



The Troll Story - EASEE - GAS

March 2016

Knut Ivar Pettersen, VP Production Troll A





The Troll Story - EASEE - GAS

March 2016

Knut Ivar Pettersen, VP Production Troll A
EASEE March 2016



Shaping the future of energy

Competitive
at all times

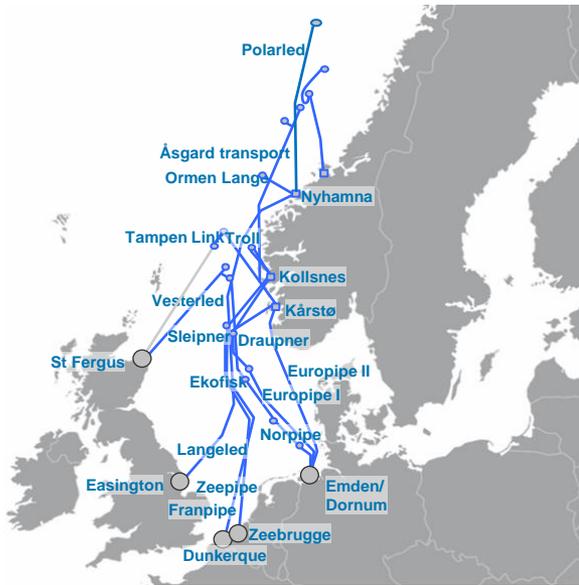
Transforming the
oil and gas industry

Providing energy for
a low carbon future

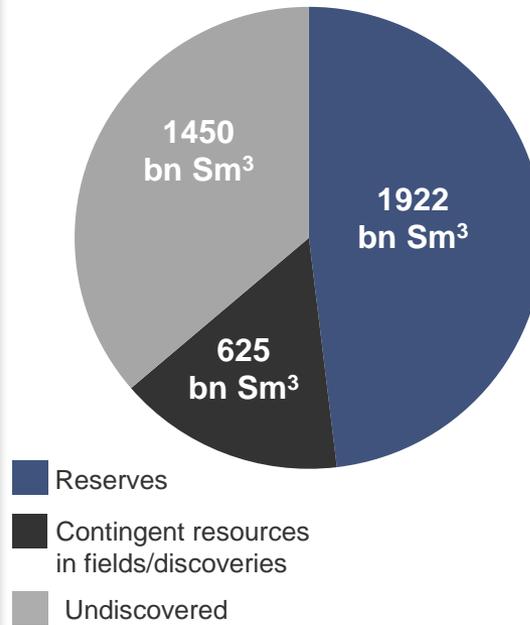


Norwegian gas is key to European energy security

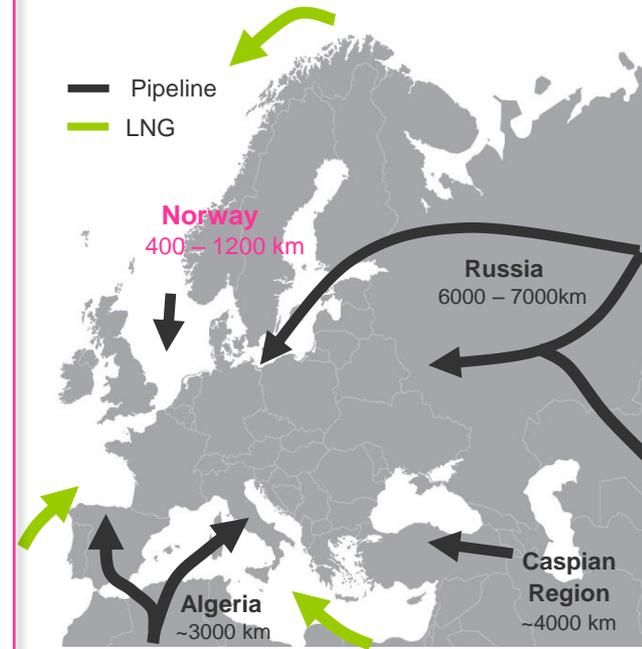
Access to an integrated and flexible pipeline infrastructure



Large gas resource potential on the NCS*



Proximity to markets



Only one third of NCS resources have been produced to date

Source: Norwegian Petroleum Directorate (NPD) resource account as of 31.12.2014

The Troll Story

The Troll Story

Troll Gas: A North Sea Giant

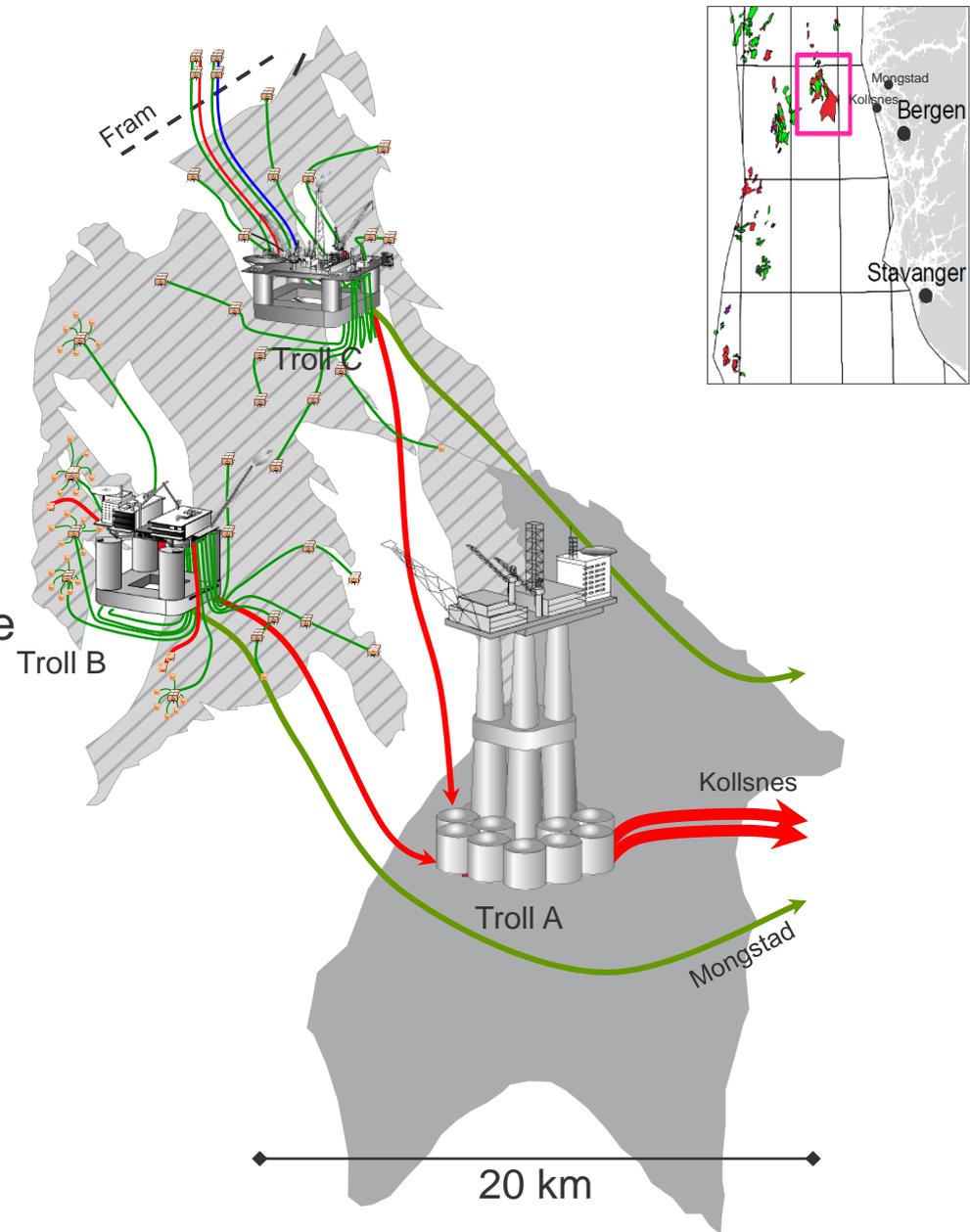
- Located 80 km northwest of Bergen
- Gas Reserves 1400 GSm³

Troll Oil: The impossible made possible

- 2+ billion barrels
- 120.000 bbls/day

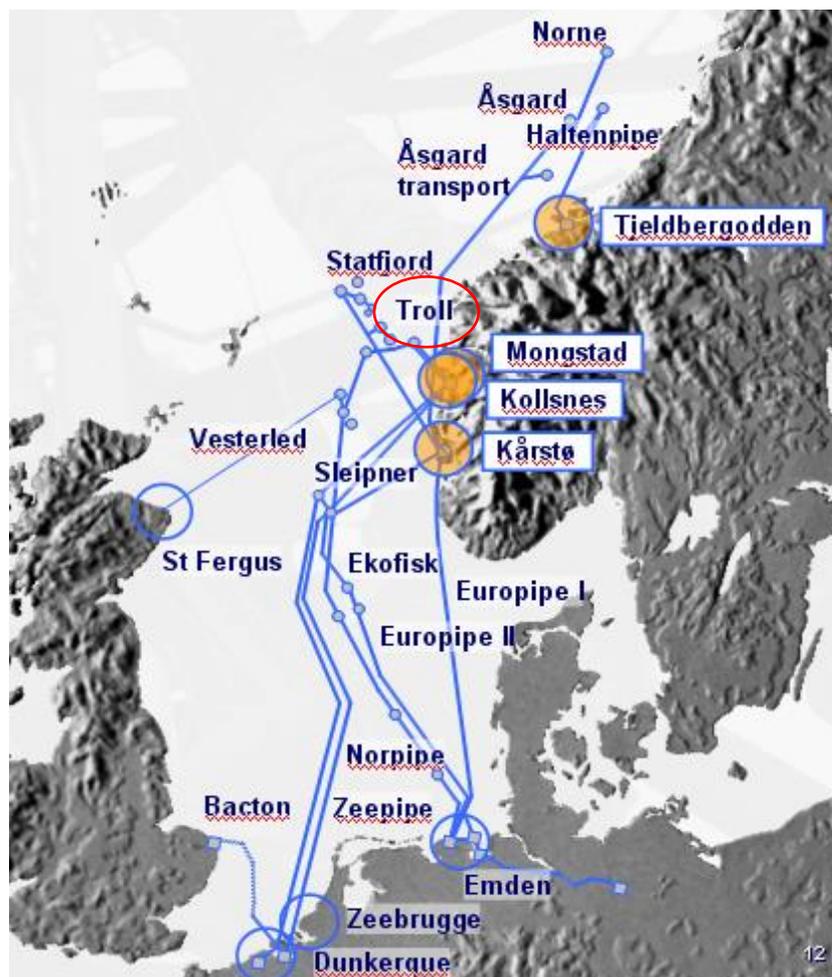
• Troll Area: Commercialize tie-ins

- Fram Vest 60.000 bbls/day at peak
- Fram Øst 55.000 bbls/day at peak
- Other discoveries and prospects



Troll – gas for Europe

- Gas is exported through three 36" pipelines from Troll A to Kollsnes
- The gas is processed at Kollsnes and sent on to Europe in four independent pipelines
 - Zeepipe
 - Franpipe
 - Statpipe
 - Europipe



The Troll Field



– A giant among gas giants

- **World class gas field**
 - 1470 billion cubic meters recoverable gas
 - 40 % of Norwegian gas reserves
 - 30 % of Norwegian gas exports
- **Cornerstone in Norway's gas supply to EU**
 - 30 billion cubic meters annual production
 - 7-8 % of EU gas consumption
 - 120+ million cubic meters/day capacity
- **A zero emission platform**
 - Powered by electricity from shore



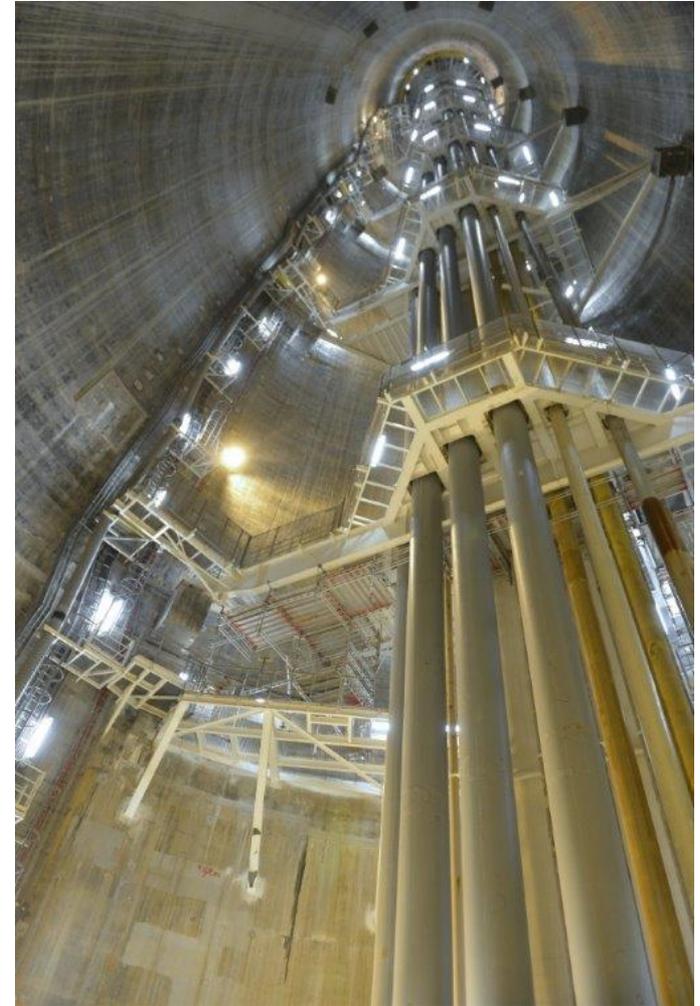
Troll A - A North Sea Giant

Tallest construction ever moved on the face of earth

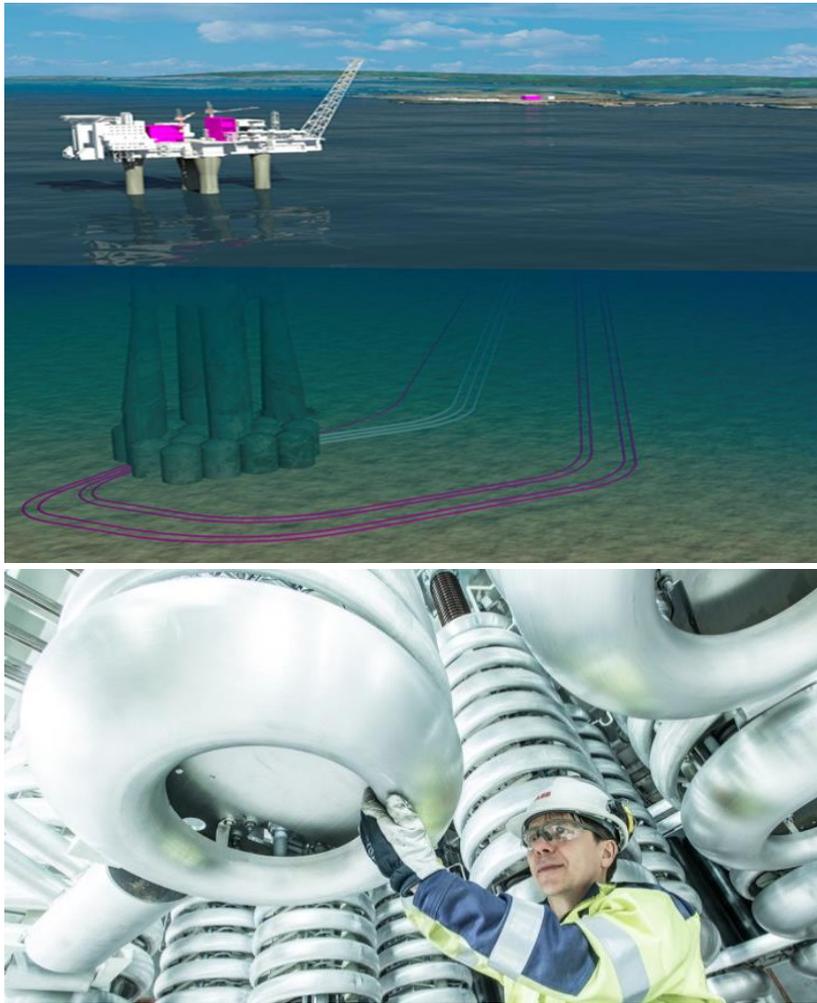
- Height 472 m
- Waterdepth 303 m
- Weight > 1 million ton
- Topside weight – 39000 MT
- Steel in GBS correlates to 15 Eiffel towers

Largest gas field in the North Sea

- Production start - 1996
- Gas to ~10 million European households
- 39 ea. wells – dry XT
- 210 Cabins – max POB 289
- Expected life time 2060



New gas compressors – key to maintain high production

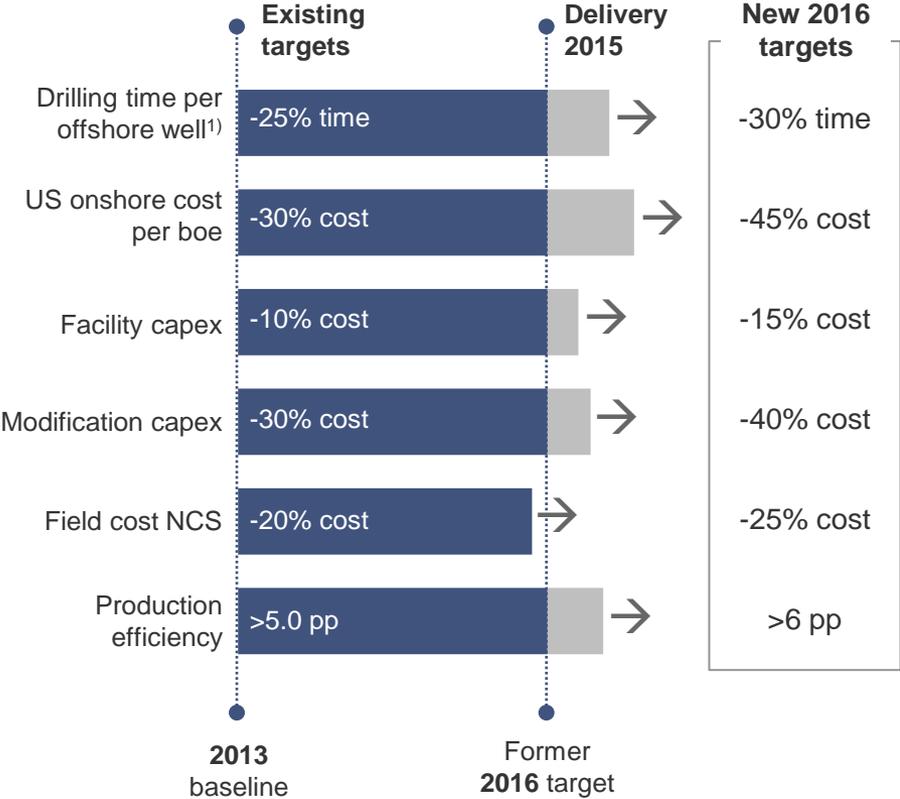


- One of several projects in pipeline to optimize production from Troll
- Robust and profitable project - realizing 83 billion cubic meters
- Maintain annual production of 30 billion cubic meters and daily capacity of 120+ million cubic meters
- Facilitate production from Troll towards 2060

Faster and deeper cost reductions

We have delivered ahead of time...

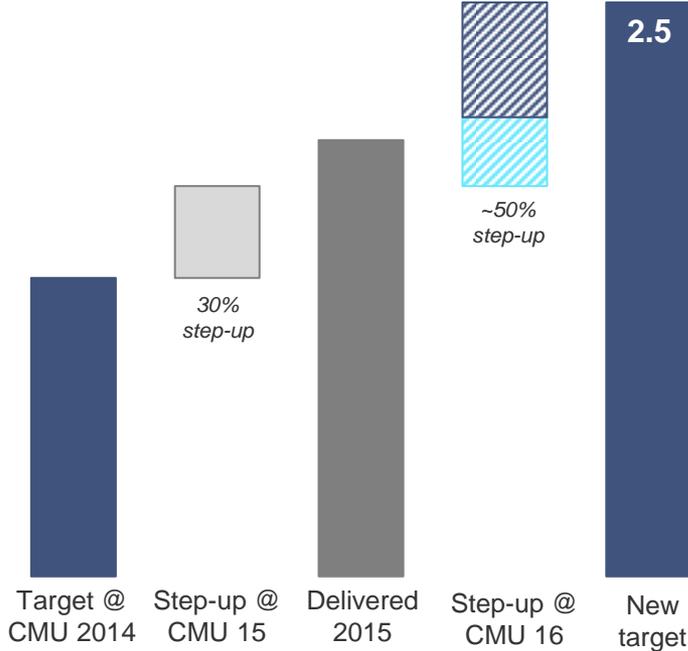
Percent improvement on selected activities



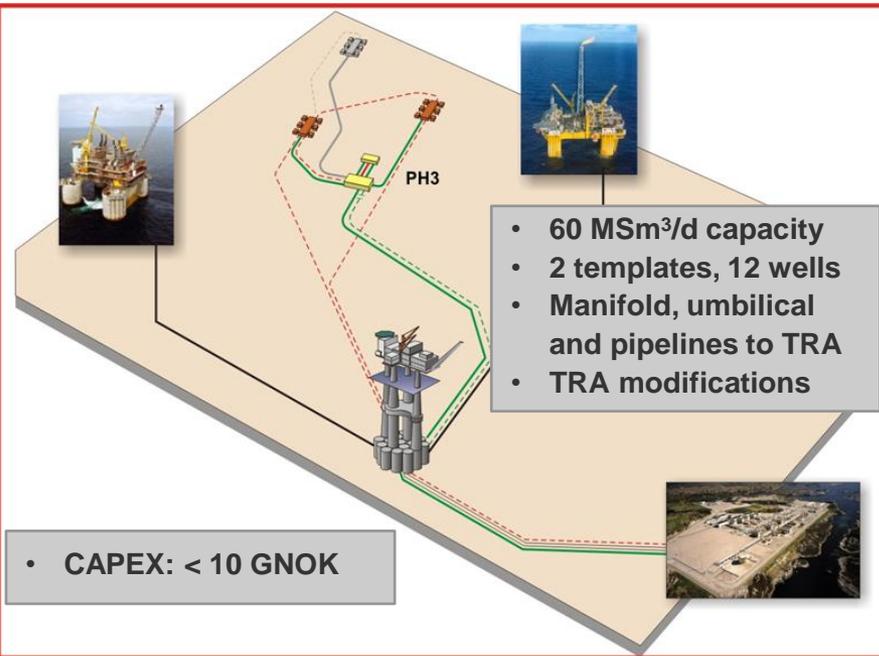
...and continue to raise the bar

USD billion

Capital expenditure
Operating expenses



Troll – Future Developments



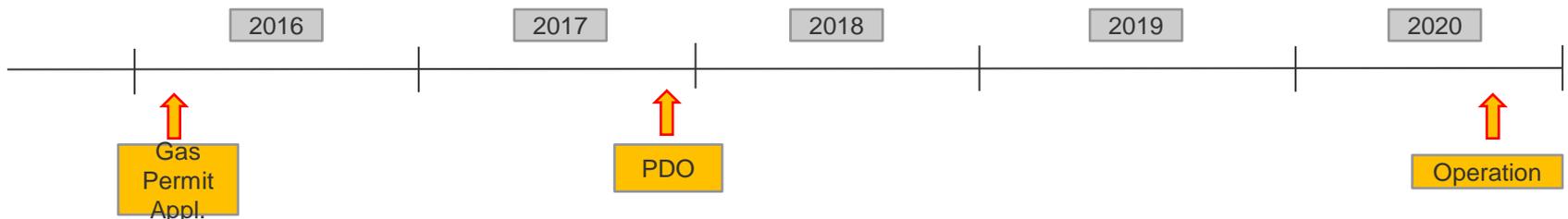
Key drivers

- Value creation through higher/earlier gas off-take
- Maintain maximum daily capacity of 120 MSm³
- Optimize oil recovery
- Prepare for gas late-life and ensure flexibility for oil

Economy and Risks

- Very robust economics
- Higher gas off-take required to accelerate start-up from 2024 → 2020
- No major risks identified, timing of start-up is the key question

Tentative schedule Troll Phase 3:



11/17/13



There's never been a better
time for **good ideas**

EASEE

Knut Ivar Pettersen
VP Production Troll A

knip@statoil.com

www.statoil.com



Thank you for your
attention.