



Norwegian Ministry  
of Petroleum and Energy

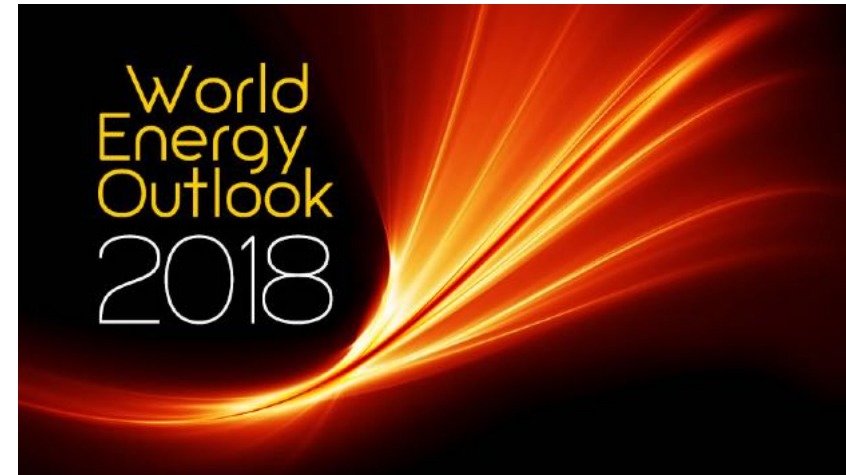
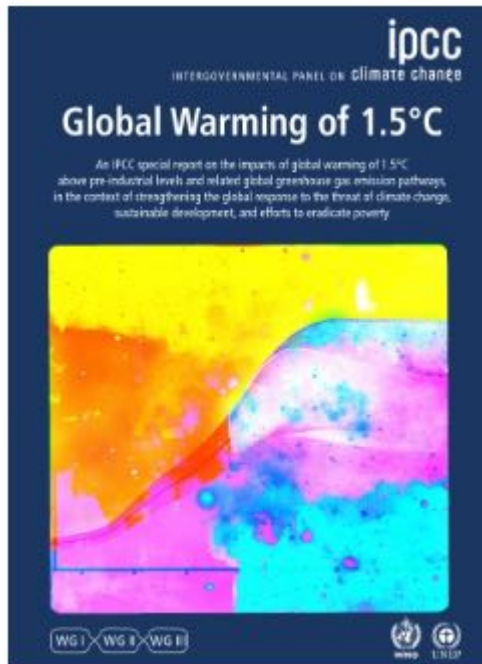
# Growing CO<sub>2</sub> Capture and Storage for rapid & significant emission reductions

COP25 side event Pathways to a sustainable future; governance of CO<sub>2</sub> removal & mitigation strategies for industry

11 December 2019, Madrid



# CCS is a necessary part of the solution



# CCS in Norway – Sleipner and Snøhvit

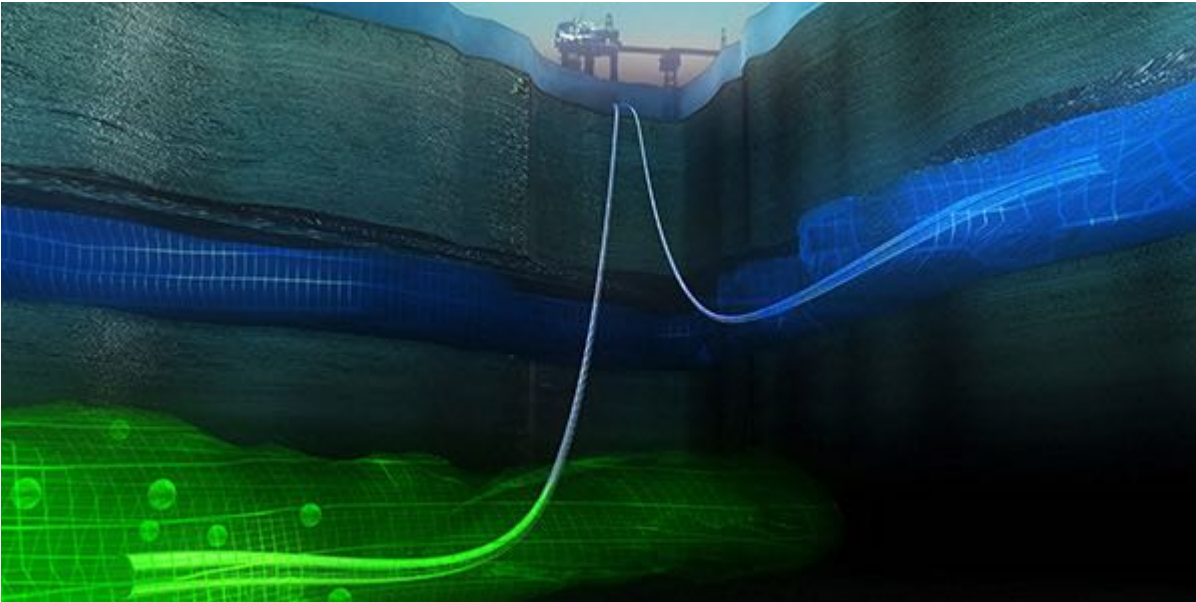


Foto: Alligator film BUG - Statoil

## Sleipner:

- The CCS project came into operation in 1996
- Stores around 1 Million tons of CO<sub>2</sub> per year
- In 2014, CO<sub>2</sub> from the Gudrund field is also stored at Sleipner

## Snøhvit:

- The CCS project came into operation in 2007
- Stores around 700'000 Tonns of CO<sub>2</sub> per year

In total, the CCS projects currently in operation in Norway reduce Norwegian CO<sub>2</sub> emissions by 3-4% each year

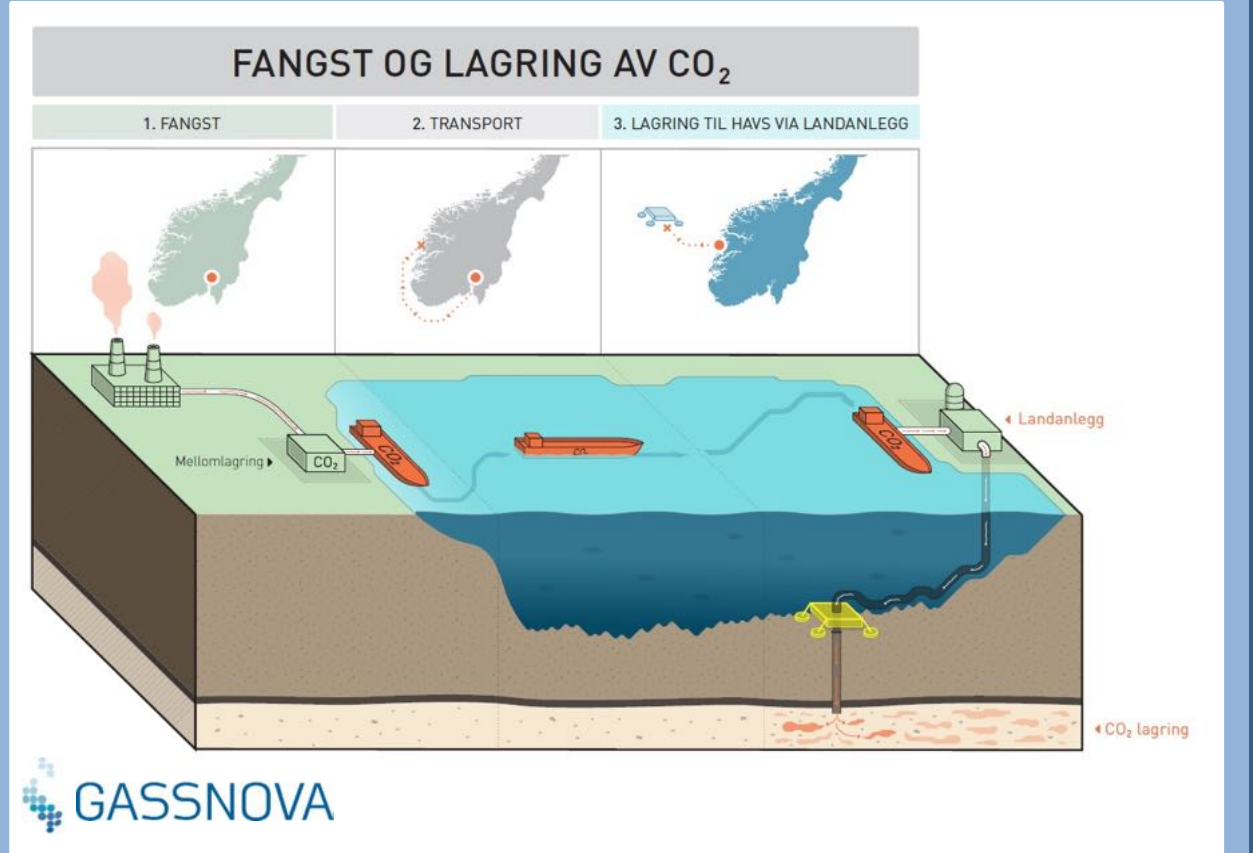


# Norwegian CCS-strategy – a broad approach

FoU

DEMO

LARGE SCALE



**CLIMIT**  
FORSKNINGSRÅDET OG GASSNOVA



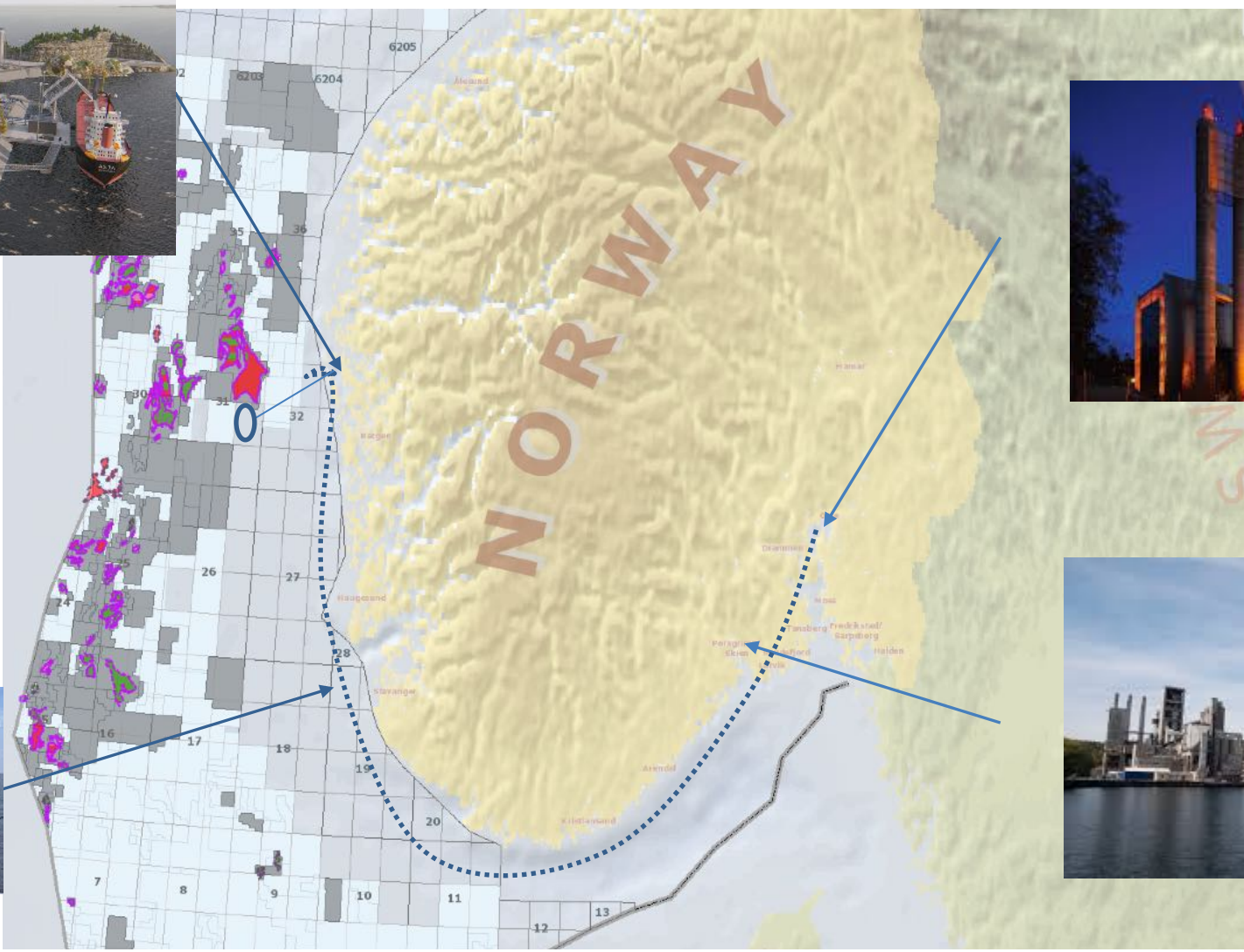
# The full-scale CCS project in Norway



Multiconsult



Ship transport from capture to storage terminal – pipeline to offshore storage complex



**Waste-to-energy**  
400 000 tonnes CO<sub>2</sub> per annum



**Cement production**  
400 000 tonnes CO<sub>2</sub> per annum

# Project's aims

"...realise a **cost-effective** solution for full-scale CCS in Norway, provided that this incites **technology development in an international perspective**".

**Solberg Government's Political Platform**

Our aim for a CCS project in Norway:

- Demonstrate a full chain of capture, transport and storage of CO<sub>2</sub> – with acceptable costs
- Demonstrate CO<sub>2</sub> capture in existing industry
- Provide cost and risk reductions for subsequent CCS projects
- Establish a flexible storage solution with excess capacity



# Challenges

## Final Investment Decision - Crucial Aspects:

- 1) Results from FEED, including quality, costs, risks,
- 2) Expected learning effect vs. resources spent:  
Will the Norwegian CCS project make a significant contribution to international use of CCS?
- 3) Political acceptance and support
- 4) Sharing of costs and risks
- 5) ~~The London Protocol~~



# ccsnorway.com







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**Thank you for your attention!**

