Regulation of emissions in the Norwegian Oil and Gas sector

Morten Anker, Deputy Director General
Riyadh, 28 February 2019
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 CO₂ emissions from NCS
>70 EUR/tonne
It works

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

GHG emission from Norwegian gas compared to other sources

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

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 lin the pipeline
- Comes with a cost for the companies

Source: norwegianpetroleum.no
Sverdrup – a giant with a small footprint

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:
- equinor
- ConocoPhillips
- Lundin Norway
- Eni
- ANSALDO
- KONGSBERG
- SIEMENS
- RYSTAD ENERGY
- Aker Solutions
- ABB
- aibel
- Cognite
- ScanWell
- Norwegian Ministry of Petroleum and Energy
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Research and development:
- CYBERNETICA
- Nedstack
- Microsoft
- OneSubsea
- NKT
- Huisman
- COORSTEK
- CURISTEC
- ReStore AS
- SINTEF
- NTNU
- LUND UNIVERSITY
- Carnegie Mellon University
- TNO innovation for life
- The Knowledge Technology Centre
- Technical University of Denmark
- University of Cambridge
- Technical University of Denmark
- National Laboratories
- University of Strathclyde
- DTU
- The Research Council of Norway
- Norwegian Ministry of Petroleum and Energy
Thank you!