

# ENERGY21



## The role of gas in the Norwegian Energy21 strategy

Sverre Aam, Energy21  
Chairman of the Board

- about Energy21
- Energy21 strategy
- the role of natural gas in the future energy system

# About Energi21



- **Permanent strategic advisory body** with industry led board appointed by the Minister of Petroleum and Energy
- Norway's **national RD&D strategy** for renewable and climate friendly energy technology
- Strategic work is based on multidisciplinary **cooperation** between business communities, research institutes/universities and authorities.



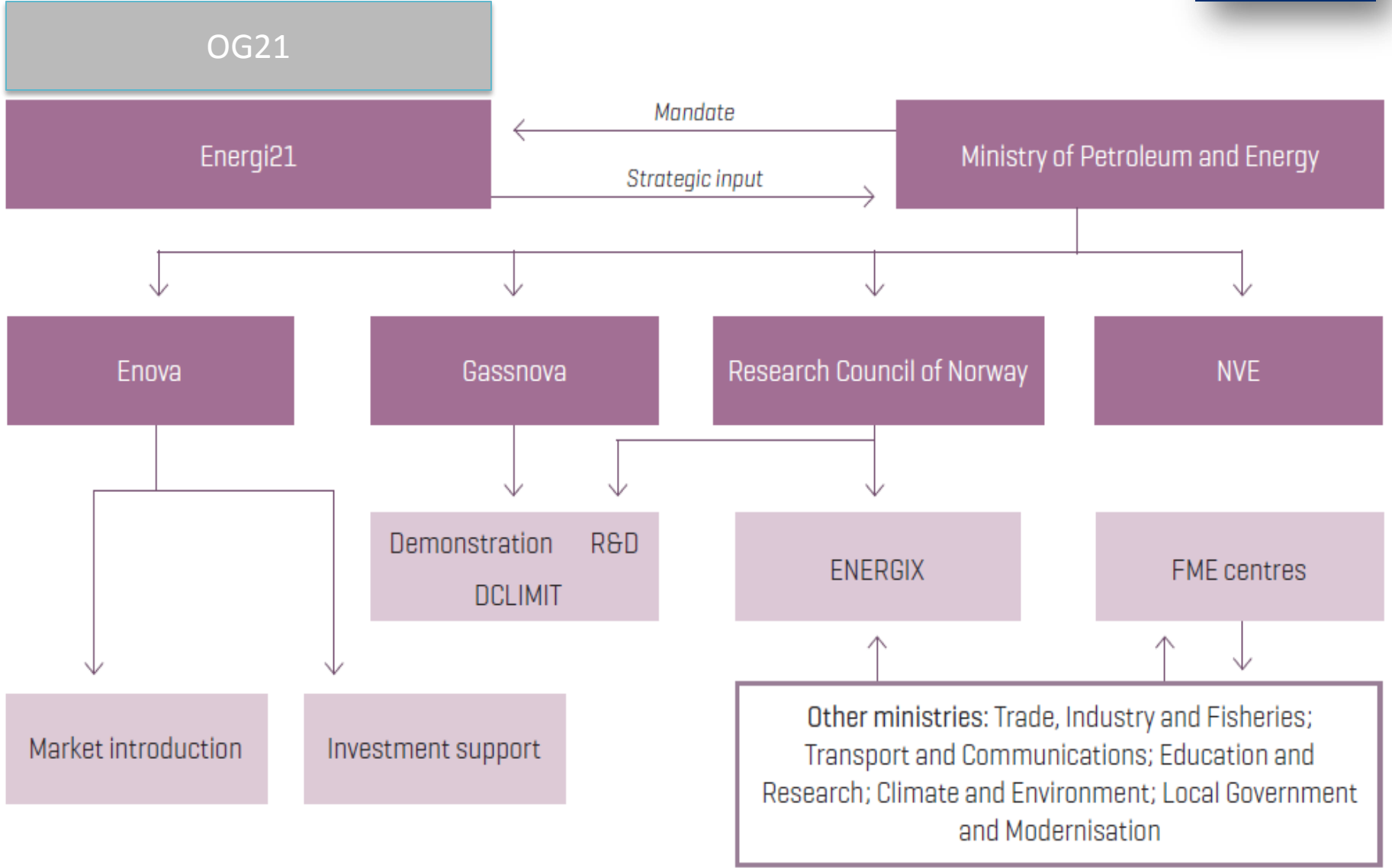
*The minister of petroleum **Tord Lien** and **Sverre Aam** chairman of the board ,Energi21*



# Energy research under Ministry of Petroleum and Energy



## Strategic advisory bodies



# Energy 21 - Vision and goals

**Norway – a climate friendly energy nation  
- an international supplier of energy, power, technology and  
knowledge**

## Goals in mandate:

- Increased value creation on the basis of **national energy resources** and utilization of energy
- **Energy system transition** through efficient use of energy , **reduced greenhouse gas emissions** and increased **flexibility** in energy systems
- Development of internationally **competitive industry** and **expertise** in the energy sector



# Strategic Driving forces – towards future energy system

- **Climate challenge** – contribution with knowledge and new technologies
- National **security of energy supply**
- **Ambitions** in industry
- Current research platform and **need for reinforcements**
- Gain positions in **international** energy markets
- Utilize Norway's **technology** and **knowledge base** as well as **industrial experience**.



Photo: Statoil , ABB, Elkem Solar



# Exploit Competitive Advantages

Natural energy  
resources

Competence and  
technology

Industrial experience

- Hydro power technology
- Electric power system expertise
- Offshore activities, systems and technologies
- Marine operations and specialised vessels
- Carbon capture, transport and storage
- Materials technology
- Market design (power market)



# Energy21 strategy :6 technology priority areas







# CCS - Carbon Capture and Storage



## WHY

- Norway has a **strong position** – “early mover” advantage
- CCS technology – “**Key – technology**” for reaching temperature degree target of 1.5 ° -fossil fuel 40 % i 2050 (IEA)
- **Secure Norwegian** oil and **gas resources**
- **Storage potential in North Sea Basin** - experience at Snøhvit and Sleipner
- Exploit investment in research – and knowledge platform ( huge investments)

CCS

Contribution to goals:

CCS

<b>Goal 1</b>	<b>Increased value creation on the basis of national energy resources</b> and utilization of energy
<b>Goal 2</b>	Energy system transition through efficient use of energy, <b>reduced greenhouse gas emissions</b> and increased flexibility in energy systems
<b>Goal 3</b>	Development of <b>internationally competitive industry</b> and <b>expertise</b> in the energy sector

# Hydrogen



## Why

### Future potential for valuecreation:

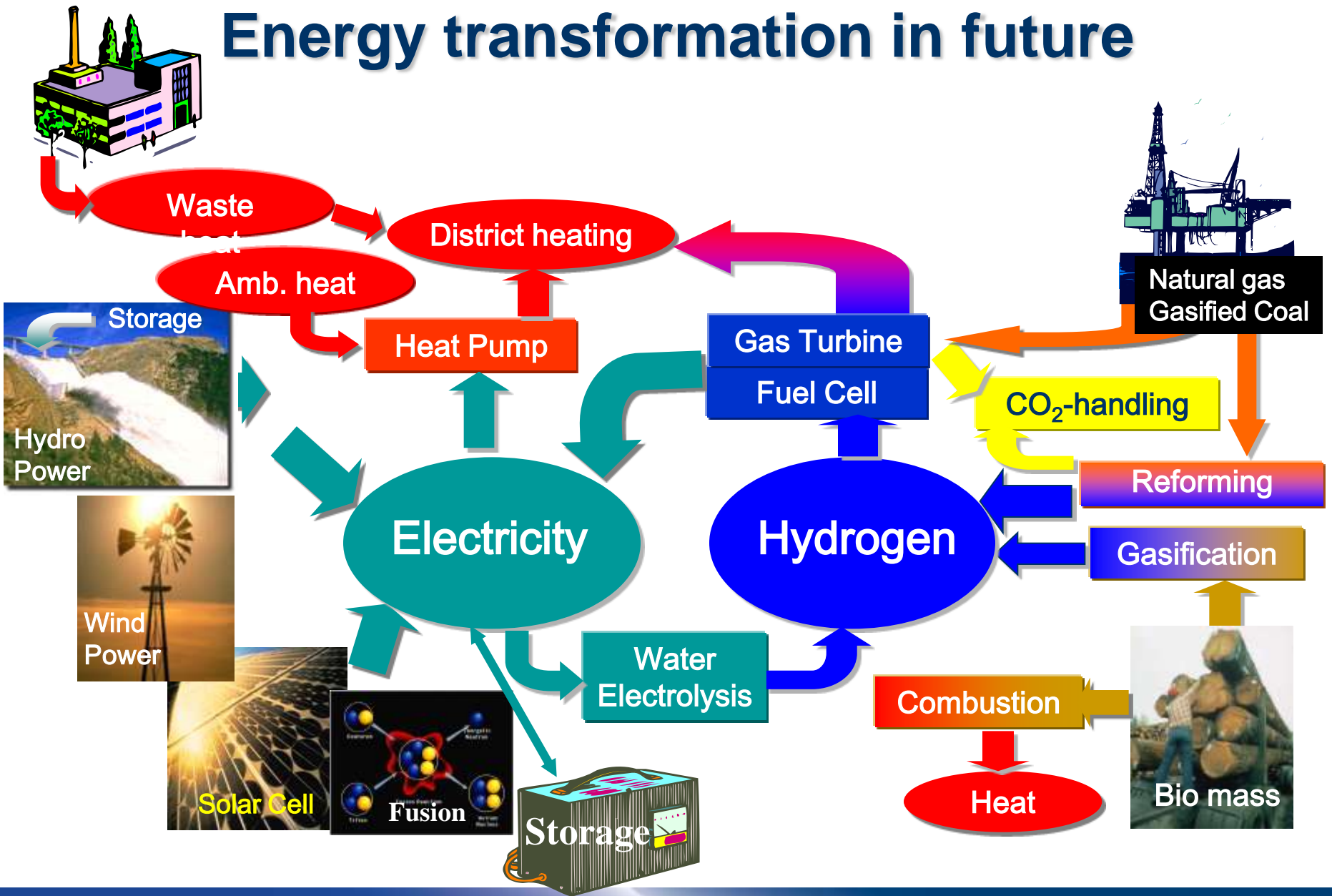
- Development of technology and equipment
- Market opportunities in transportindustry (heavy transport)  
Support fuel cell electric vehicles (FCEVs)

### Norway has competitive advantage:

- Natural gas resources and renewable energy sources
- Strong competency and technology base built on:
  - \* Long industrial experience of producing hydrogen
  - \* CCS – knowledge and experience
  - \* Many years ' national efforts and extensive participation in European Commission's Fuel Cells and Hydrogen Joint Undertaking [FCH JU].



# Energy transformation in future



**Thank you for your attention!**

