

Green Paper: NOU 2006:18

# How can Norway become a climate-friendly society by 2050?

The Report from Norway's Commission on Low Emissions of Greenhouse gases

Presented by

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# The Norwegian Commission on Low Emissions of greenhouse gases

Appointed by the Government 11 March 2005

## Mandate

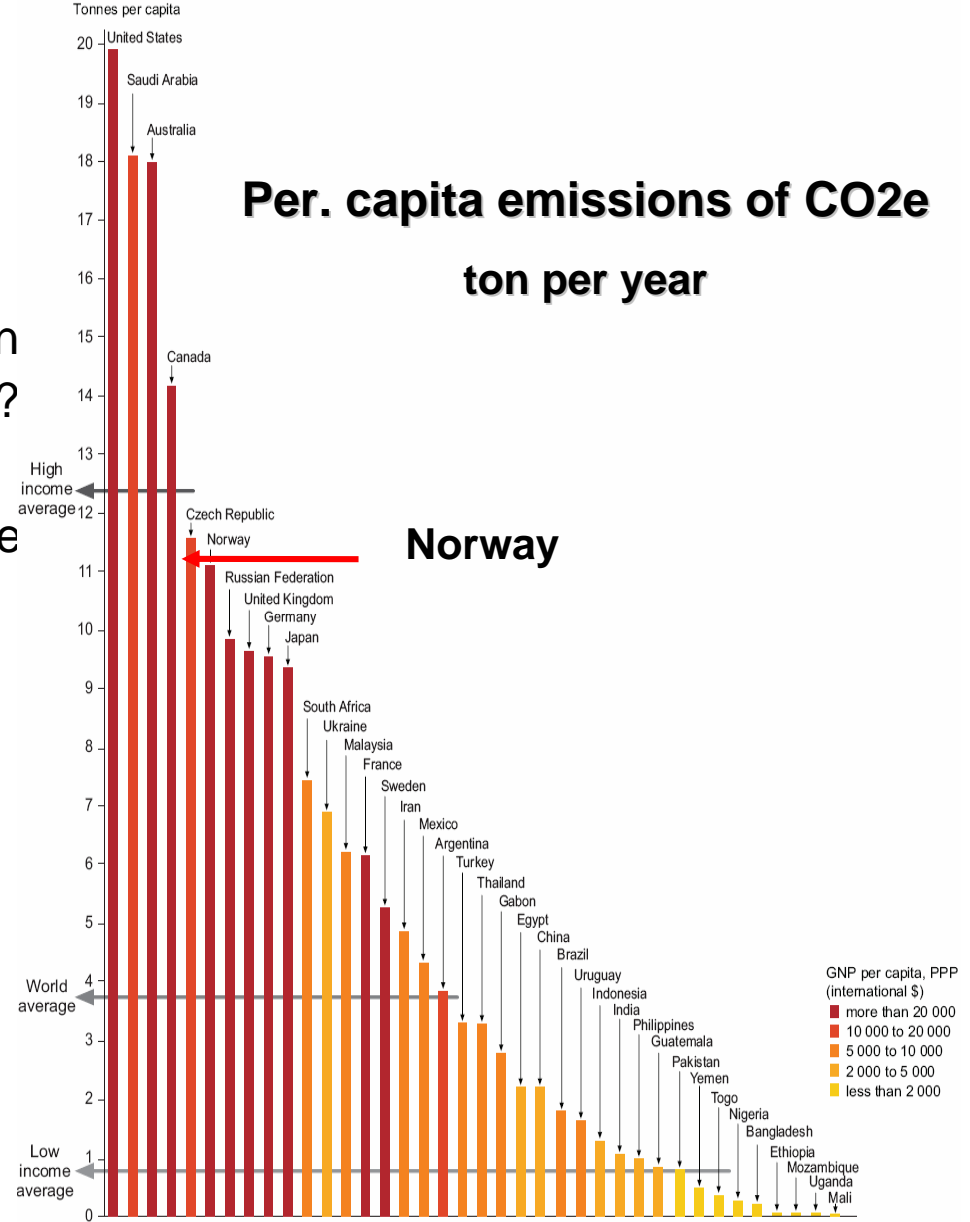
- Show how emissions in Norway can be reduced by 50 to 80 % by 2050
- Interpreted to mean a two-thirds reduction
  - of emissions from Norwegian territory
  - of all 6 Kyoto gases
  - compared to the Kyoto commitment (1 % above the 1990 baseline)

## Members of the Commission

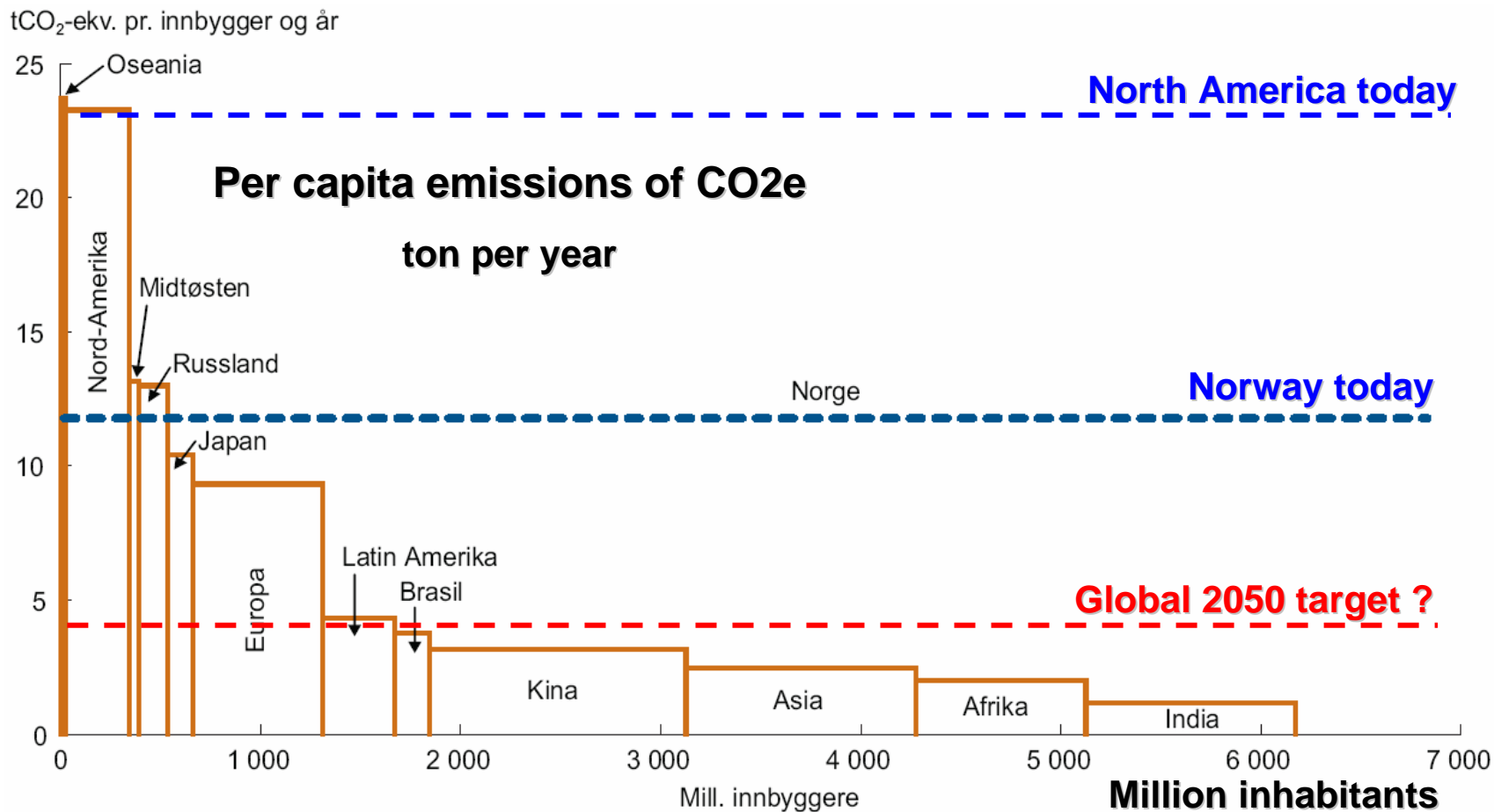
- Professor Jørgen Randers, Oslo (chair)
- *Eli Arnstad*, Enova
- *Ola Flåten*, Univ. Of Tromsø
- *Alvhild Hedstein*, Ecolabeling
- *Hanne Lekva*, Statoil
- *Lasse Nord*, Hydro
- *Sverre Aam*, Sintef

# Why ... Norway?

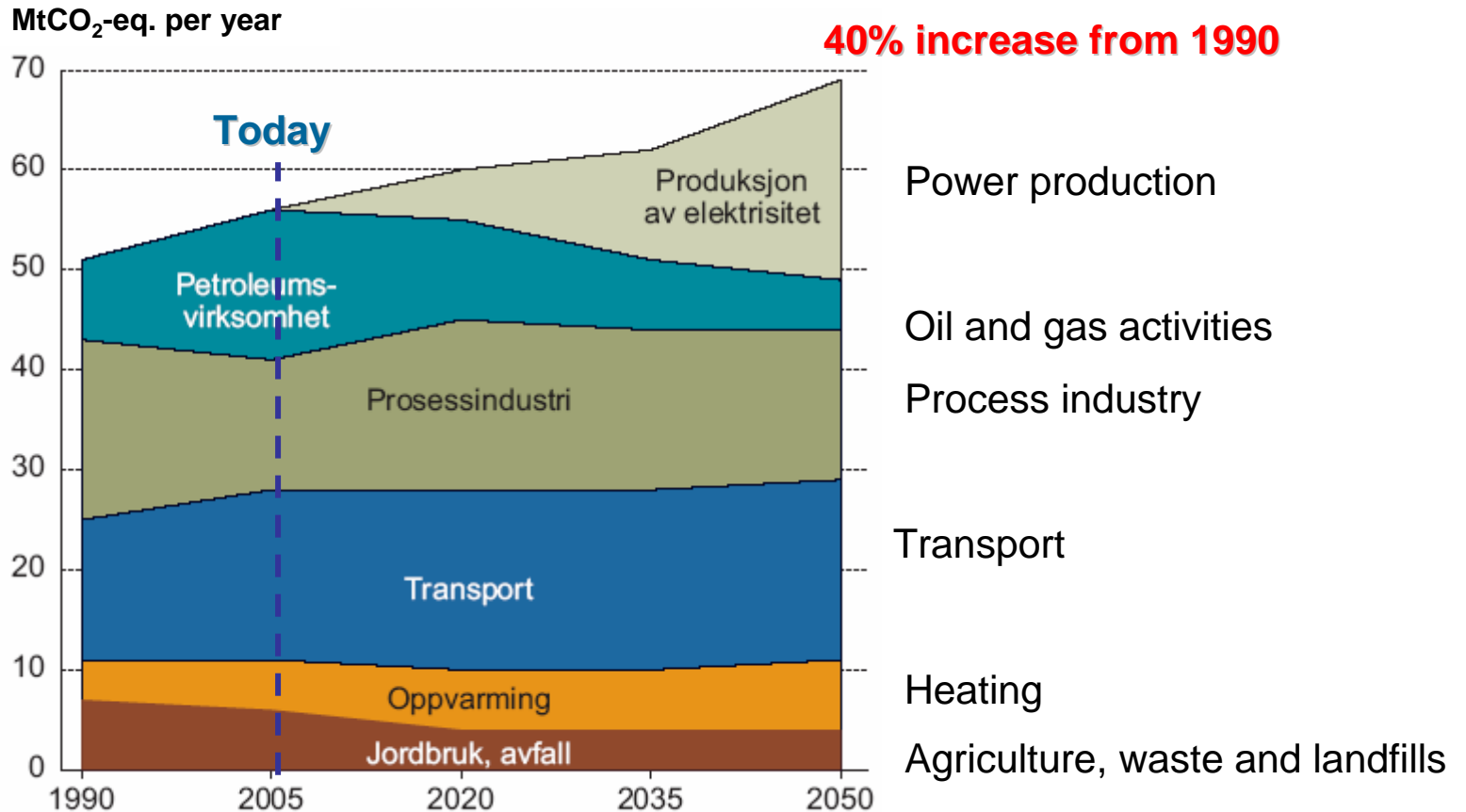
- The rich countries have a large responsibility for today's situation
  - If not rich Norway, who then?
- Other progressive countries have long term (2050) targets
  - UK -60%
  - France -75%
  - California -80%
- Early mover opportunities in developing climate-friendly technologies, e.g.
  - Carbon capture and storage
  - Offshore wind



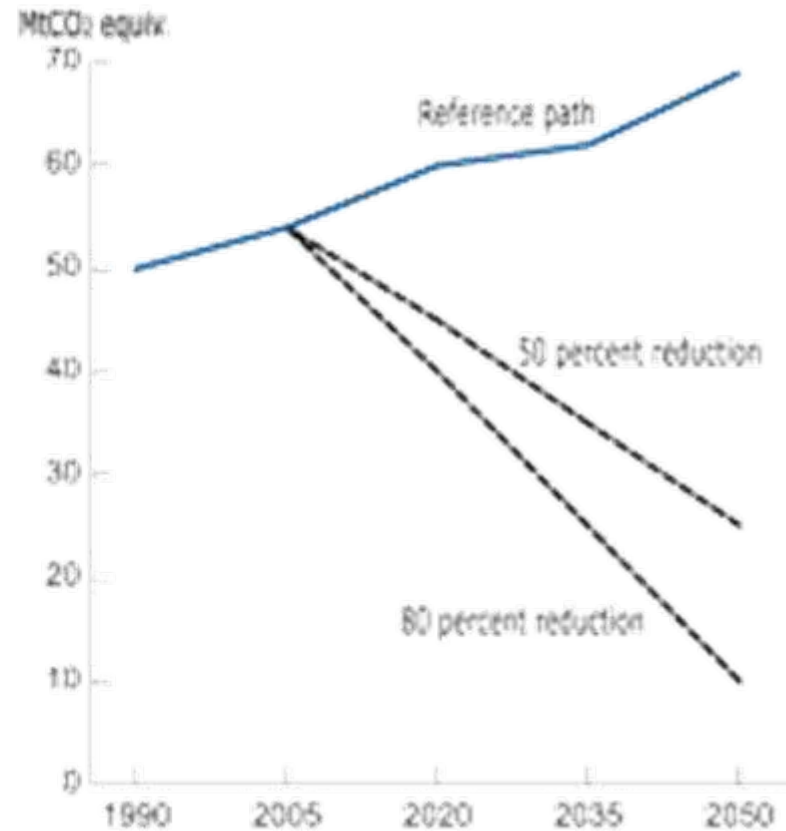
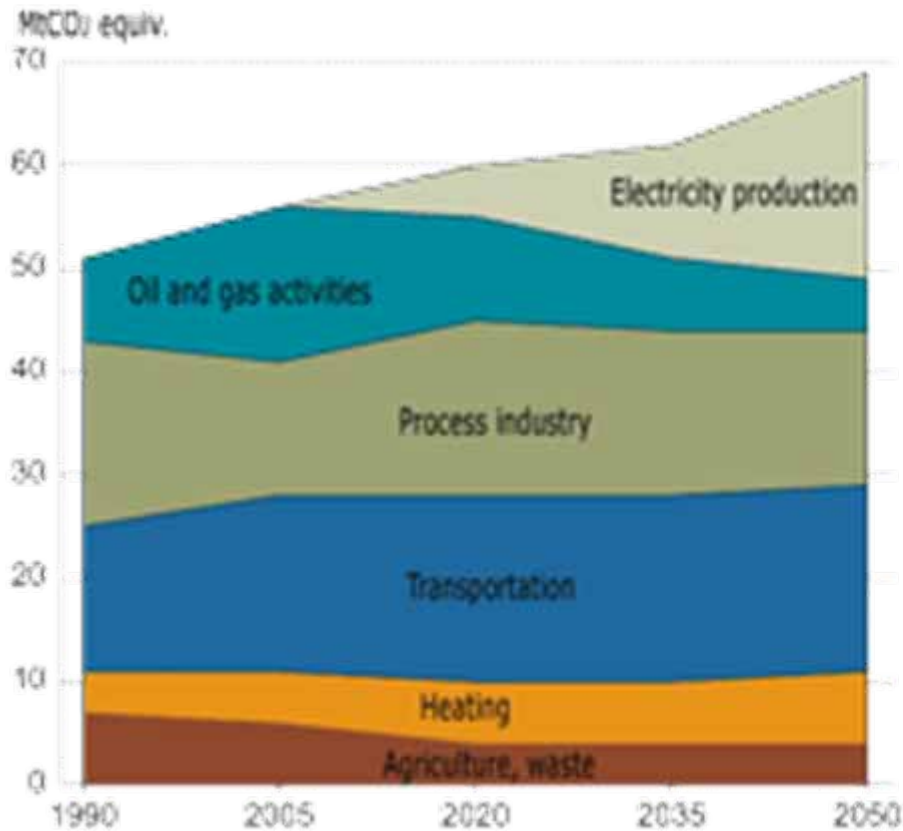
# Norway - and other developed countries - need to reduce emissions significantly



# GHG emissions for the 5 main sources in the Commission's "Reference path"



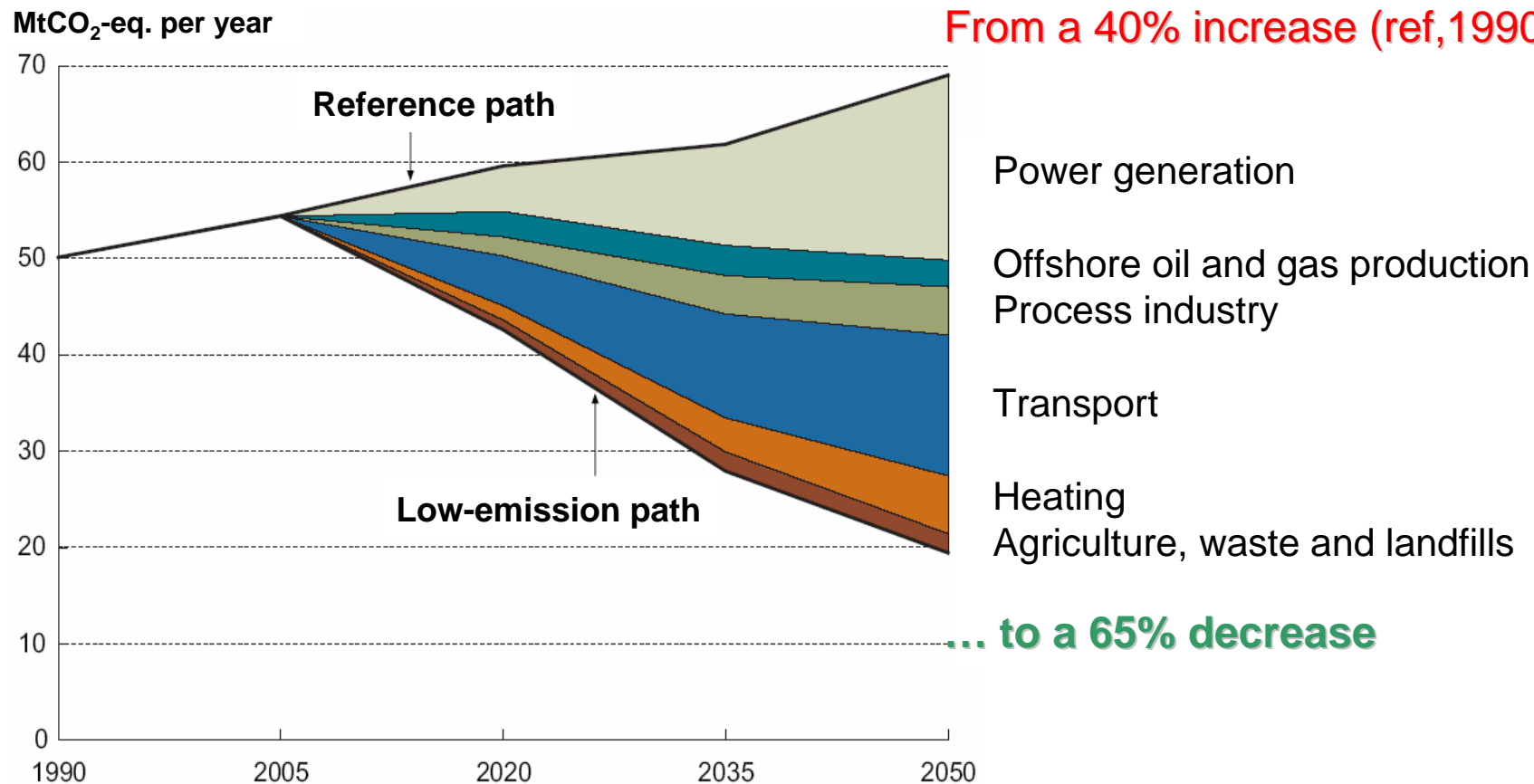
# The challenge: reducing emissions by two-thirds (ref. 1990, or by 75%, ref. reference path)



# Criteria for selection of mitigation measures

- Few in number and large in scope
- Based on relatively known technology
- Politically feasible i.e. not nuclear, nor major behavioural changes
- Contribute to international technology development
- Cost effective – but not necessarily the lowest cost options
- Robust - under varying assumptions of climate regimes etc

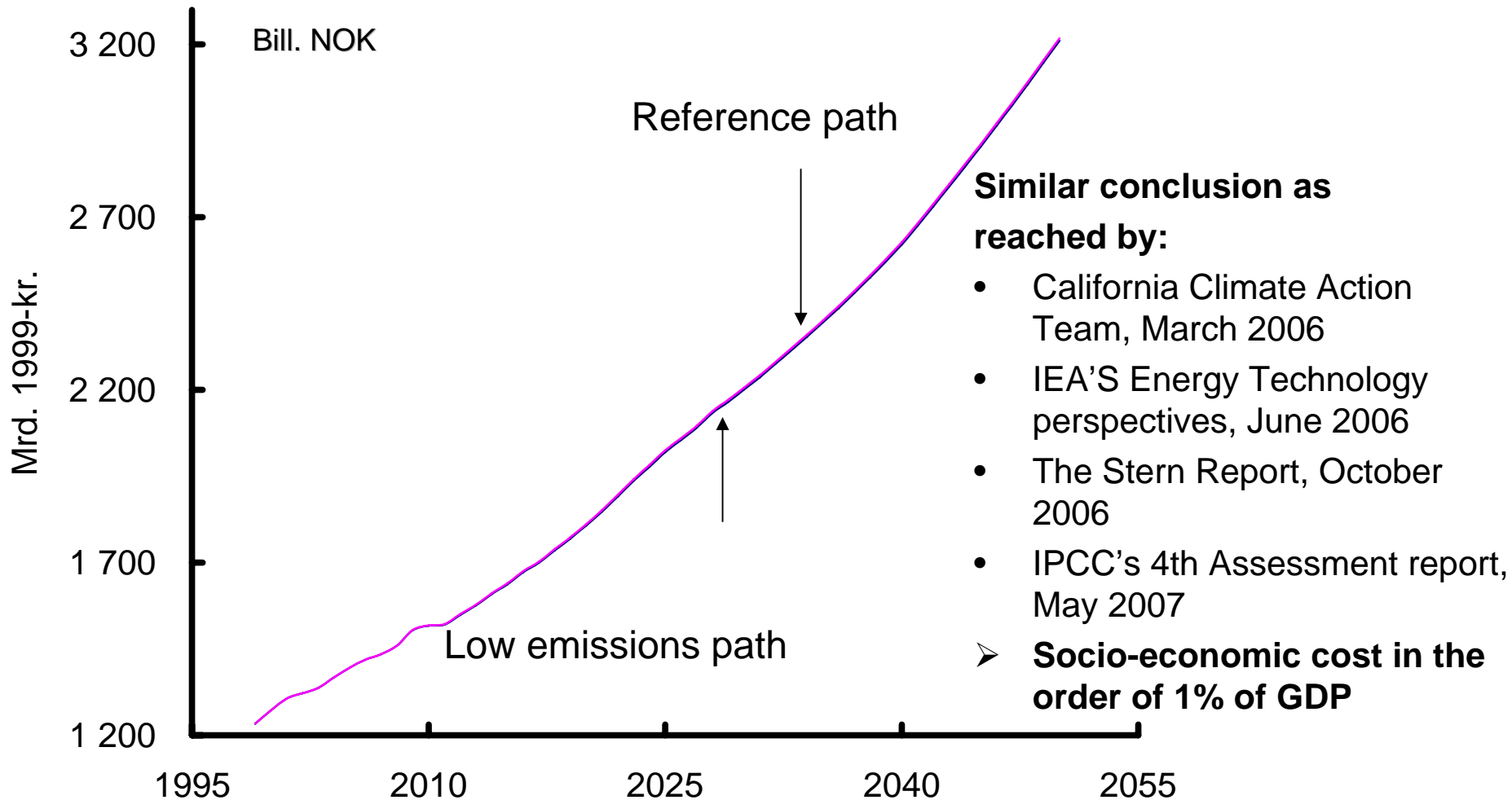
# The proposed solution: the "Low emissions path" for the 5 main sources



# The Commission's 15 proposed measures that constitute the "Low emissions path"

1. **Long-term, wide and deep climate information campaign** **Information**
2. **Investing in the development of climate-friendly technology**
3. **Phase in zero- and low emissions vehicles**
4. **Phase in CO2-neutral fuels - biodiesel and eventually hydrogen** **Transport**
5. **Urban planning to reduce transportation demands**
6. **Develop and phase in low-emission ships**
7. **Stricter building codes to increase energy efficiency**
8. **Increased use of biomass for CO2-neutral heating**
9. **Use methane from farms and landfills for energy production**
10. **Implement carbon capture and storage (CCS) for large industrial point sources**
11. **Process improvements in energy intensive industries**
12. **Increase power efficiency in oil and gas production**
13. **Renewable energy production from wind and "small hydro"**
14. **All new thermal power generation with carbon capture and storage** **Power**
15. **Upgrade efficiency of power grid**

# The socioeconomic costs: the effect on GDP



# The Commission's main conclusion

**It is necessary, doable and not unreasonably expensive to reduce Norway's GHG emissions by two thirds by the year 2050.**

## The Norwegian debate today

- Climate change a top issue even in the local elections
- 2020 target: -30% ?
- 2050 target: carbon neutrality ?

**Norway can without significant sacrifice become a climate friendly country by the mid century.**

**Norway should establish the formal goal of reducing GHG emissions from Norwegian territory by two thirds by 2050.**

# Thank you!



**More information:**  
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