



Norwegian Ministry  
of Petroleum and Energy

# Regulation of emissions in the Norwegian Oil and Gas sector

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# Environment and climate an integral part of Norway's petroleum policy

- A range of policy measures
- Ensures that **industry** takes environmental and climate considerations into account
- Effective policy instruments and **joint initiatives** between the authorities and oil companies
- High environmental and climate standards



# Policy measures

- Permits and other requirements
  - Ban on flaring since 1970s. Permitted only for safety reasons
  - Overview of energy needs and assessment of the costs of using power from shore must be part of every PDO
  - Permit under the Pollution Control Act is required for emissions to air from petroleum operations
- Research programs



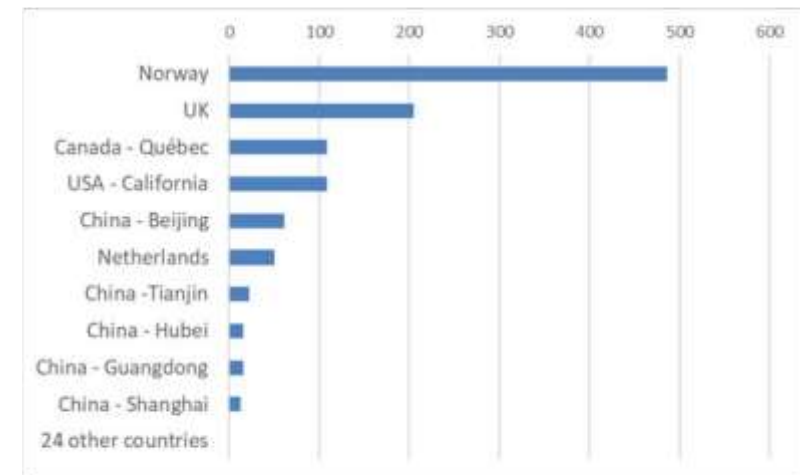
## Economic measures are key

- Carbon tax since 1991
  - 492 NOK = 50 EUR/tonne
- Part of EU ETS since 2008
  - E&P companies contribute to 43% reduction by 2030
  - Allowance cost >20 EUR/tonne

Total tax burden on CO<sub>2</sub> emissions from NCS  
>70 EUR/tonne

Price on greenhouse gas emissions in various petroleum provinces

(NOK / ton CO<sub>2</sub>)



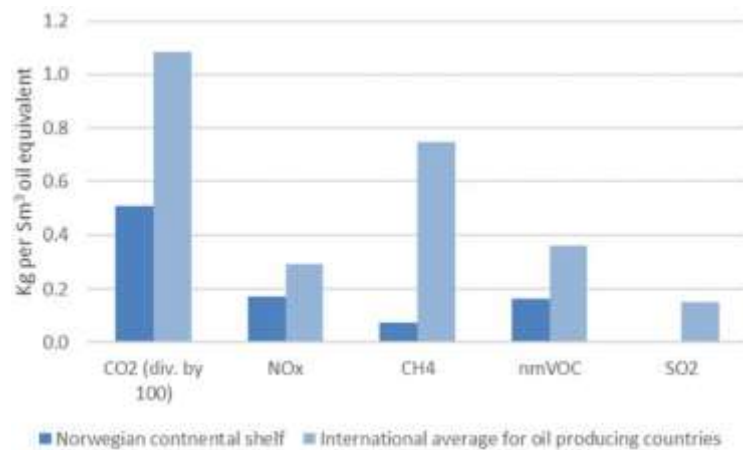
CO<sub>2</sub> equivalents, in 2016

Source: KPMG



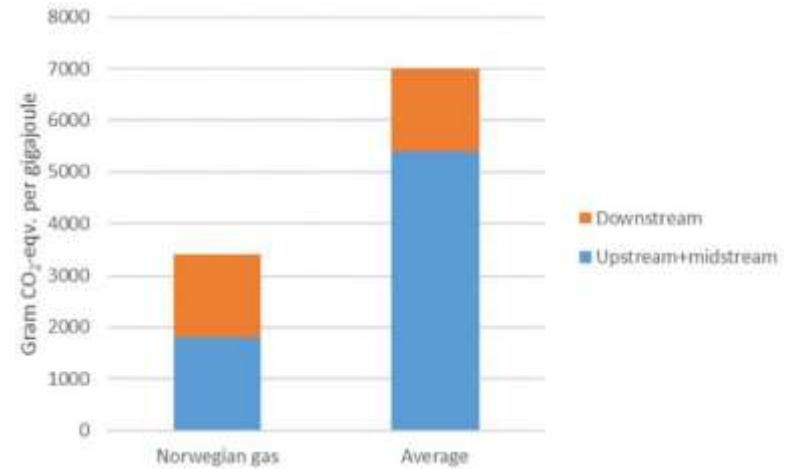
# It works

### Emissions to air from Norwegian and intl. oil industry per produced unit in 2016



Source: International association of oil and gas producers (IOGP); EPIM Environmental Hub; Norwegian Oil and Gas Association

### GHG emission from Norwegian gas compared to other sources

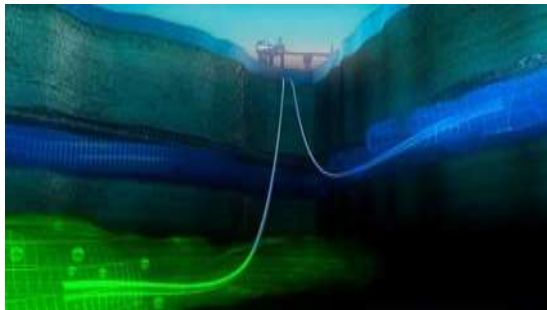


Source: Equinor, NGVA

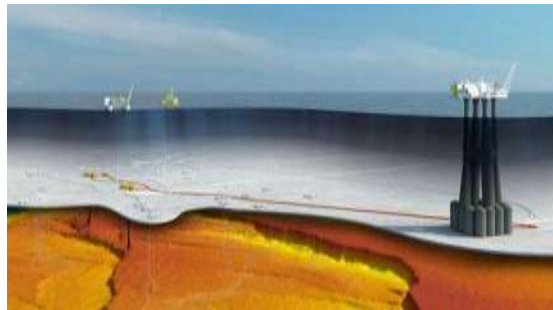


# A few examples

CCS on the shelf



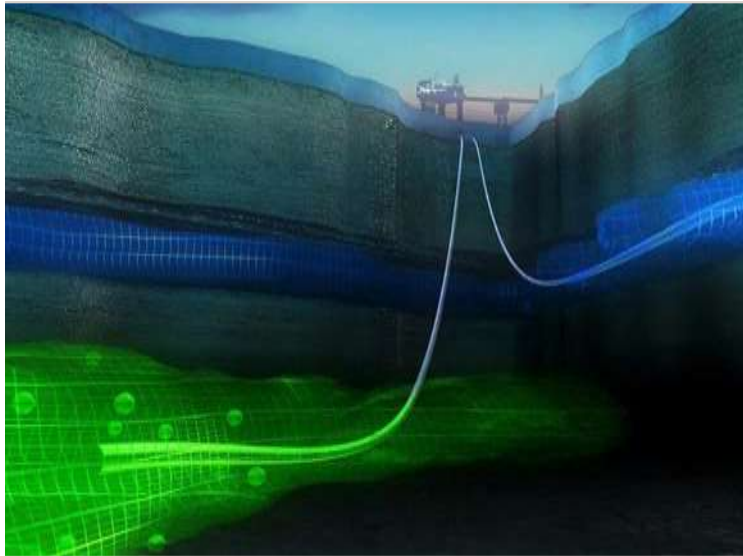
Electrification



Research programs



# 20 years of CCS



Sleipner



Gudrun



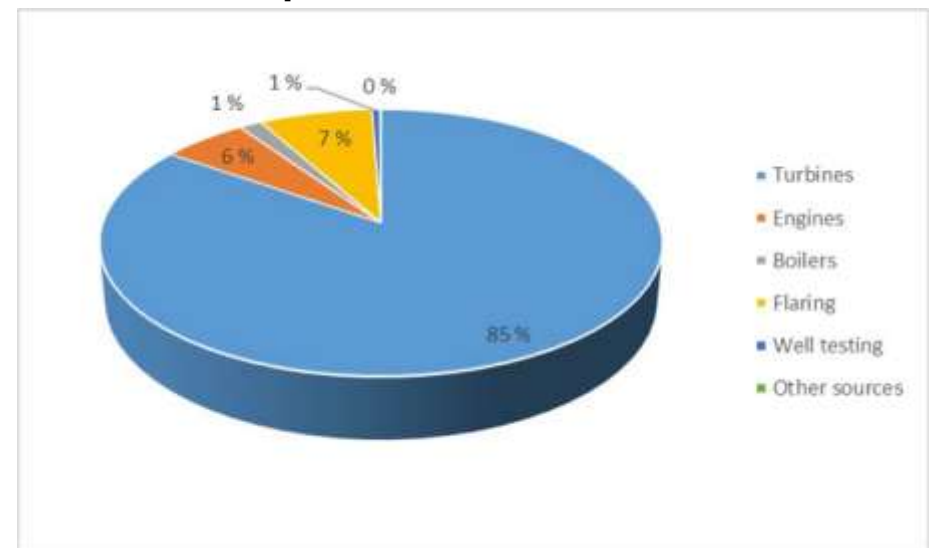
Snøhvit



# Electrification cuts emissions on NCS

- 85% of emissions from upstream production are energy generation
- Electrification must be assessed in every development plan
- 5 fields currently electrified from shore
- Several in the pipeline
- Comes with a cost for the companies

Sources of CO<sub>2</sub> emissions from upstream petroleum activities



Source: [norwegianpetroleum.no](http://norwegianpetroleum.no)





# Sverdrup – a giant with a small footprint



Minister of Petroleum and Energy, Kjell-Børge Freiberg starting-up power-from-shore at Johan Sverdrup in 2018



Source: Equinor



# Petroleum R&D: Towards even less emissions



**60 per cent of the projects funded develop knowledge and technology that can be used to reduce greenhouse gas emissions from the Norwegian Continental Shelf.**

Source: The Norwegian Research Council





# Research Centre for a Low-Emission Petroleum Industry on the Norwegian Continental Shelf

## Industry:



## Research and development:



## Funding:





Norwegian Ministry  
of Petroleum and Energy

**Thank you!**

