

Norwegian Petroleum Activities and Resource Development in a world with lower costs

Moscow 23.03.2017

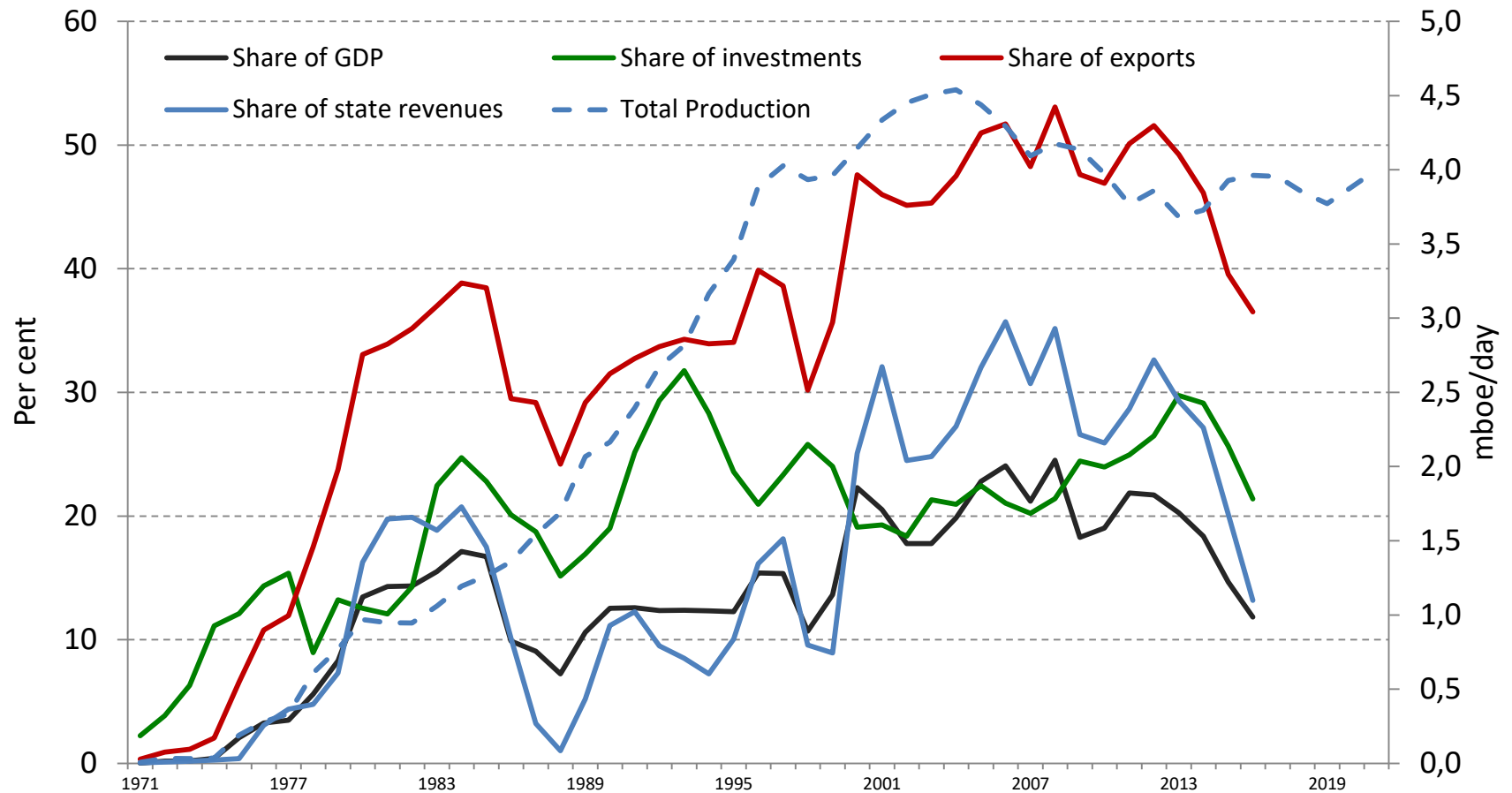
Morten E Lindbæck



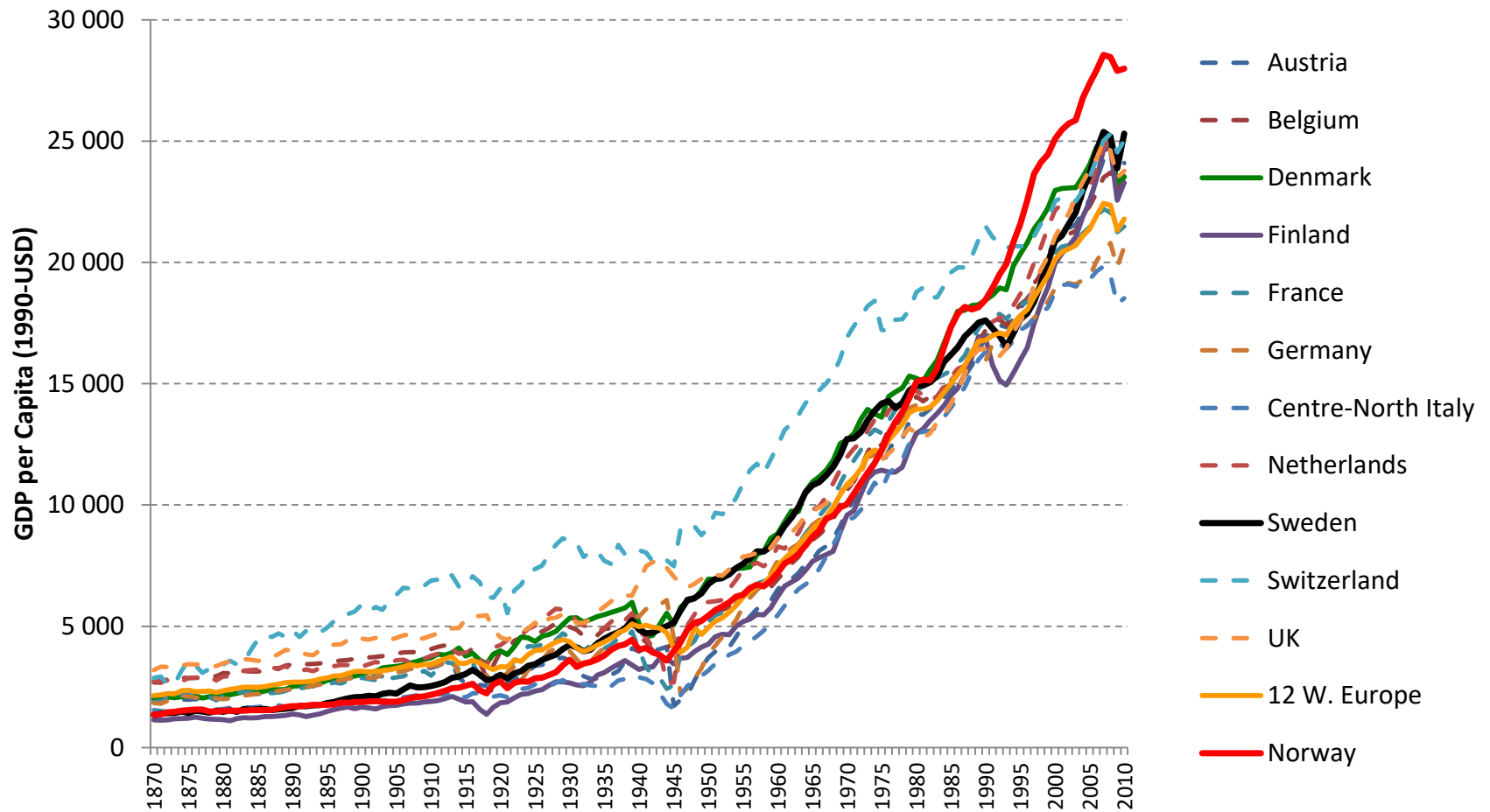
Lindbæck Energy

morten@lindbaeck.no

The Petroleum Sector and the Norwegian Economy

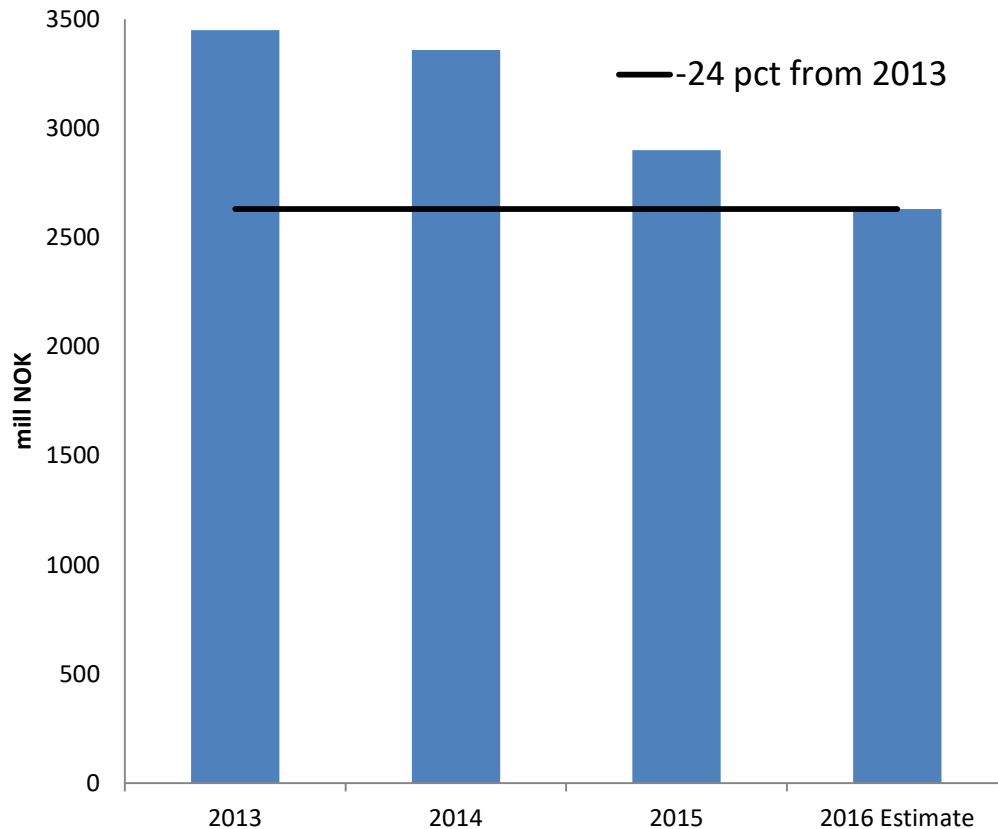


150 years of Economic Growth



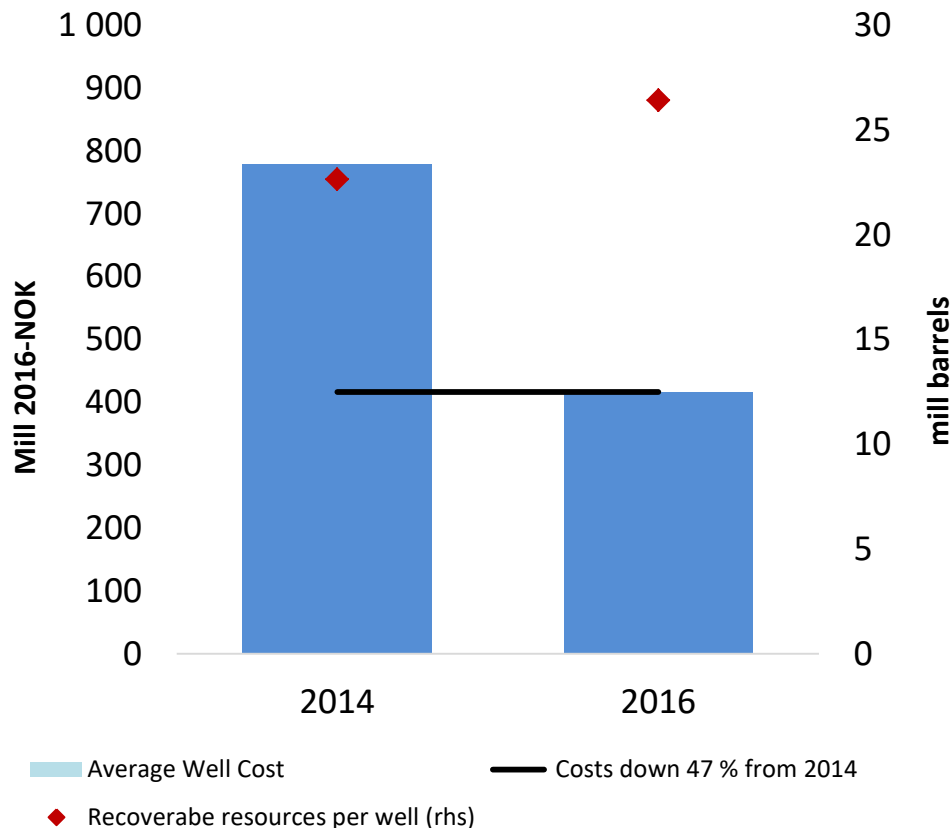
Source: The Maddison-Project, <http://www.ggdnc.net/maddison/maddison-project/home.htm>, 2013 version

Operating Expenditures in 5 large existing fields



- Operating Expenditure (OpEx) reduced by 24 %
 - Costs in USD are reduced by 47 %
- 20 % of Operating Expenditures are imported

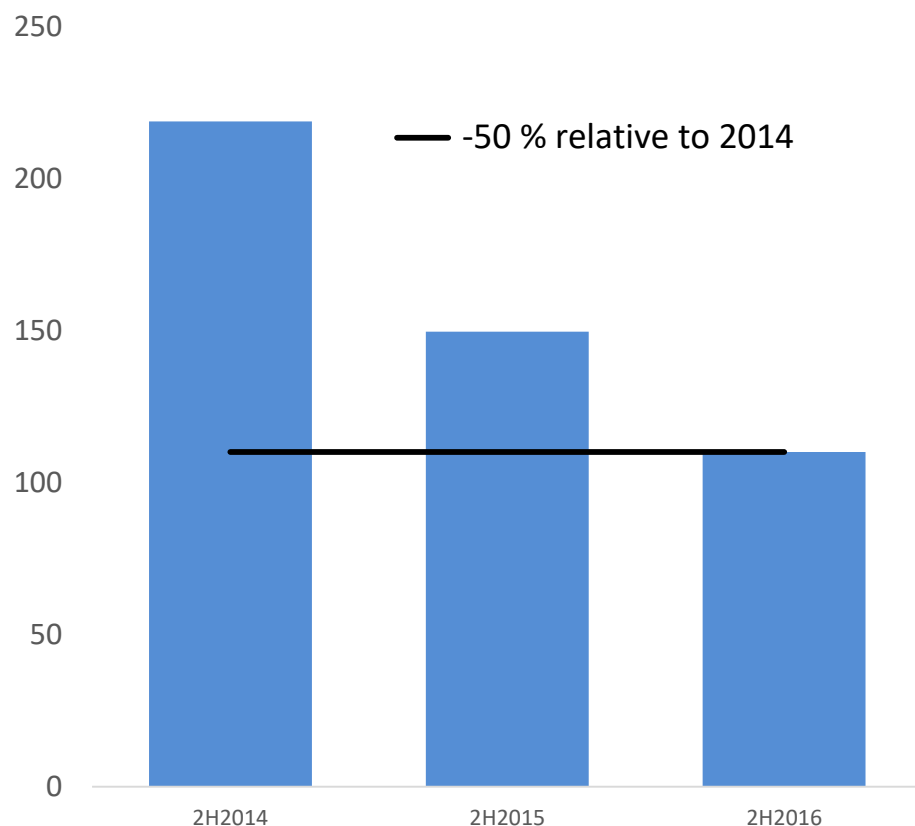
Well Cost reduced in 7 new projects



- Reporting about 15 % fewer wells in 2H16
- Estimated 17 % more resources per well
- Cost reduced by 54 %
 - Costs in USD are reduced by 60 %
- More than 50 % of Well Costs are imported

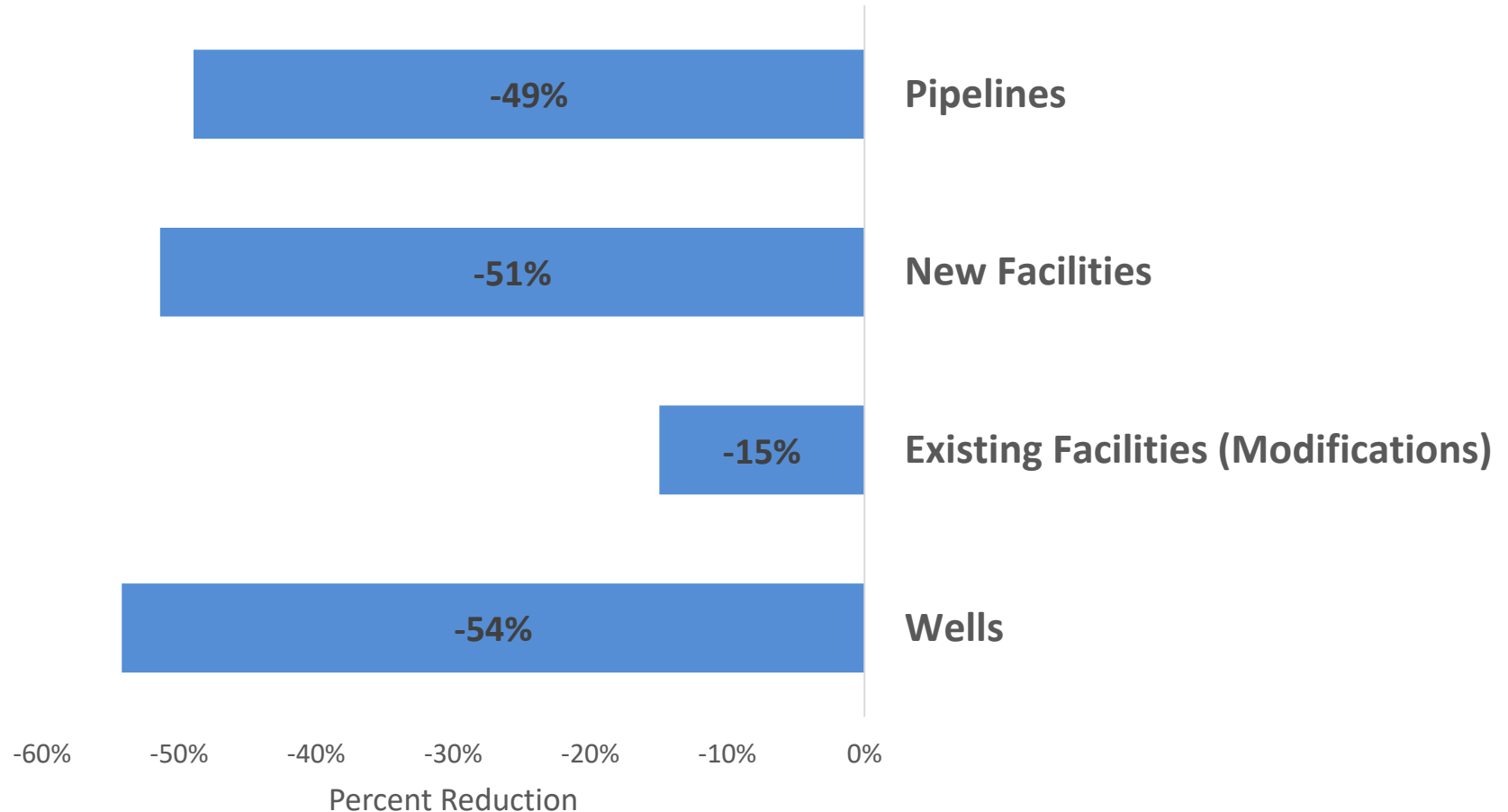
Source: Norwegian Petroleum Directorate, Lindbæck Energy

Capital Expenditures in 7 New Projects

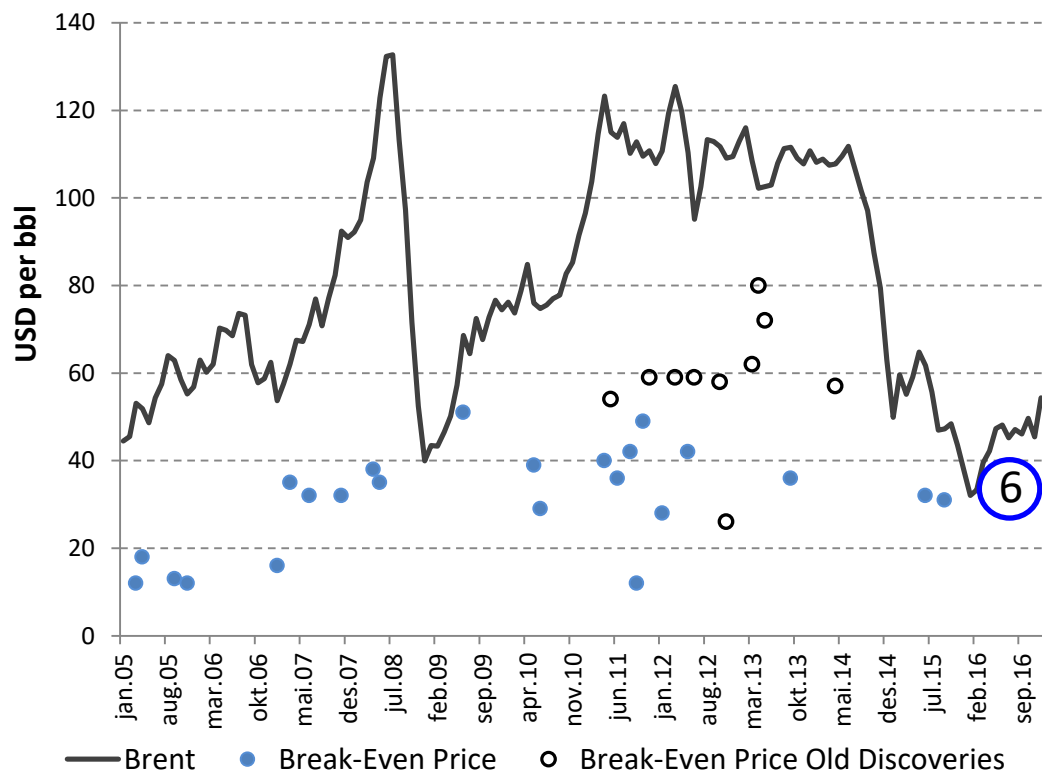


- Projects with the same development concept in 2H16 as in 2H14
- Total CapEx reduced by 50%
 - CapEx in USD reduced by 60 %
- 35-40 % of CapEx are imported

CapEx Categories in 7 New Projects



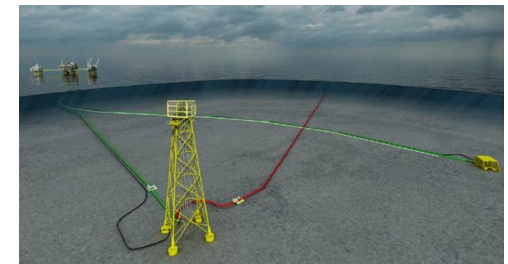
Profitable with today's oil prices



- Old projects discovered in the 1970'ies and 1980'ies required high oil prices
- Other developments after 2005 were profitable with Oil Prices below USD 50 per barrel

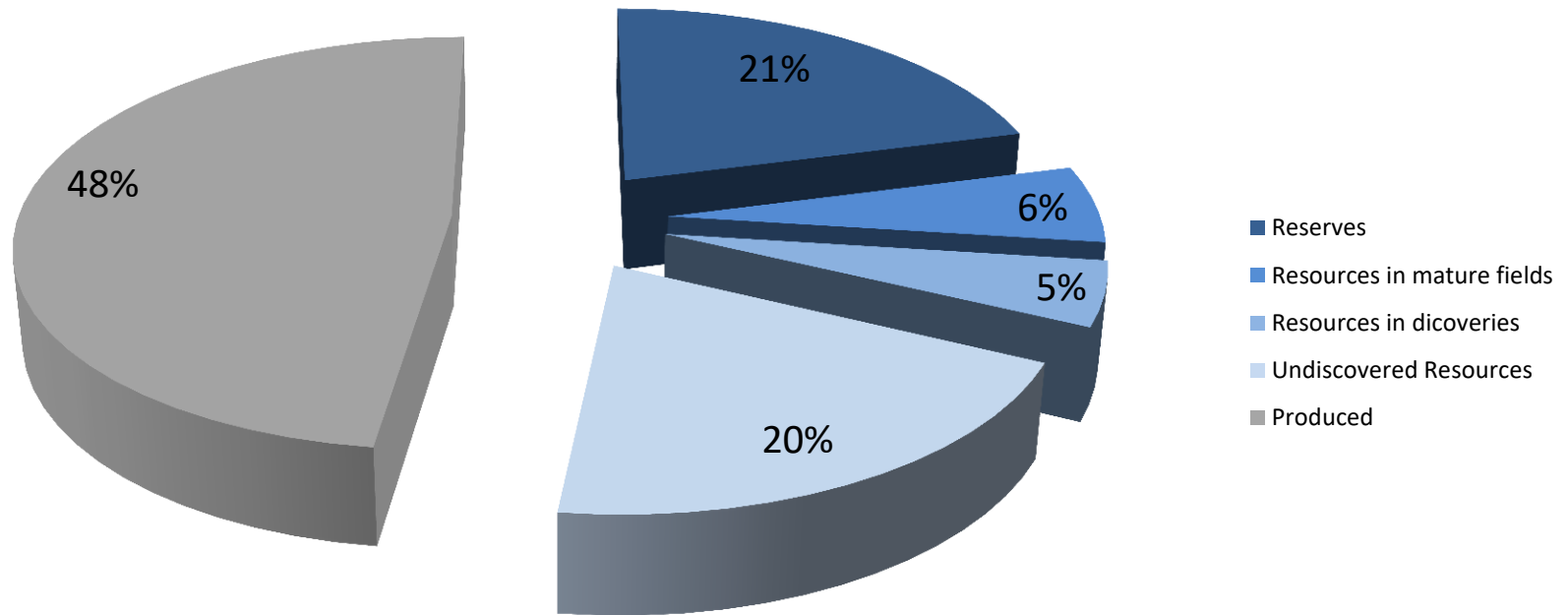
With New Technologies...

- **Subsea Oilfield**
 - Remotely operated vehicles
 - Subsea hardware
- **Operations from on-shore**
 - Multi-phase flow
 - Digital oilfield technology
 - Fiber optic cables
 - Remote control from shore (Snøhvit, Valhall, Valemon and partly Skarv field)
- **Ideas from other sectors and across diciplines**
 - Virtual and Augmented Reality



Source: Oceaneering, Statoil, Aker Solutions, Microsoft

...more to be done



Supplement

Consequences for oil related sectors

Expenditures for oil and gas companies
=
revenues for oil service companies

- Lower absolute project costs:
 - Reduced demand for services
- Lower cost by increased efficiency:
 - Not necessarily reduced demand for services
 - Changes in type of services demanded

Oil Prices – Lower for longer?

