

The Technology Challenge

British and Norwegian Oil and Gas Industry Collaboration Conference



R. Rasmus Sunde
Executive Vice President

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Agenda - The Technology Challenge

- ◆ **Overall Challenges**
- ◆ **Solutions and Priorities**
 - ◆ **Norway – Response and Track Record**
 - ◆ **Arctic Challenges - Vetco's response**
- ◆ **Summing Up**



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Vetco Today

- 100 year old company
- Revenues in 2004 ~ \$1.9 Billion;
EBITDA ~ \$150MM
- 10,000 professionals in 31 countries
- Business Scope
 - Drilling & Completion Systems
 - Subsea Production Systems
 - Aftermarket Products & Services
 - Upstream Process and Facilities
 - Maintenance, Modification, Operations
 - Decommissioning
- Our customers
 - International, independent and national oil companies
 - Shipowners, Drilling- and EPC contractors



Statoil Kvitebjørn



Hydro Troll Pilot

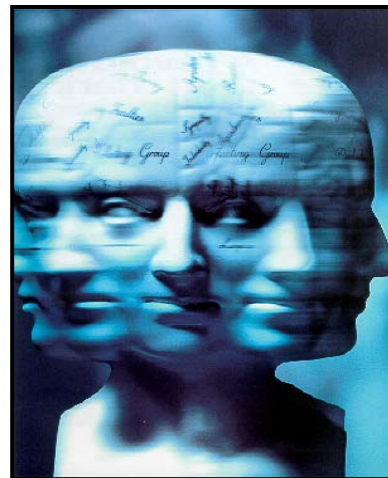


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From shallow via deepwater to arctic The Overall Technology Challenges

- Sustainable development;
no harm to people or environment
- Mature Fields/Shallow Water
 - Tail end production technology
 - Increased recovery
- New Fields/Deep Water
 - More Complex Reservoirs
 - High Pressure & High Temperature
 - Solving the Gas Value Chain
 - More heavy oils
- Arctic Areas
 - Multiphase Flow
 - Long Distance
 - Harsh Environment



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**World Class Knowledge, Experience, Technology and Services
Norwegian Cluster Responding Collectively**



<p>Ministry of</p> <ul style="list-style-type: none"> • Trade and Industry • Petroleum and Energy • Foreign Affairs 	<p>Oil companies</p> <ul style="list-style-type: none"> • Hydro • Statoil 	<p>The Industry</p> <ul style="list-style-type: none"> • Norwegian Shipowners' Association • The Norwegian Oil and Industry Association • Federation of Norwegian Manufacturing Industries
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**The National Strategy is taking shape
Technology Strategy for the 21st Century**



- ◆ Vision and Objectives
 - ◆ Sustainable petroleum industry
 - ◆ Technology for
 - ◆ Export/Global markets
 - ◆ Value creation at the NCS
- ◆ Technology Target Areas
 - ◆ Environmental
 - ◆ Exploration and reservoir characterization
 - ◆ Enhanced recovery
 - ◆ Cost effective drilling and intervention
 - ◆ Integrated operation and RTRM
 - ◆ Subsea Processing and transportation
 - ◆ Deep water and subsea production
 - ◆ Gas technologies



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**Norwegian technology at the front end
Companies Executing Projects Worldwide**



Kashagan



Angola + Nigeria



Sakhalin



Barents Sea

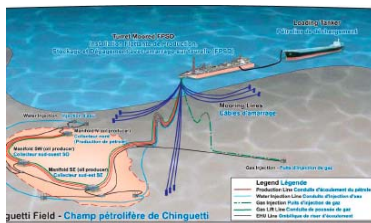
- ◆ From Arctic conditions in Sakhalin, North Caspian and the Barents Sea to deep waters in West Africa, Brazil and Gulf of Mexico
- ◆ A strong domestic market is the basis for technological development and expansion into the global markets

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**Mauritania's first deep water oil field under way
Chinguetti – ended up being a “Norwegian” project**



Berge Helene for the Chinguetti field

- ◆ Chinguetti
 - ◆ Bergesen dy ASA: Leased FPSO
 - ◆ Vetco: Topsides and operations
 - ◆ APL: Turret
 - ◆ FRAMO: Swivel
 - ◆ FMC: Subsea Hardware
 - ◆ Grenland Offshore: Templates
 - ◆ ABB: Automation
 - ◆ Smedvig and Stena: Drilling
- ◆ Woodside's project offices in Oslo

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**Arctic Regions
Opportunity and Challenge**

- ◆ Fragile Environment
- ◆ Remote Location
- ◆ Harsh climate
- ◆ Demanding safety efforts



Snøhvit X-mas tree

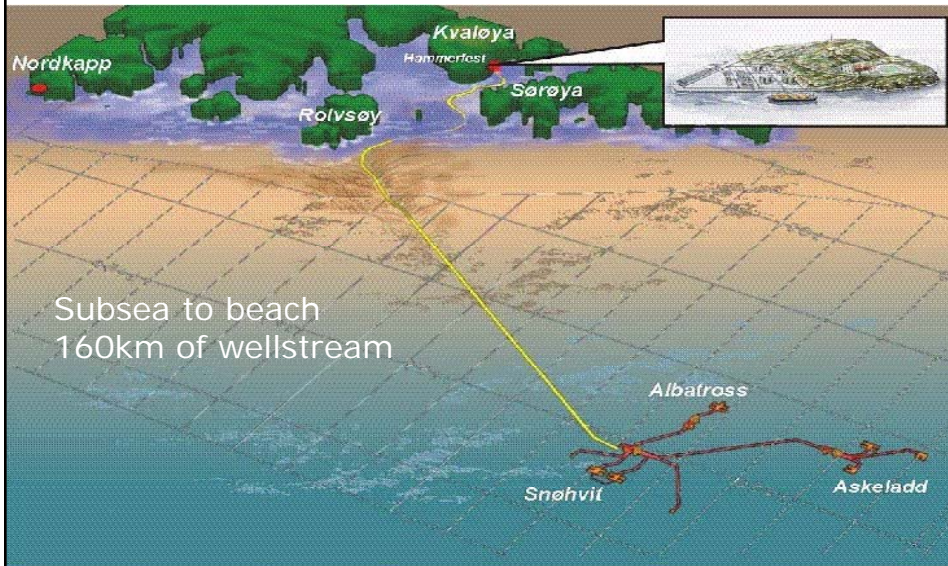


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**Vetco's experience
Snøhvit Subsea Systems – Longest subsea offset to date**



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Summing Up

- ◆ The Technology challenges well defined and targeted from shallow via deep water to arctic areas
- ◆ The Norwegian Petroleum cluster responding
 - ◆ Collectively through Intsok and OG21
 - ◆ Individually through result driven R&D efforts as well as worldwide experience gained
- ◆ Vetco remains committed to be a front runner within its target business segments from subsea to surface to shore

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