility of the research efforts
  - Attractive for government and industry
- Visible spear heads for international R&D collaboration
  - Leading actors unified under one umbrella
  - Clear targets for international collaboration

# Eight Centres for Environment-friendly Energy Research (CEER)

CO<sub>2</sub> capture  
and storage (BIGCCS)

Offshore  
wind technology  
(NOWITECH)

Offshore  
wind energy  
(NORCOWE)

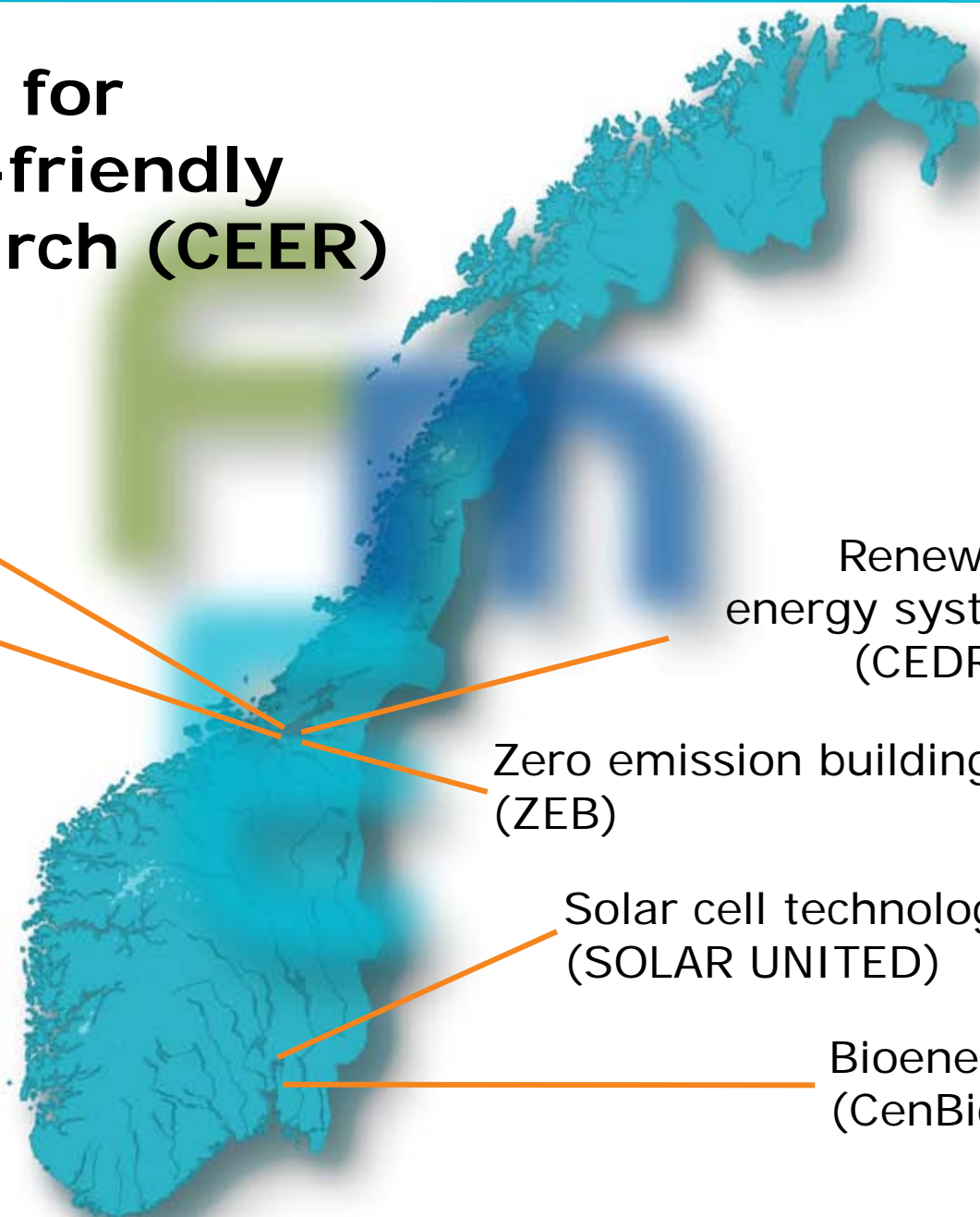
CO<sub>2</sub> storage  
(SUCCESS)

Renewable  
energy systems  
(CEDREN)

Zero emission buildings  
(ZEB)

Solar cell technology  
(SOLAR UNITED)

Bioenergy  
(CenBio)



# New centres within socioeconomic energy research in 2011

Centre for Sustainable Energy Studies (**CenSES**)



Strategic Challenges in International Climate and Energy Policy (**CICEP**).



Oslo Center for Research on Environmentally friendly Energy (**CREE**)

## CEERs – so far

- All eight centres are active and visible spearheads within their topic areas
- Strong clusters formed between researchers and industrial partners
- Nearly 100 user partners, mainly industrial
- About 400 researchers are connected to the centres, a large number of new PhDs has been engaged
- The interplay with R&D programs is important
- New centres within socioeconomic energy research



## **Norwegian R&D Revolution – A more attractive partner for international collaboration**

- Increase of nearly 3x R&D volume in less than 3 years
- Allowed for a structured effort to strengthen Norway in areas where we have advantages
- International collaboration a high priority
  - Strengthen research quality
  - Develop knowledge for solving global challenges
  - Value creation for industry
- Increased budgets for key energy R&D programs offer more opportunities to support projects with international collaboration

# A new strategy for international Cooperation (2011-)

## Goals:

- Contribute to face **Global Challenges**
- Contribute to **increased quality and capacity** in Norwegian Research
- Secure access to international **knowledge production**
- Improve industry **competitiveness**
- Promote Norway as a **leading nation in science and innovation on selected topics**



# International strategy action points

- All programs will develop concrete goals for international cooperation
- RCN will participate in multinational joint research programmes
- Give early phase support of long term institutional cooperation
- Stimulate researchers, companies and institutions to be active and competitive on international arenas
- Reward international cooperation in projects proposals

# International collaboration



Thank you for your attention.