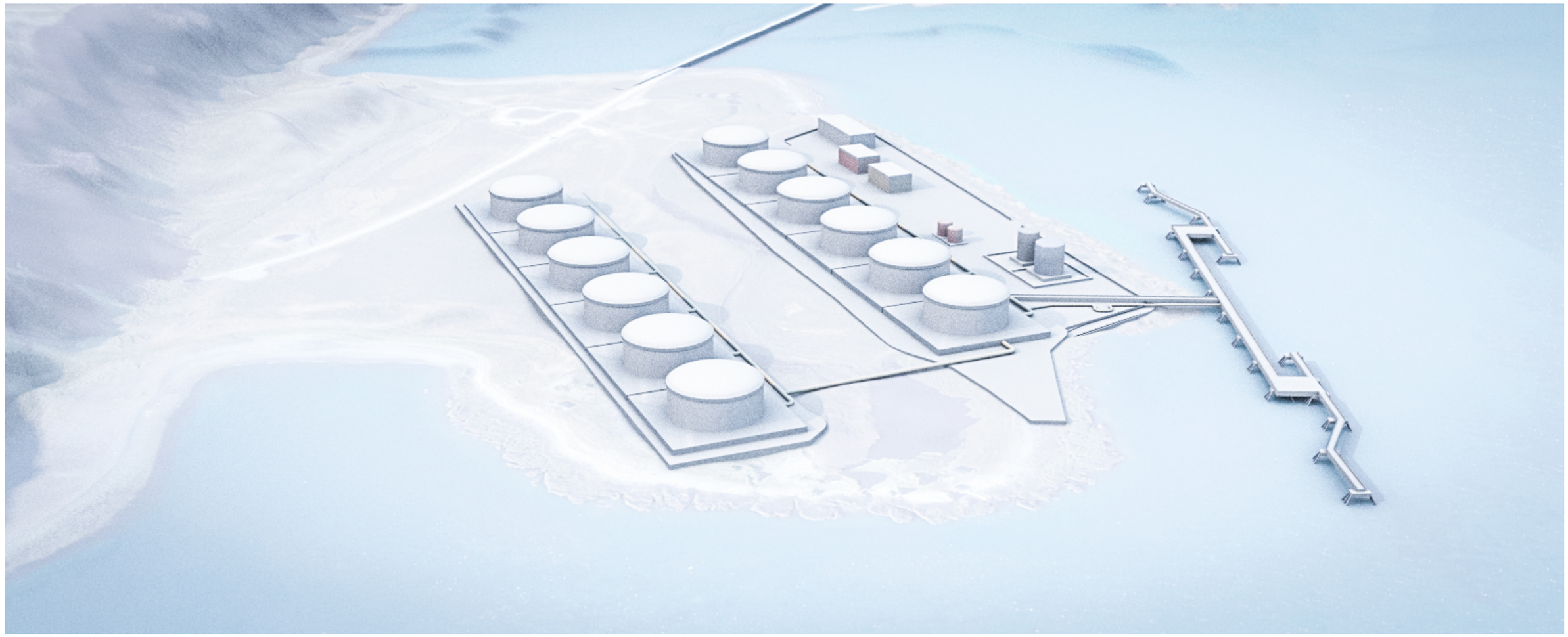


ARCTIC OIL & GAS – CHALLENGES AND OPPORTUNITIES

UNIS, LONGYEARBYEN, APRIL 12TH, 2016

BENGT LIE HANSEN, BLH ENERGY CONSULTING, CHAIRMAN ATT
FORMER SENIOR VICE PRESIDENT HYDRO AND PRESIDENT STATOIL RUSSIA,
MEMBER OF RUSSIAN ACADEMY OF SCIENCE

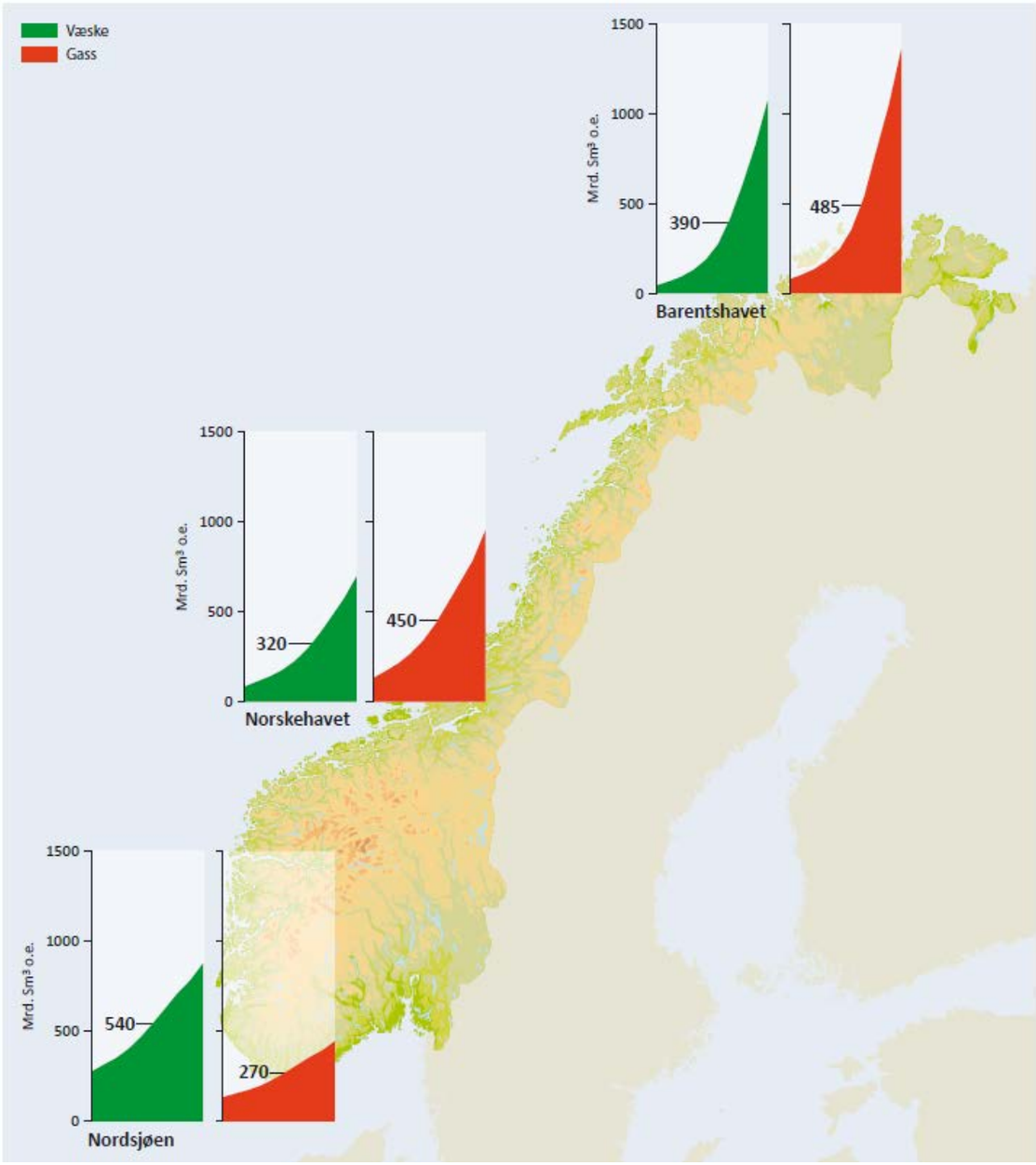
The Arctic – challenges and opportunities

Norwegian perspective

- Resource potential
- Exploration
- Development
- Production
- Technology
- New areas – delimitation line
- Norwegian policy – an industry for the future

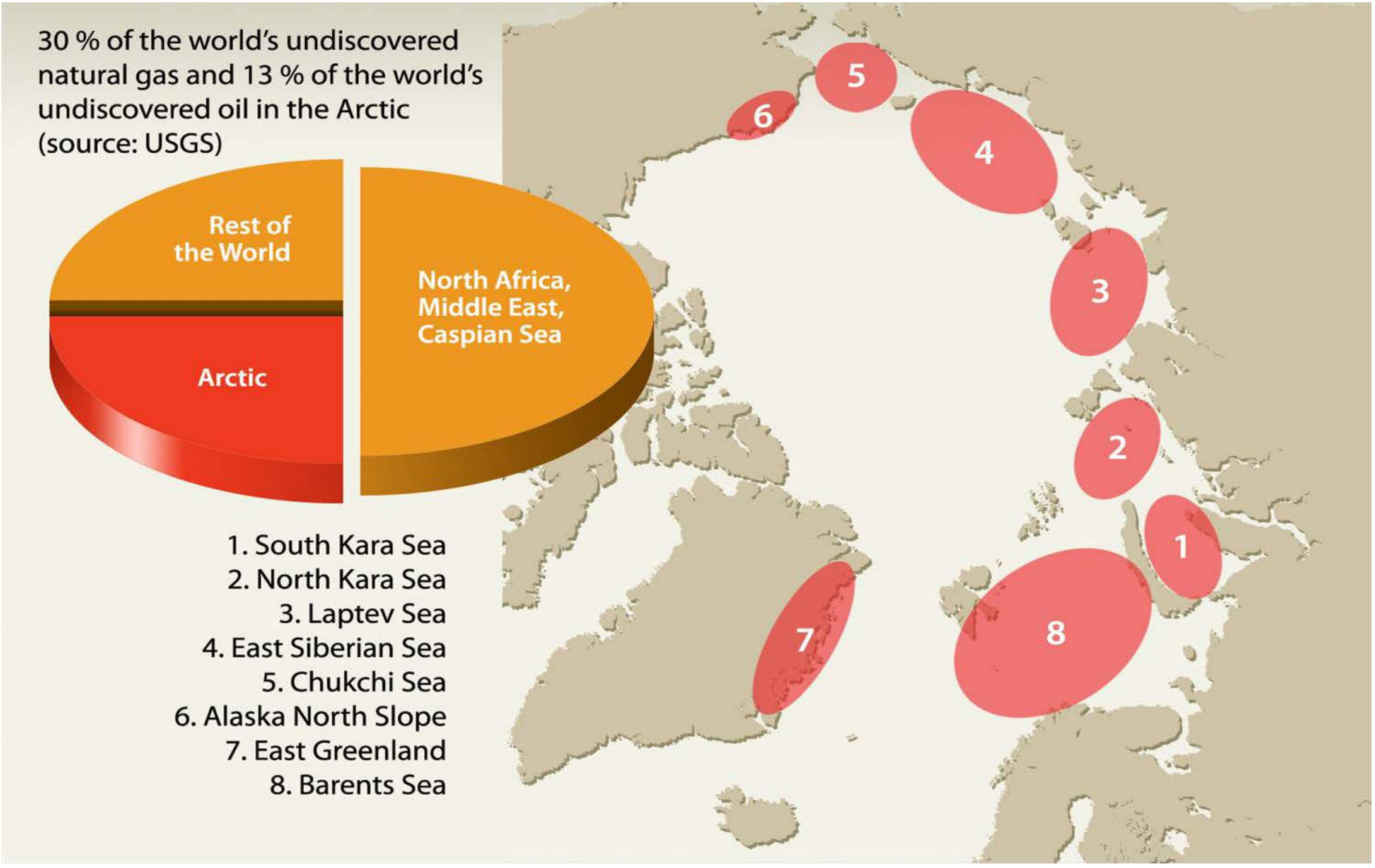
Russian perspective

- Resources
- Exploration
- Shtokman – what next?
- Russian policy
- Russian business culture
- Summary



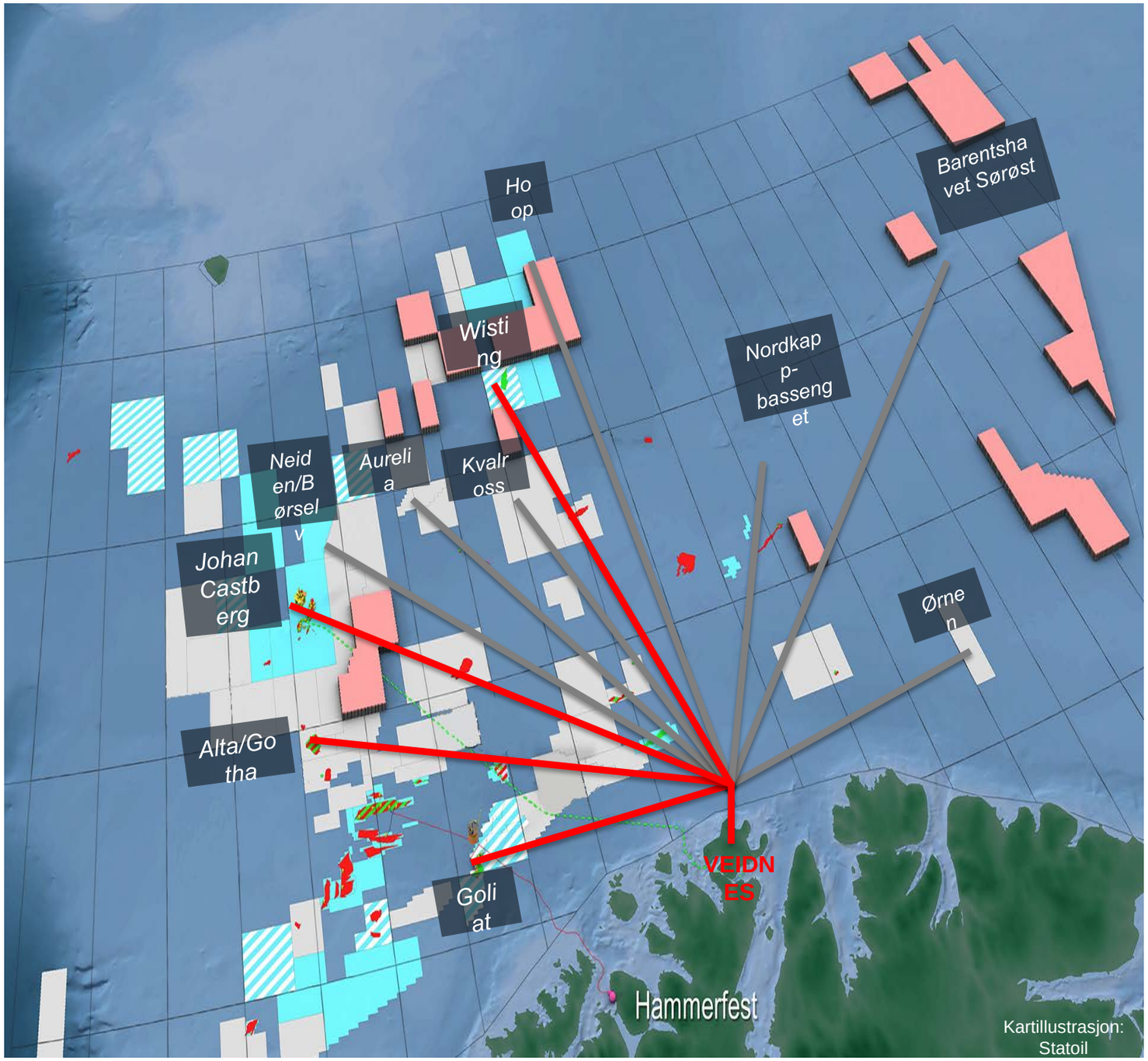
- Source: NPD

Oil and gas resources in the Arctic are large



The Norwegian Perspective – Petroleum activities in the Norwegian Barents Sea

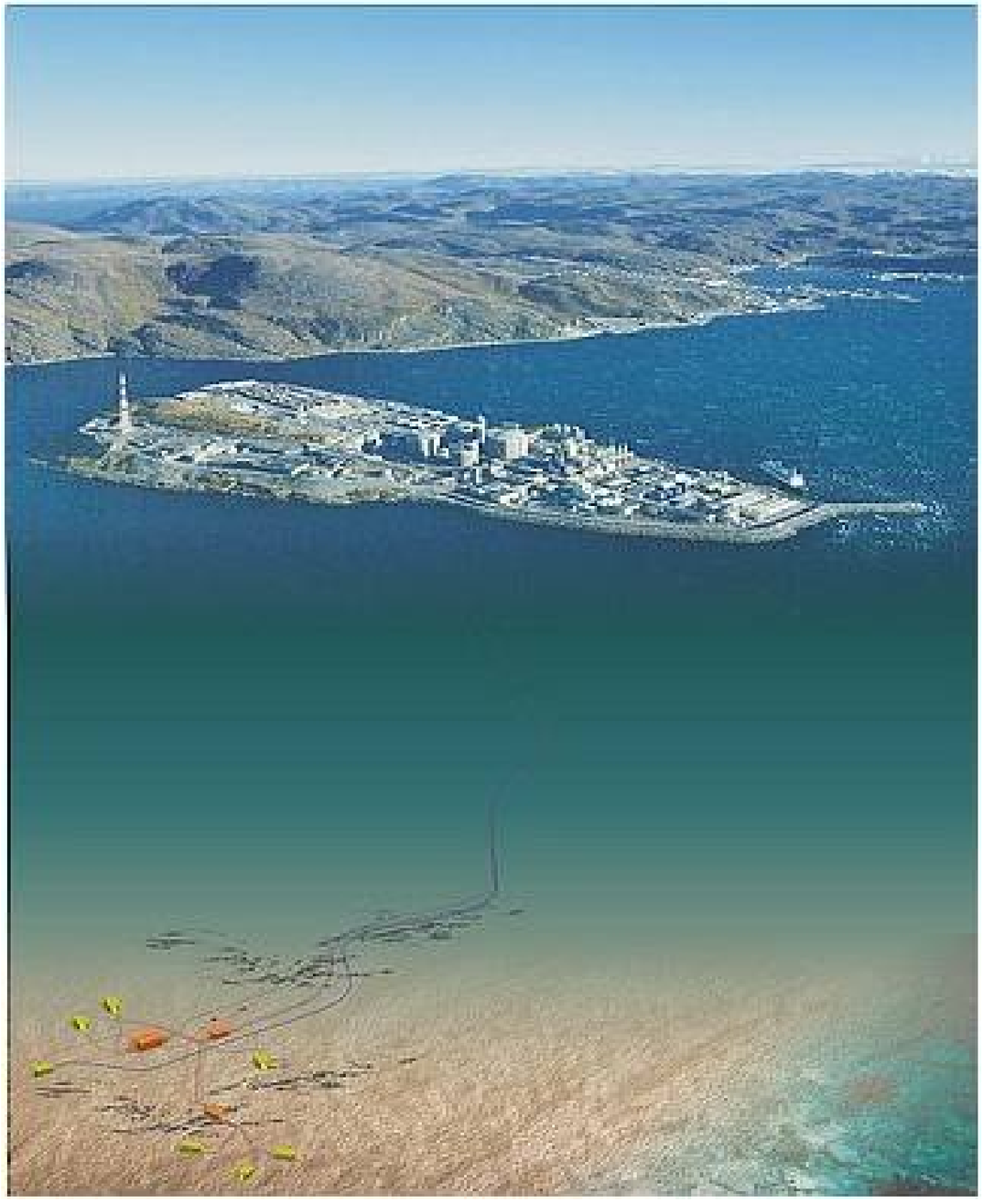
- First exploration activities started in 1980
- Snøhvit gas field in production
- Goliat oil field in production
- Johan Castberg oil under evaluation
- Alta and Gotha oil under evaluation
- Wisting oil under evaluation
- Several smaller gas discoveries made



ref. ENI 21.3.16

Petroleum activities in the Norwegian Barents Sea

- First LNG plant in the Arctic
- In production Q4 2007
- Subsea to shore development – 140 km
- First infrastructure for gas in the Barents Sea
- Developed on the basis of comprehensive impact assessment
- Contributed to substantial local/regional employment and ripple effects
- Markets in Europe by LNG tankers



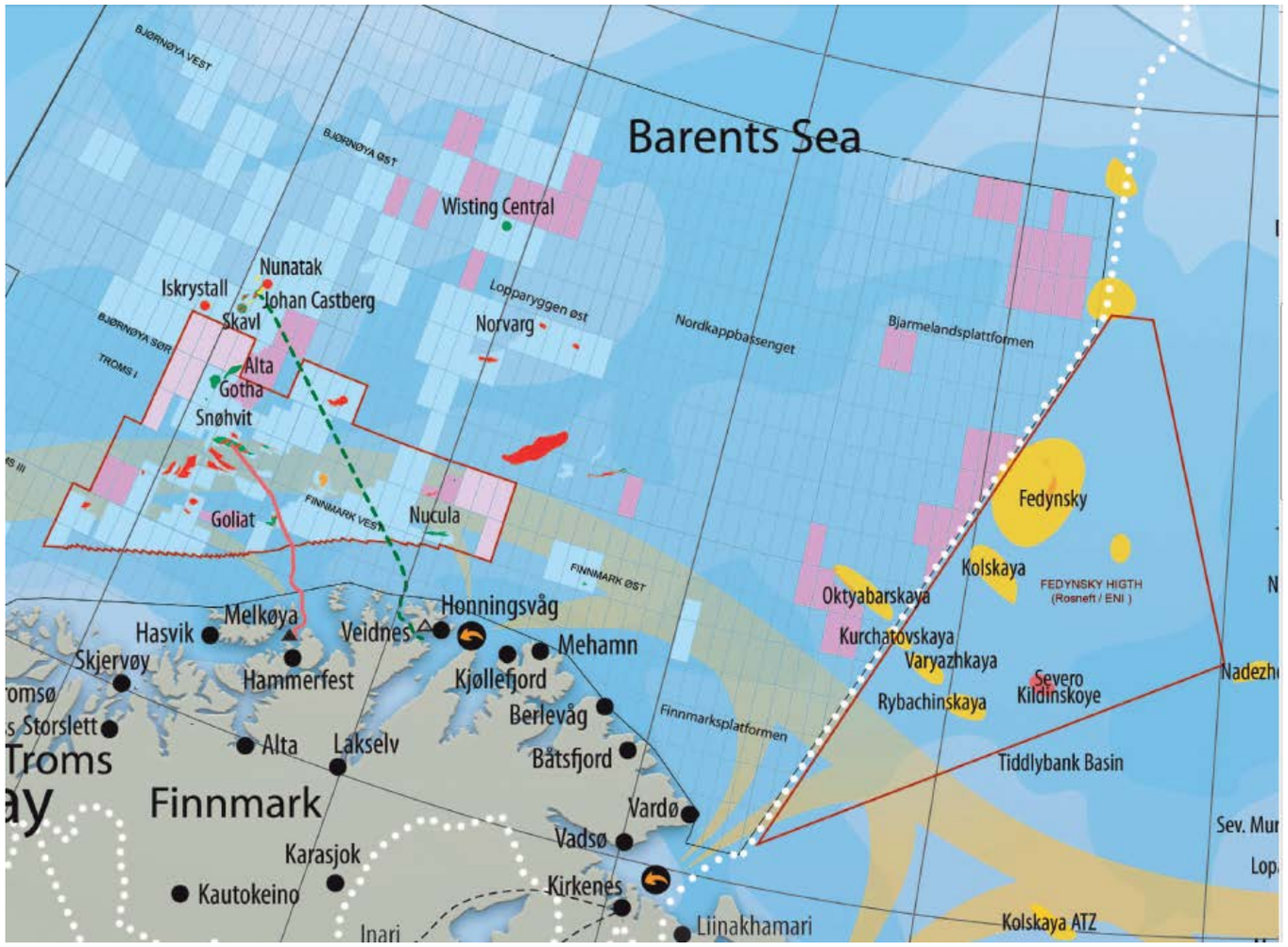
Petroleum activities in the Norwegian Barents Sea

Goliat

- First oil field in the Barents Sea – ENI as operator
- Production with offshore loading started in March 2016
- One of the largest industrial projects undertaken in Northern Norway
- Developed on the basis of comprehensive impact assessments
- Substantial related economic activities and ripple effects locally and regionally

Exploration in the Barents Sea

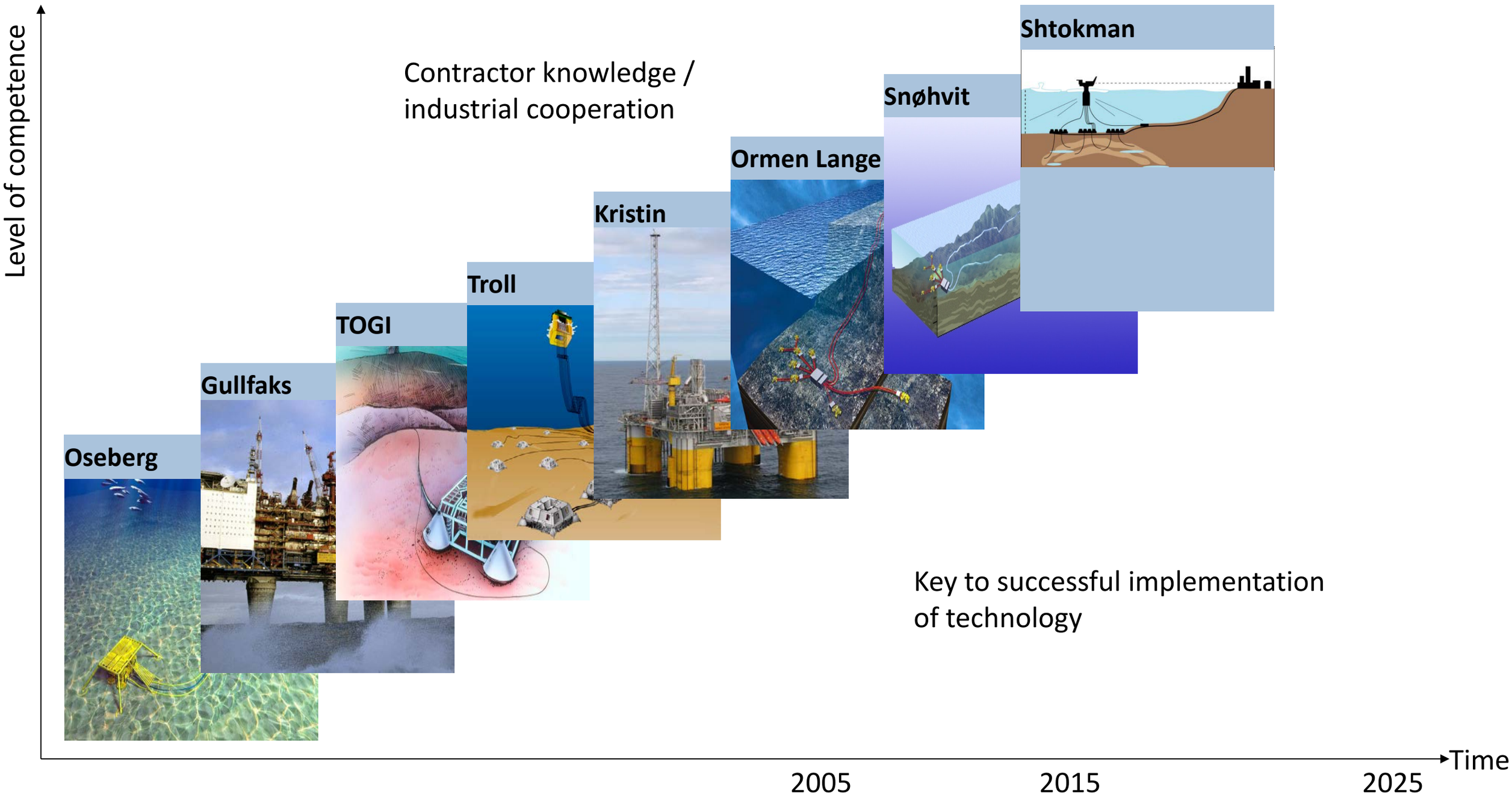
- 100 exploration wells drilled since 1980
- The majors are returning to the Barents Sea
- Need for a cost effective joint oil transportation system for Barents Sea oil – shuttle tankers and terminal
- Gas transportation challenges
  - Pipe line
  - LNG
- Licence awards in the 23rd round expected in June 2016



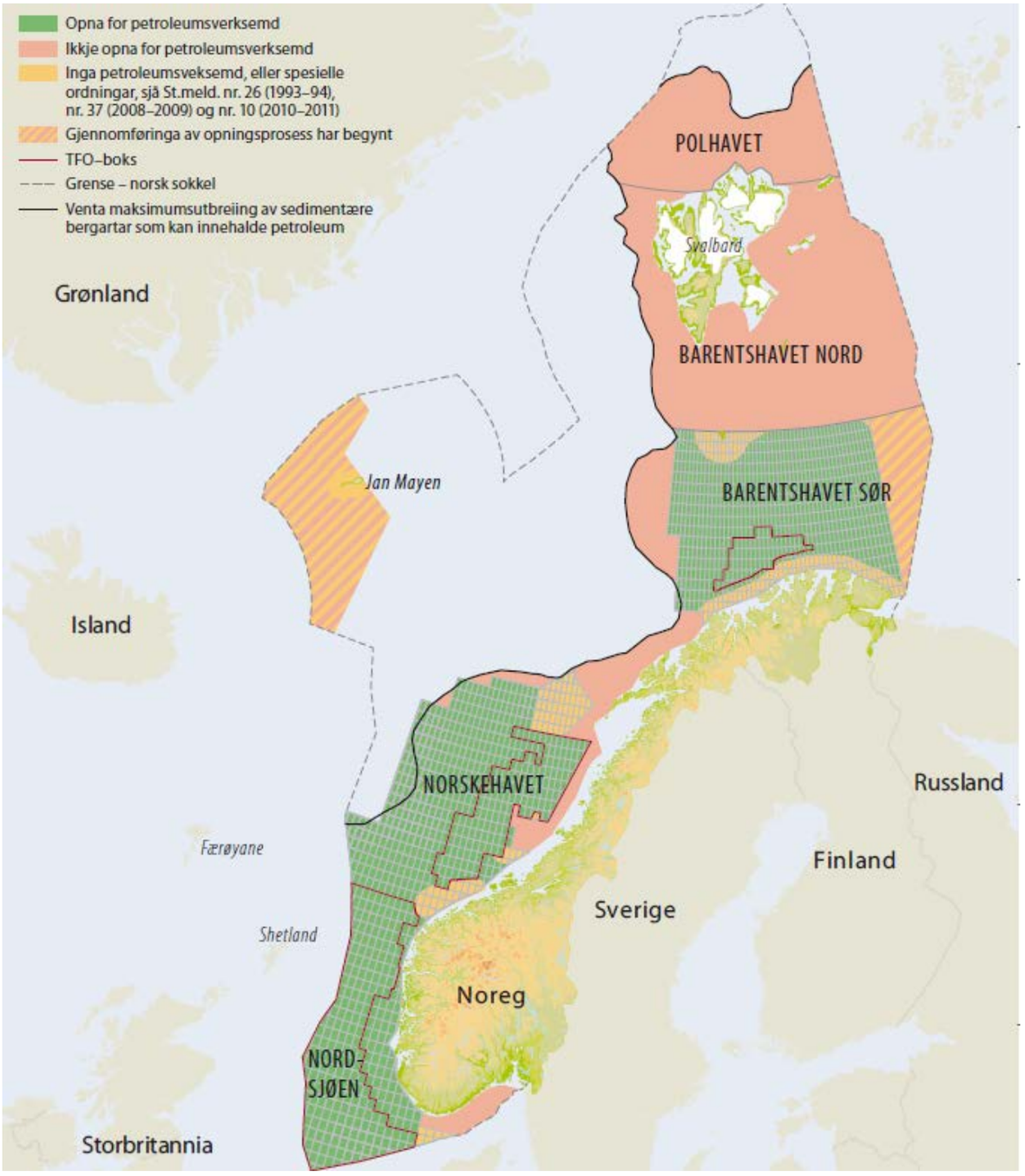
The Barents Sea – an emerging petroleum frontier

- The Delimitation Agreement between Norway and Russia in force July 7, 2011
- An area like the North Sea split 50/50
- Impact assessment carried out formally opening the Norwegian part of the Barents Sea East
- Norway applies its concession policy in the new area
- Russia has awarded its “new” acreage to stated owned Rosneft

The Norwegian technological development towards Arctic solutions – step by step

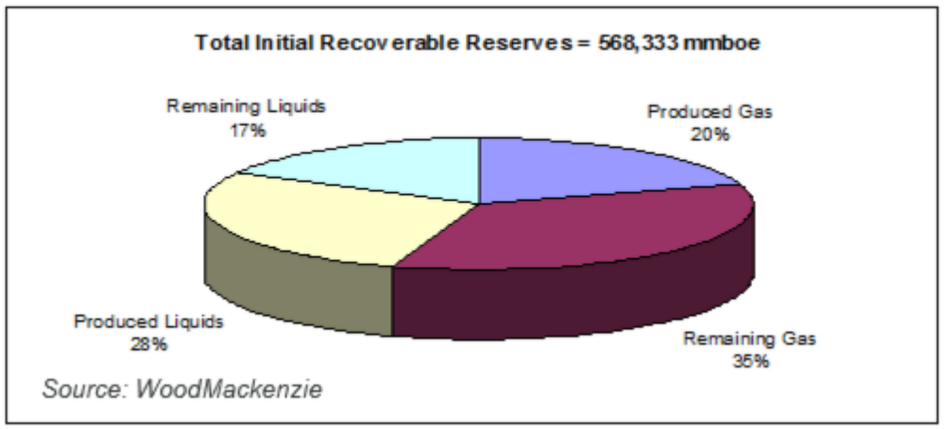


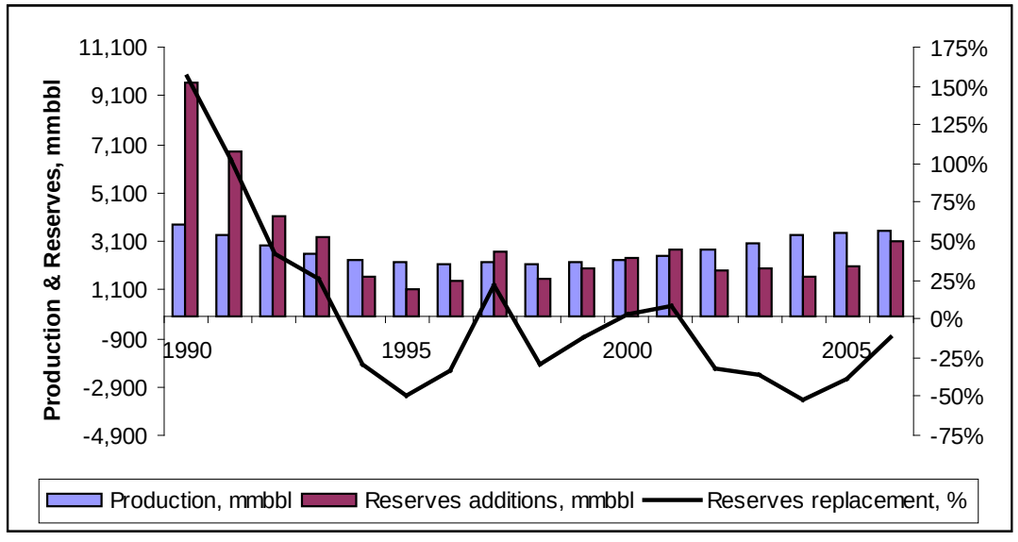
Further exploration development in the Norwegian Arctic



The Russian Perspectives – Russian reserves are substantial also in the Arctic

- Large in the world of oil
  - 80 bln bbl
  - 6.3% of the world total
- World champion in natural gas
  - 43.3 tcm proven gas reserves
  - 24% of the world total
- 50-65% of remaining reserves are “hard to develop and produce” – costly!
- Key areas for reserves additions are the Arctic Shelf, the Caspian, East Siberia and the Far East offshore
- Annual reserves replacement has only been achieved twice since 1994
- Little exploration made after the Soviet period



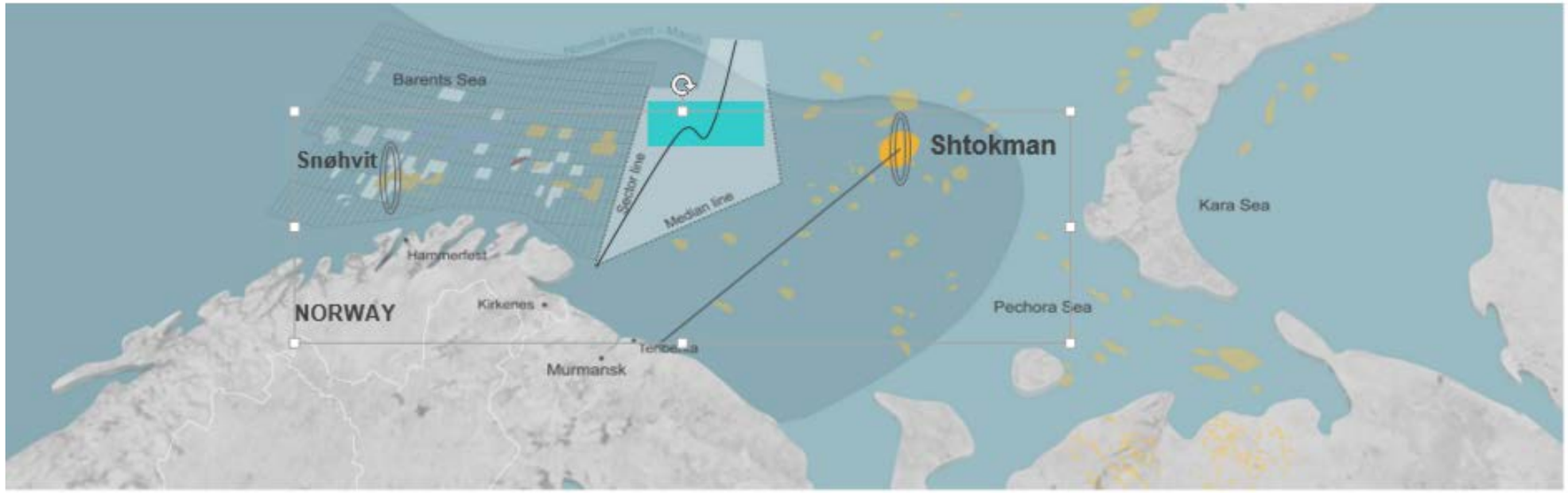


Source: BP Statistical Review

Business outlook

- Government is **an active player**, remains a regulator and controls ~ 65% of the petroleum sector
- All significant onshore and all offshore licenses are split between state controlled Gazprom and Rosneft
- International oil companies (IOCs) can only be **minority partners** to the two state owned champions
- IOC's participation is limited by minority shares (< 50%) in new projects bigger than 70 mln tons of oil and 50 bcm of gas, and in all **offshore projects**
- Need for improved fiscal/tax regime for difficult developments and offshore reserves, a predictable legal system and a competitive entry system
- Some **economic incentives** have been introduced for Yamal, but not for Shtokman

Shtokman – The Mother of all Projects



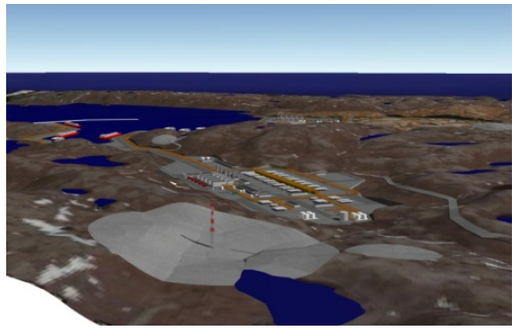
- Shtokman was discovered in 1988
- Location: 650 km northeast of Murmansk
- Gas reserves: ~3000 BCM recoverable
- Condensate Reserves: 43 mill. Sm^3
- Water depth: 340 meter

- Sea Ice every 4th year, Icebergs may occur
- Production start: Depends on F.I.D? 2020?
- Annual gas production: 23.7 BCM for Phase I, including 7.5 MTY LNG?
- Annual production Full field 71 – 90 BCM

A locomotive for new developments in the Arctic has not delivered

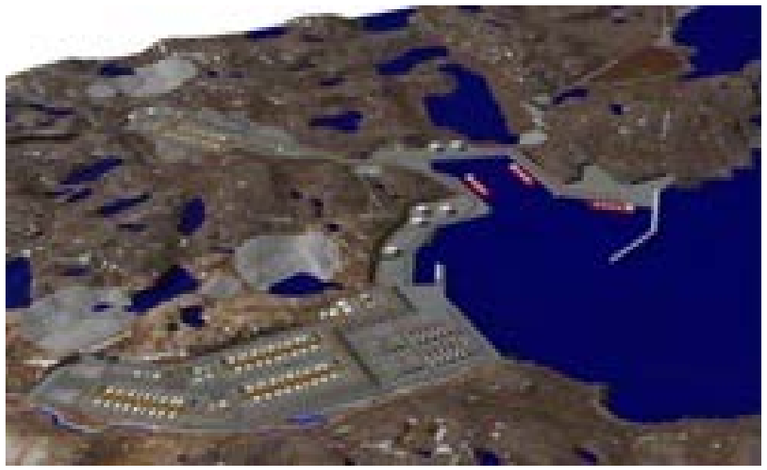
Shtokman challenges

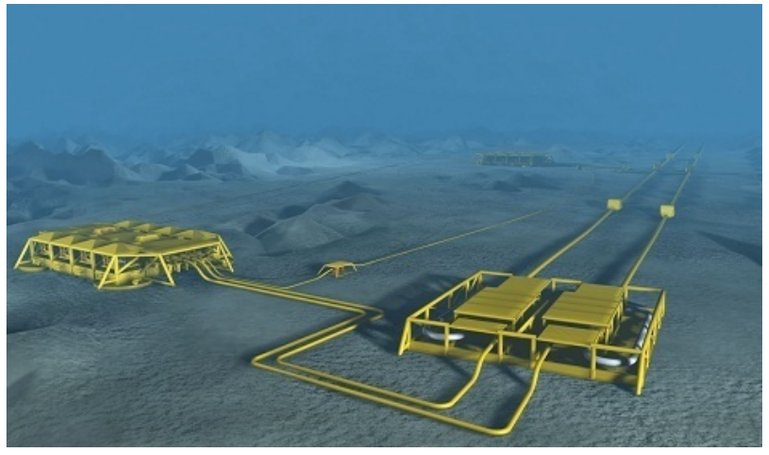
- Mega development in the Arctic
- Sensitive ecosystem
- HSE
- Ice conditions
- Arctic cost enormous with no infrastructure
- Market developments
- Time schedule
- Profitability
- No tax incentives given
- Statoil and Total exit from SDAG
- Project has been put on the shelf
- When will Shtokman come back?



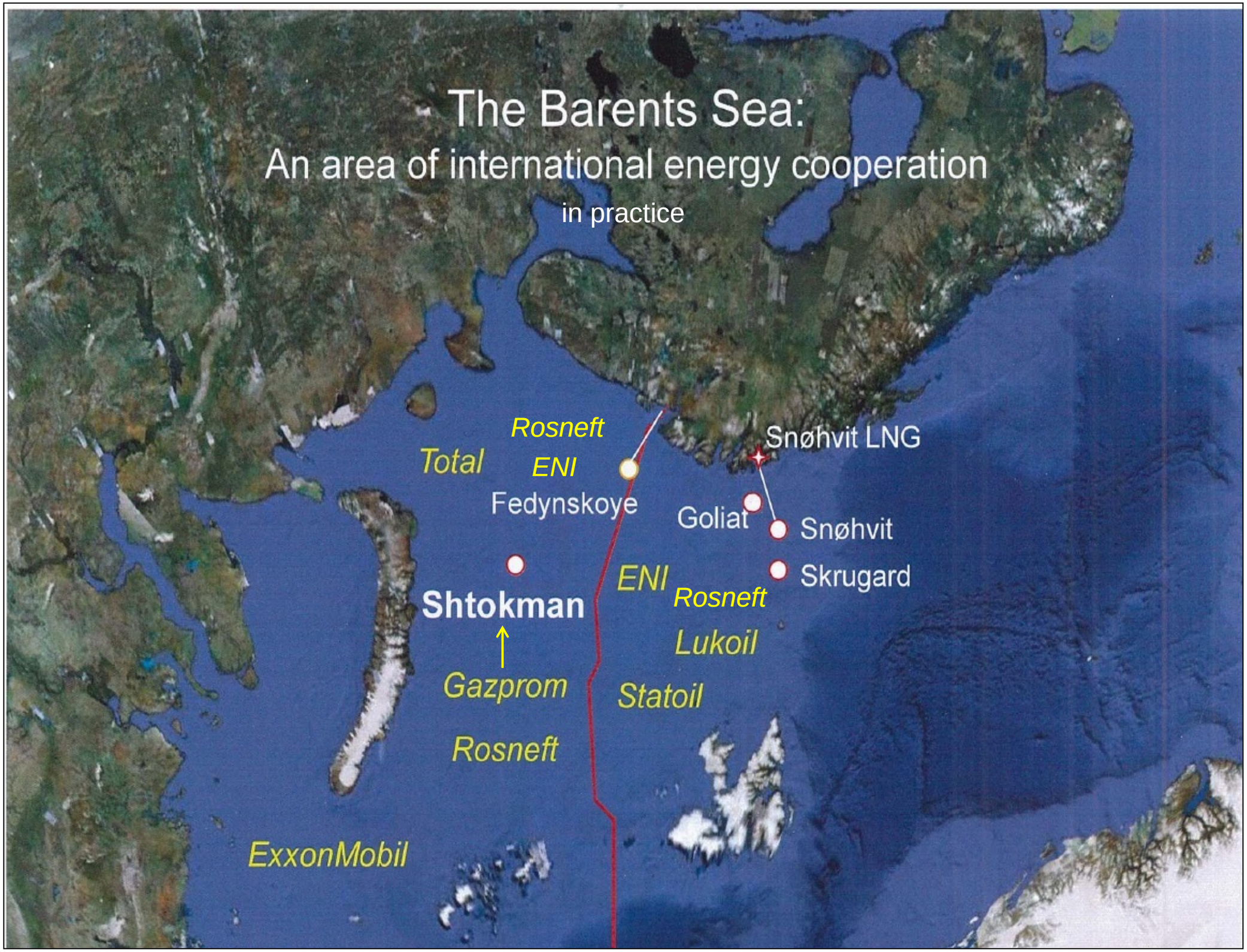
Shtokman phase 1 development plans

A combination of Snøhvit and Ormen Lange concept has been studied in detail (Feed) by Gazprom, Statoil and Total



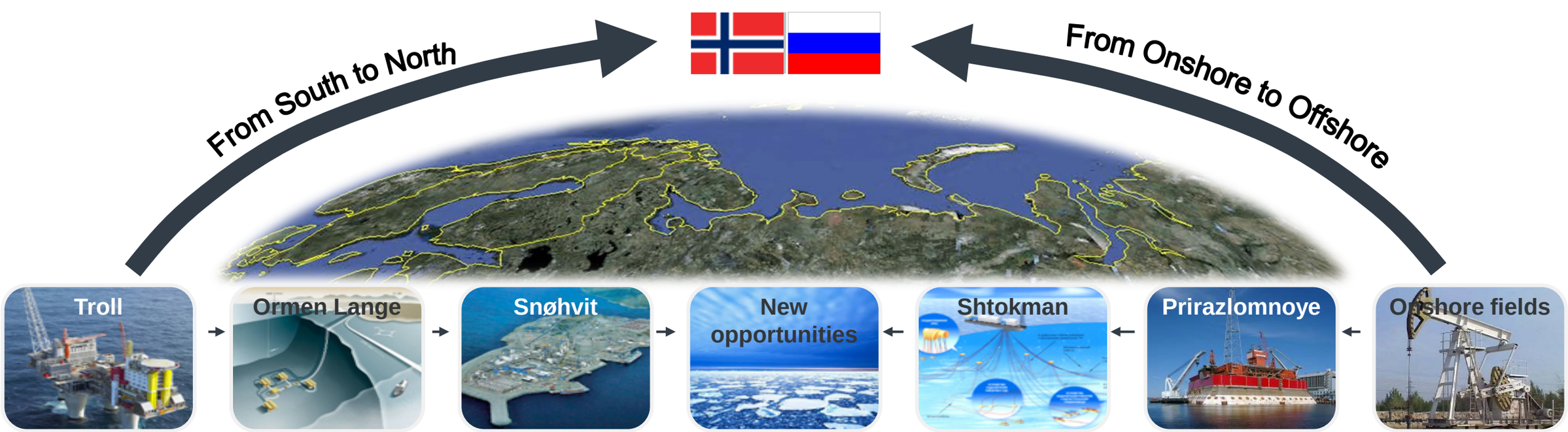


- Field development offshore
  - Pipeline to shore
  - Gas plant on land for processing and export compression
- Pipeline to Europe
- LNG to world markets (not US)
- The owners did not file a PDO as planned
- Shtokman became too expensive to be profitable with no tax incentives in 2012
- What now?
- Can the high costs be driven down by more use of sub-sea installation and efficient multiphase transport solutions?
- The gas market has changed fundamentally after the US shale gas revolution


The Barents Sea:
An area of international energy cooperation
in practice
Rosneft
Total
ENI
Fedynskoye
Snøhvit LNG
Goliat
Snøhvit
Skrugard
ENI
Rosneft
Shtokman
Lukoil
Gazprom
Statoil
Rosneft
ExxonMobil

Norwegian industrial participation in Russian oil and gas

- Oil and gas companies
- Supplier companies
- Research and development
- Supplier development programs
- The Norwegian model



What Norway can contribute with in Russian oil and gas

Cutting-edge offshore technology

Management of large integrated projects

Harsh environment & arctic experience

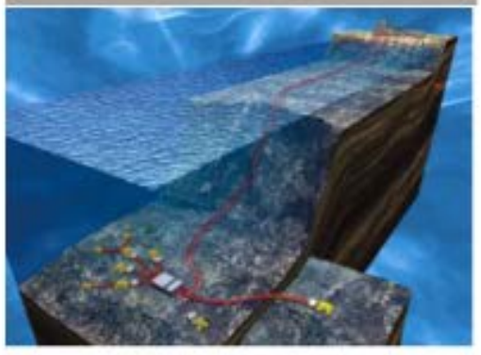
Gas value chain

Industry's most strict HSE standards

Proximity of well-developed Norwegian infrastructure

Competitive suppliers

Strong R&D institutions



18

Russia is another place
Russian business mentality and culture

- Long-term perspective is needed
- What is good for Russia is vital
- Control at any time
- Hierarchy – “the boss is boss”
- Combination of politics and business
- Russian content
- Russian decision making process is not transparent
- Corruption is a big problem
- “The winner takes it all” attitude
- The contract as a starting point for negotiations
- Relations more important than contracts
- The Russians have always good time and often with new negotiation teams towards the end of the process

How to succeed in Russian business

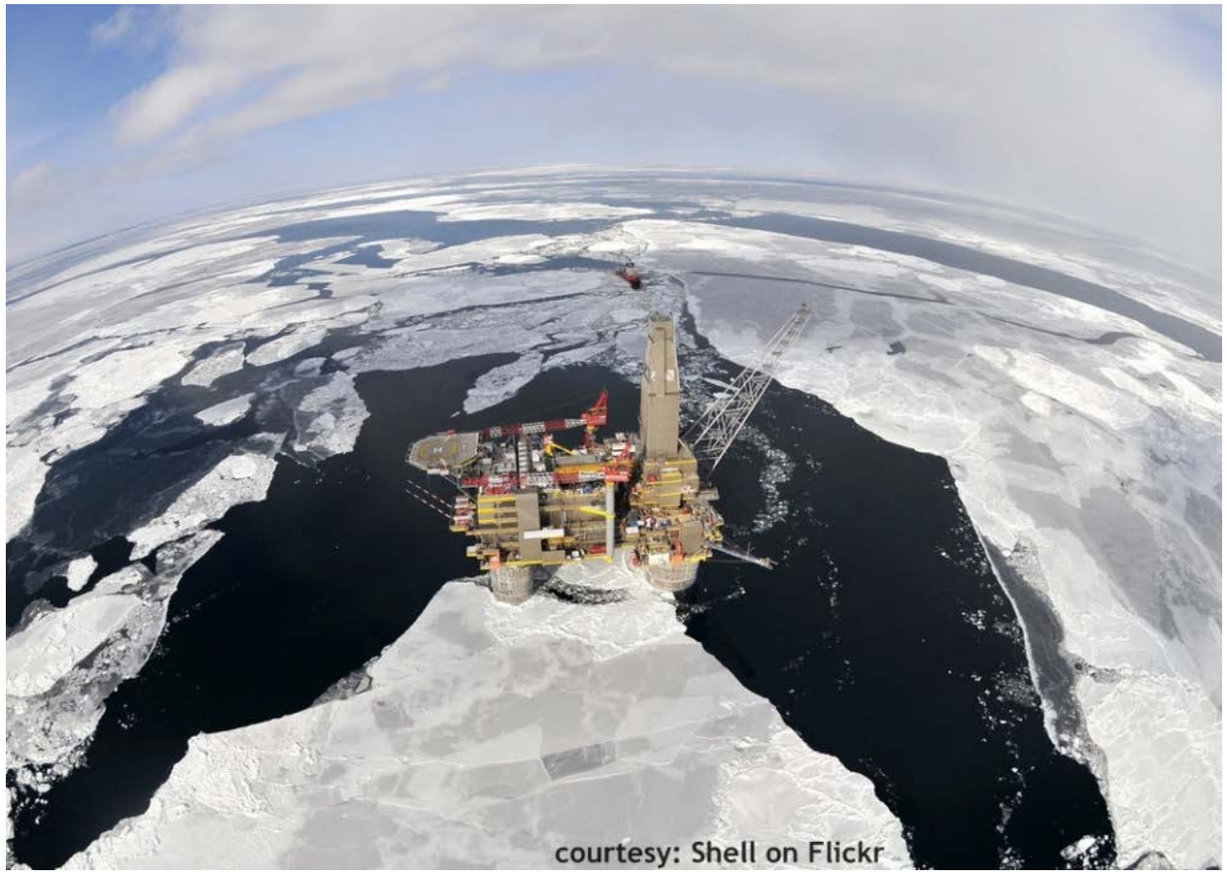
- You have to know much more than your own business
- Russian language
- Russian culture
- Russian history
- Establish friendly relations
- You have to be patient
- Avoid frustration when things take time, as they will
- For the patient, long-term business developer, there are opportunities in Russia

Russian culture and attitude

- Very different from ours
- Long and demanding history between the East and the West
- Want to control
- Centrally governed country – 11 time zones
- Afraid of Smuta – the troubled years
- Do not believe in government as a supporter of welfare
- Family and friends as the basis for security, not the state

Summing up: What are the prerequisites for success in the Arctic?

- Leading international companies have the technology, competence and management tools needed to develop the Arctic offshore
- The framework conditions (legal, regulatory, tax) must be predictable to secure heavy investments over a long time.
- But you also need to develop relations and understand politics and culture to succeed in doing business in Russia
- Russia is fascinating, but very demanding
- The Arctic is a fascinating adventure for our business
- The Arctic is also fascinating for the individuals being privileged to work in such an environment



Passion for the Arctic has been a life journey

Spitzbergen

Greenland

Murmansk

Siberia

Jotunheimen

Summary

The Arctic contains large oil and gas resources and opportunities

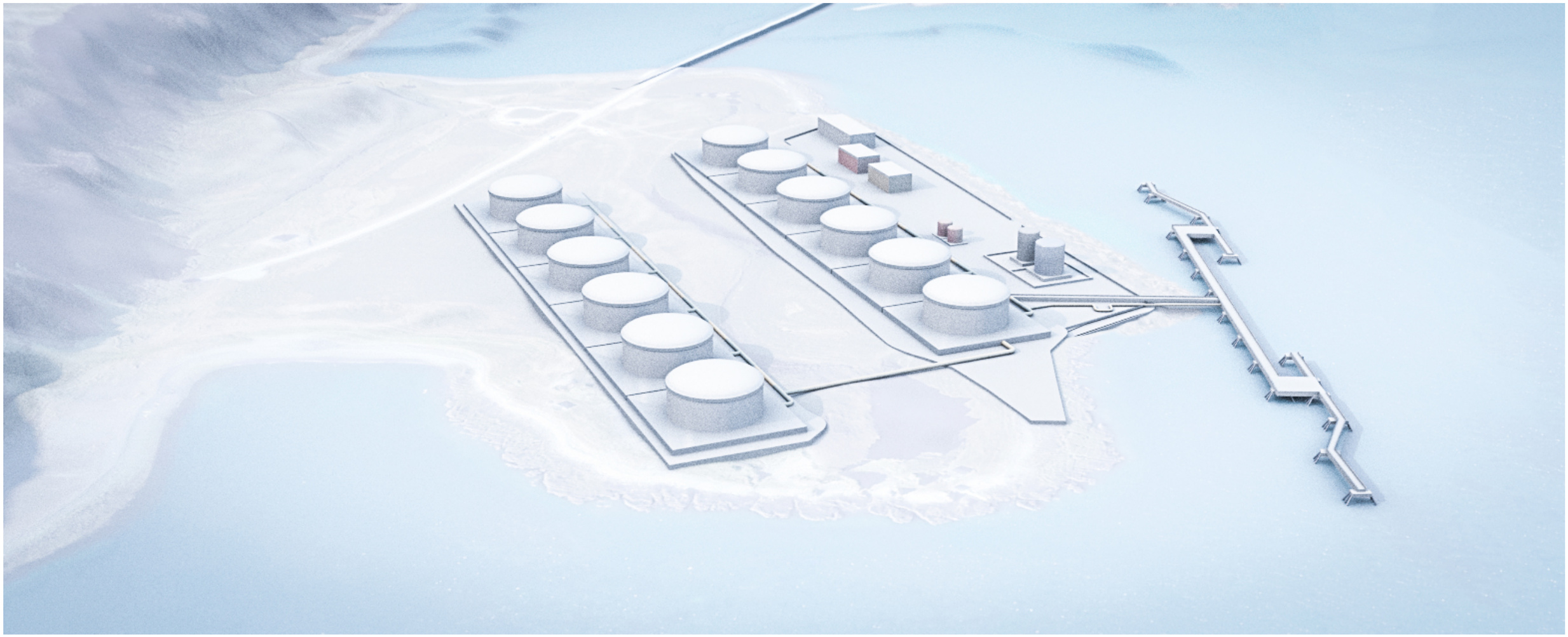
Russia

- Has a large potential, but needs to invest more in oil and gas offshore
- Cost level is a big challenge in the Russian Arctic, especially for gas projects
- Foreign companies needed to develop the Russian offshore
- Tax incentives and a predictable legal framework area necessary

Norway

- Has a predictable oil and gas regime functioning well
- Promising oil and gas discoveries made in the Norwegian Barents Sea in the last years
- Strong competition in the 23rd round – high interest being demonstrated by the majors
- Norway's oil and gas industry is leading in subsea developments and multiphase transport in harsh environment – the key to the Arctic
- Optimism today regarding the oil activity in Northern Norway and its ripple effect for the region
- The Government requests the companies to cooperate in making the oil and gas resources viable

How can we cooperate in practise?



JOINT OIL TRANSPORT SOLUTION IN THE BARENTS SEA:

ARCTIC TERMINAL & TRANSPORTATION (ATT)