



IR seminar, 6 December 2016, Oslo



# Turnarounds on Statoil-operated assets offshore Norway

Tom Anders Thorstensen, leader, turnaround plan  
IR seminar, 6 December 2016, Oslo

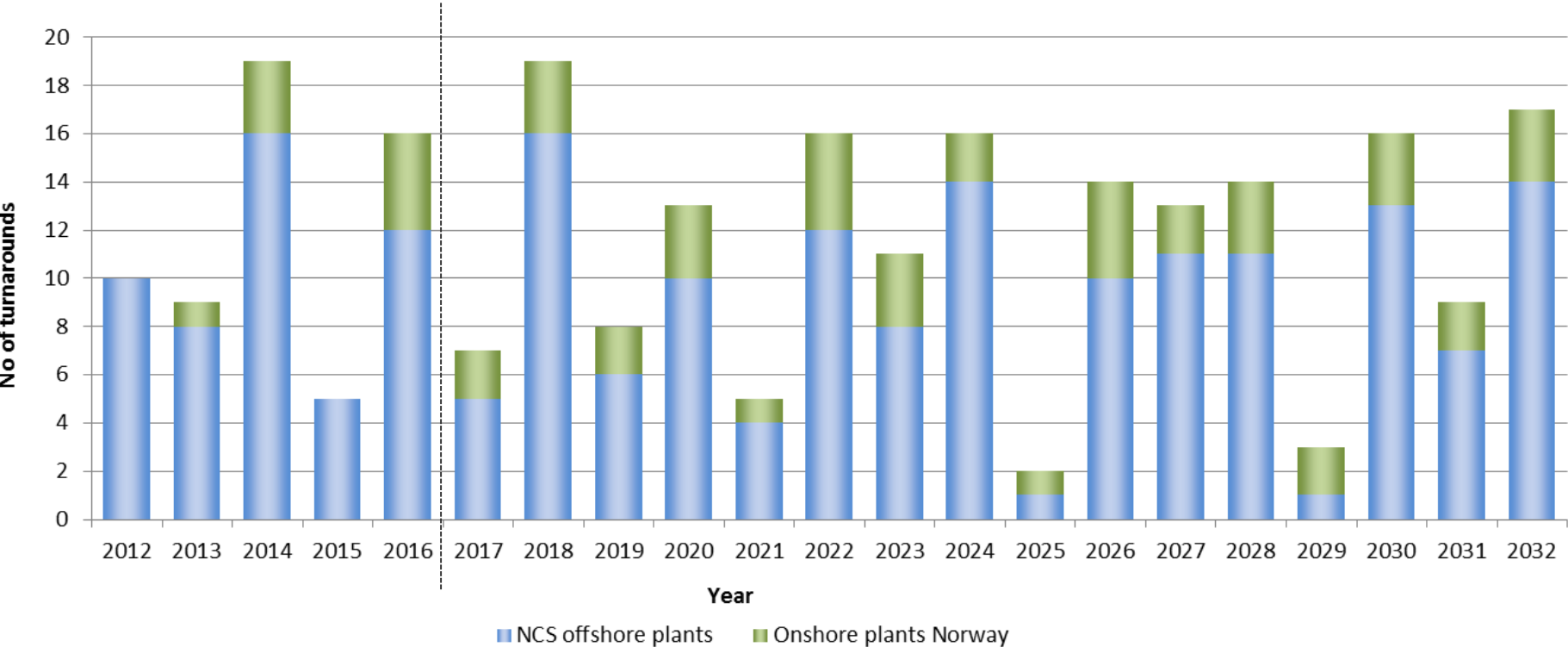
# Forward-looking statements

This report contains certain forward-looking statements that involve risks and uncertainties. In some cases, we use words such as "ambition", "continue", "could", "estimate", "expect", "focus", "likely", "may", "outlook", "plan", "strategy", "will", "guidance" and similar expressions to identify forward-looking statements. All statements other than statements of historical fact, including, among others, statements regarding plans and expectations with respect to market outlook and future economic projections and assumptions; Statoil's focus on capital discipline; expected annual organic production through 2017; projections and future impact related to efficiency programmes; capital expenditure and exploration guidance for 2016; production guidance; Statoil's value over volume strategy; Statoil's plans with regard to its acquisition of 66% operated interest in the BM-S-8 offshore license in the Santos basin; Statoil's expected report on helicopter safety on the Norwegian continental shelf; organic capital expenditure for 2016; Statoil's intention to mature its portfolio; exploration and development activities, plans and expectations, including estimates regarding exploration activity levels; projected unit of production cost; equity production; planned maintenance and the effects thereof; impact of PSA effects; risks related to Statoil's production guidance; accounting decisions and policy judgments and the impact thereof; expected dividend payments, the scrip dividend programme and the timing thereof; estimated provisions and liabilities; the projected impact or timing of administrative or governmental rules, standards, decisions, standards or laws, including with respect to the deviation notice issued by the Norwegian tax authorities and future impact of legal proceedings are forward-looking statements. You should not place undue reliance on these forward-looking statements. Our actual results could differ materially from those anticipated in the forward-looking statements for many reasons. These forward-looking statements reflect current views about future events and are, by their nature, subject to significant risks and uncertainties because they relate to events and depend on circumstances that will occur in the future. There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied by these forward-looking statements, including levels of industry product supply, demand and pricing; price and availability of alternative fuels; currency exchange rate and interest rate fluctuations; the political and economic policies of Norway and other oil-producing countries; EU developments; general economic conditions; political and social stability and economic growth in relevant areas of the world; global political events and actions, including war, political hostilities and terrorism; economic sanctions, security breaches; changes or uncertainty in or non-compliance with laws and governmental regulations; the timing of bringing new fields on stream; an inability to exploit growth or investment opportunities; material differences from reserves estimates; unsuccessful drilling; an inability to find and develop reserves; ineffectiveness of crisis management systems;

adverse changes in tax regimes; the development and use of new technology; geological or technical difficulties; operational problems; operator error; inadequate insurance coverage; the lack of necessary transportation infrastructure when a field is in a remote location and other transportation problems; the actions of competitors; the actions of field partners; the actions of governments (including the Norwegian state as majority shareholder); counterparty defaults; natural disasters and adverse weather conditions, climate change, and other changes to business conditions; an inability to attract and retain personnel; relevant governmental approvals; industrial actions by workers and other factors discussed elsewhere in this report. Additional information, including information on factors that may affect Statoil's business, is contained in Statoil's Annual Report on Form 20-F for the year ended December 31, 2015, filed with the U.S. Securities and Exchange Commission, which can be found on Statoil's website at [www.statoil.com](http://www.statoil.com). Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot assure you that our future results, level of activity, performance or achievements will meet these expectations. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. Unless we are required by law to update these statements, we will not necessarily update any of these statements after the date of this report, either to make them conform to actual results or changes in our expectations.

# Planned number of turnarounds

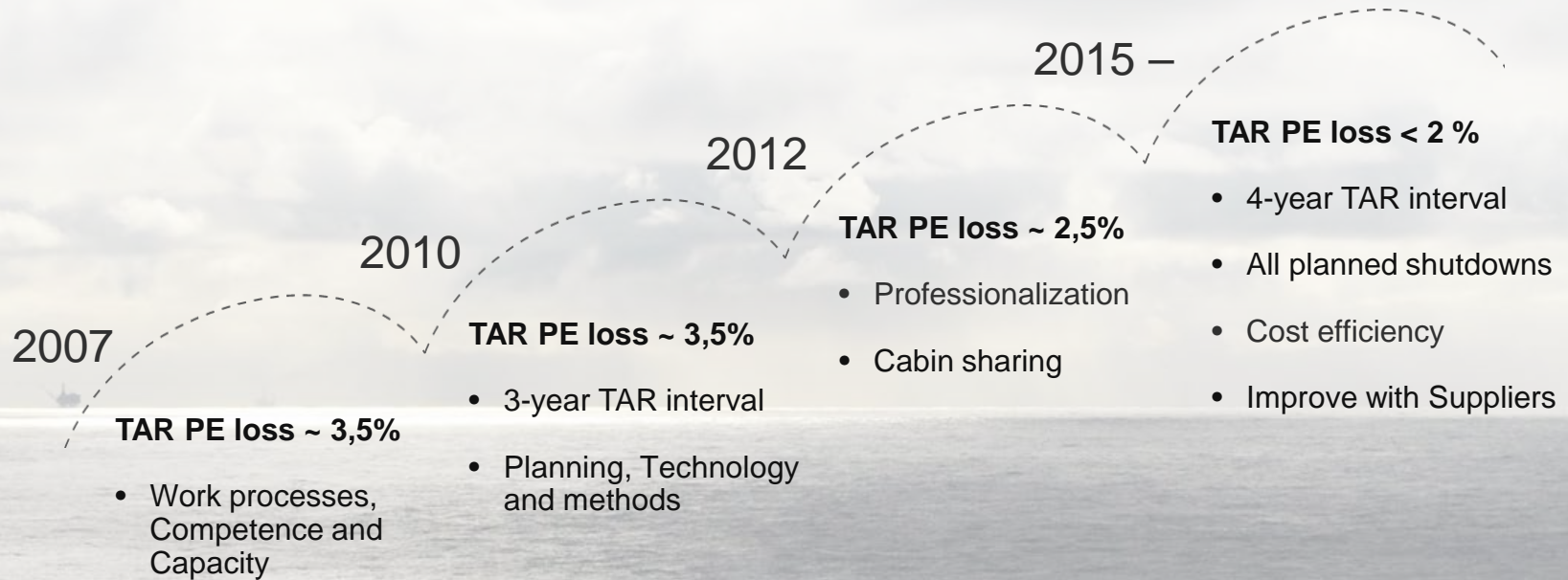
## Long term turnaround plans





# DPN turnaround management

Improved turnaround strategy, planning & execution



Safe operations are our first priority

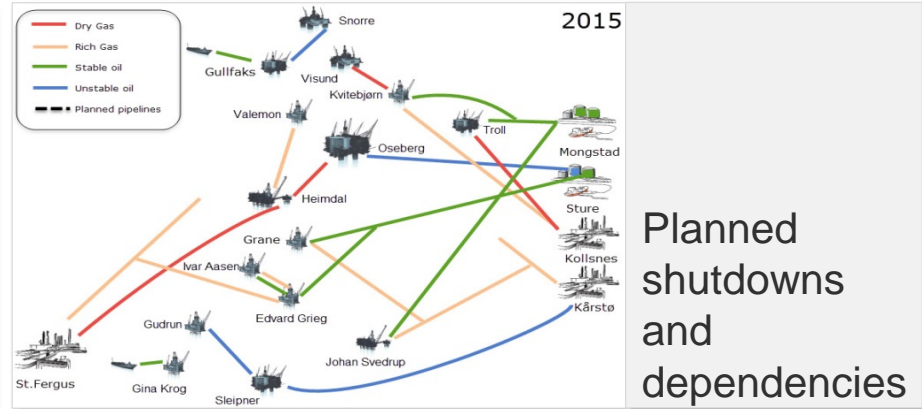
TAR: Turnaround  
PE: Production efficiency

# Main Activities

Improved turnaround strategy, planning & execution



Long term turnaround strategy (3→4y)



Planned shutdowns and dependencies



Increased efficiency

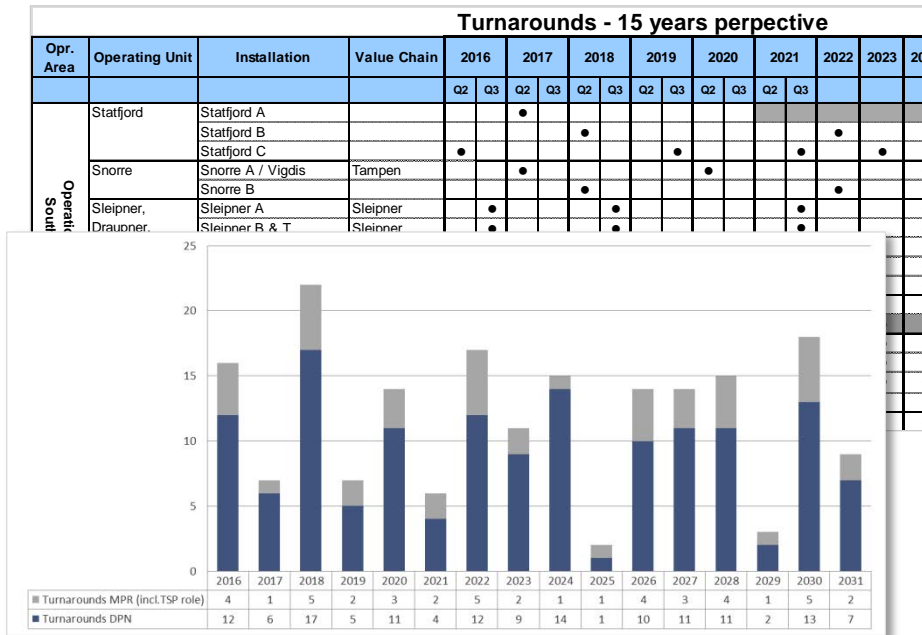


Technology development

# Long term turnaround strategy (3→4y)

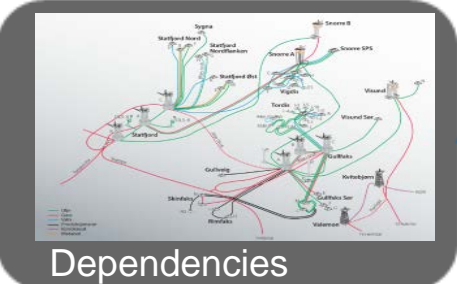
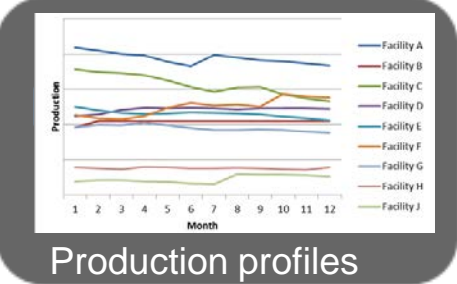
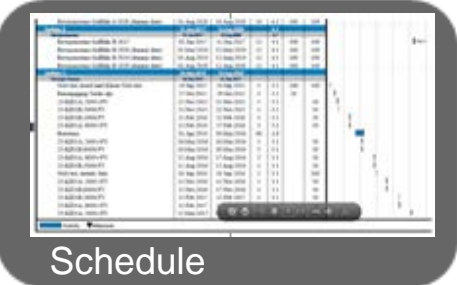
Improved turnaround strategy, planning & execution

- Goal
  - Reduced cost
  - Higher production efficiency
- How
  - Risk based approach
  - Focus on the oil and gas chain
  - Individual adaption
- Risk
  - Large variation in number of TAR
  - Unplanned losses



# Portfolio management of scheduled shutdowns

Improved turnaround strategy, planning & execution



Production loss calculation

Optimization

New Schedule

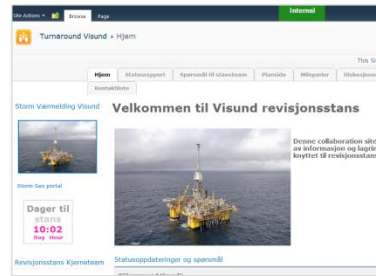
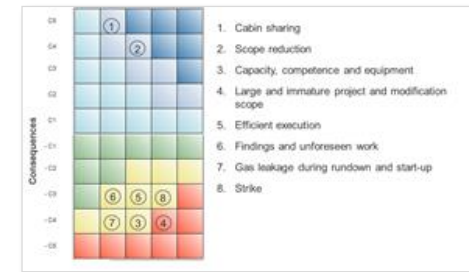
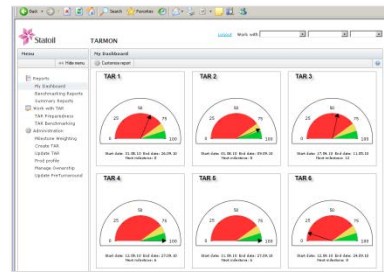
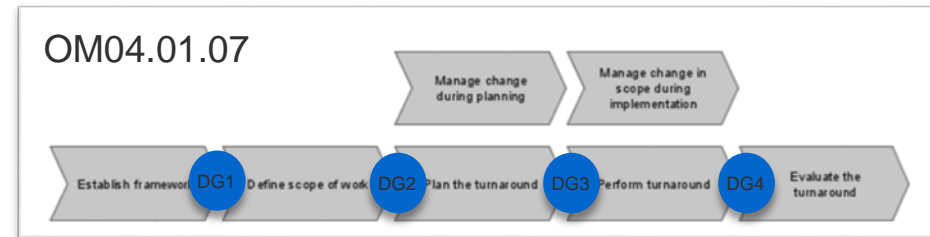
- NPV loss (oil/gas/both)
- Volumes (oil/gas)
- Cashflow (oil/gas/both)



# Increased efficiency / Turnaround management

Improved turnaround strategy, planning & execution

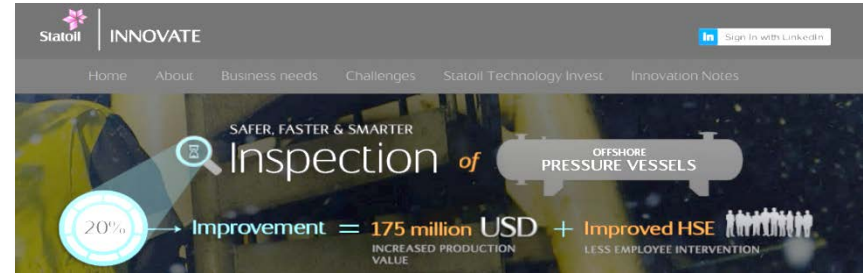
- Planning
- Front end loading
- Risk management
- Work scope challenge
- Common toolbox
- Experience transfer
- Standardisation
- Competence development



# Technology use and development

Improved turnaround strategy, planning & execution

- Smarter, faster and safer inspection of pressure vessels (Non intrusive inspection)
- Chemical and mechanical cleaning
- Hot Bolting
- Piping repair and cold installations methods
- Welding habitat
- Flare inspection by drones
- Turnaround Monitoring and Benchmarking system (TARMON)



# Faster, safer and smarter inspection of pressure vessels

Improved turnaround strategy, planning & execution

“A mindset in change

- Goal; no pressure vessels entered due to inspections needs
- Clarification of needs for entering of pressure vessels – integrity or operational issues
- Rapid development of inspection methods



Open and have a look



You need to know what to look for





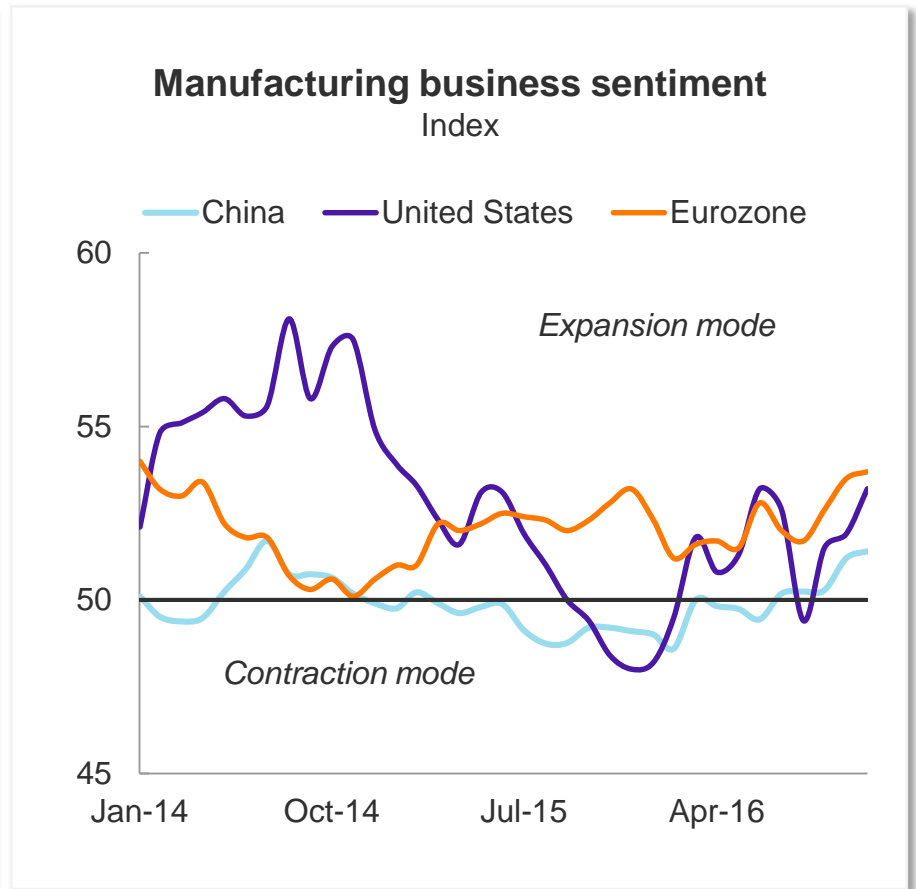
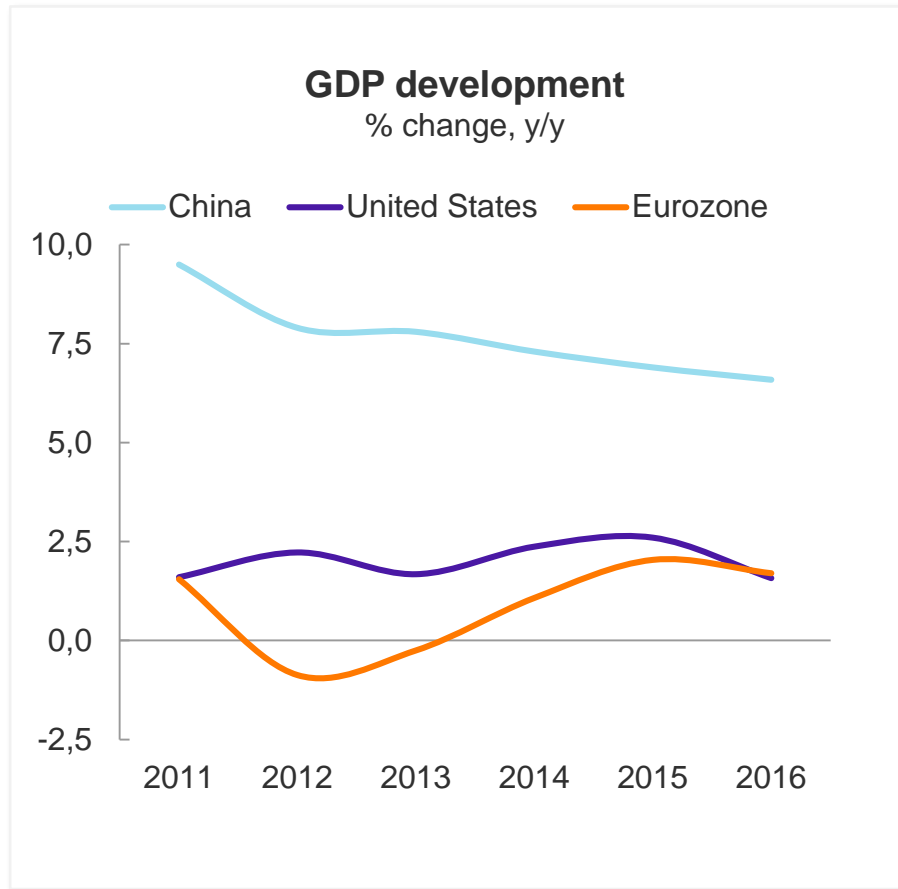


Global macro and energy markets

Eirik Wærness, senior vice president and chief economist  
IR seminar, 6 December 2016, Oslo

# Moderate global economic expansion

Business sentiment turns for the better

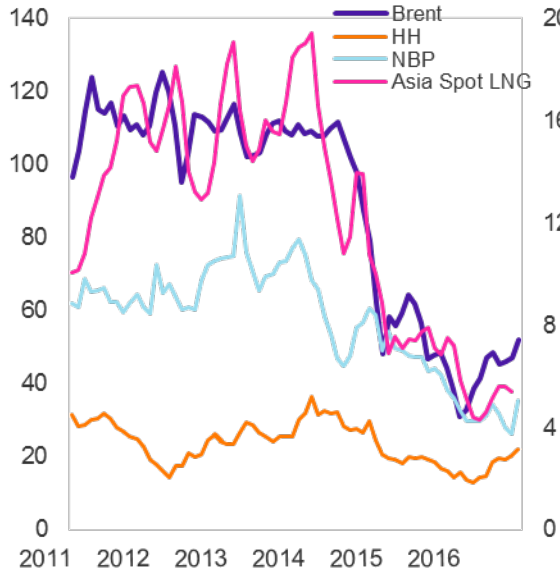


Source: IMF, Thomson Reuters Datastream, Markit

# Industry responding to market forces

## Global oil and gas prices

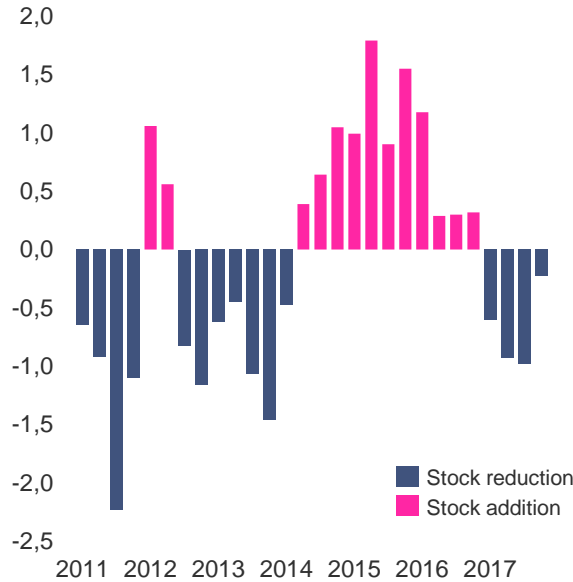
USD/bbl, USD/MMBtu



Source: Platts, ICIS

## Rebalancing of markets

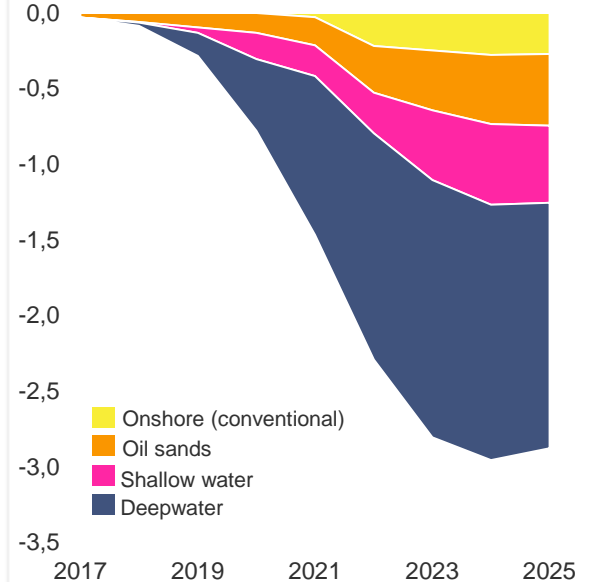
Million barrels per day



Source: IEA, Statoil (projections)

## Production postponed

Pre-FID, million barrels per day

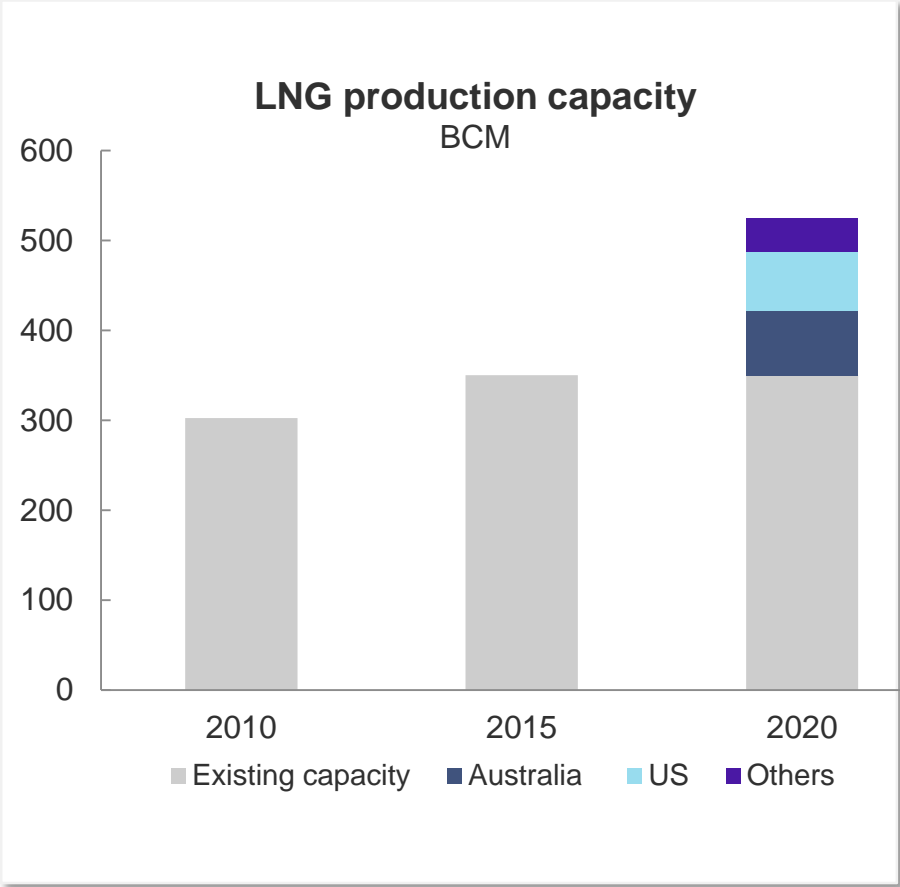
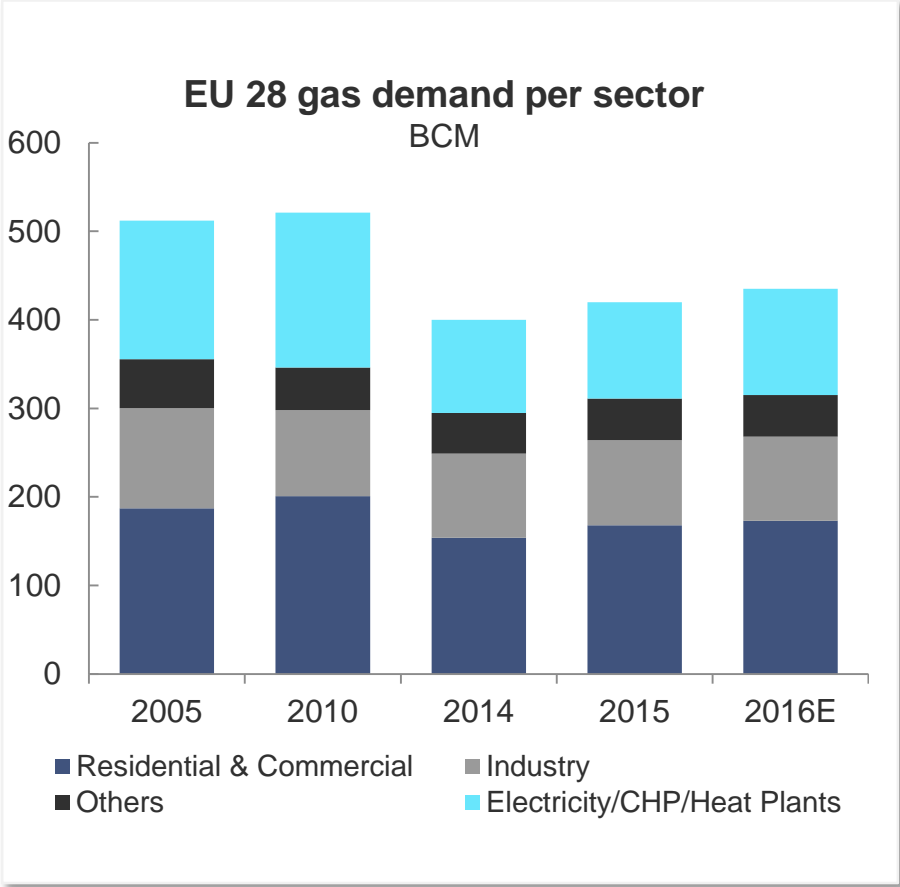


Source: Wood Mackenzie's Upstream Data Tool



# EU28 gas consumption has bottomed out

Gas imports increasing – growing global liquefaction capacity



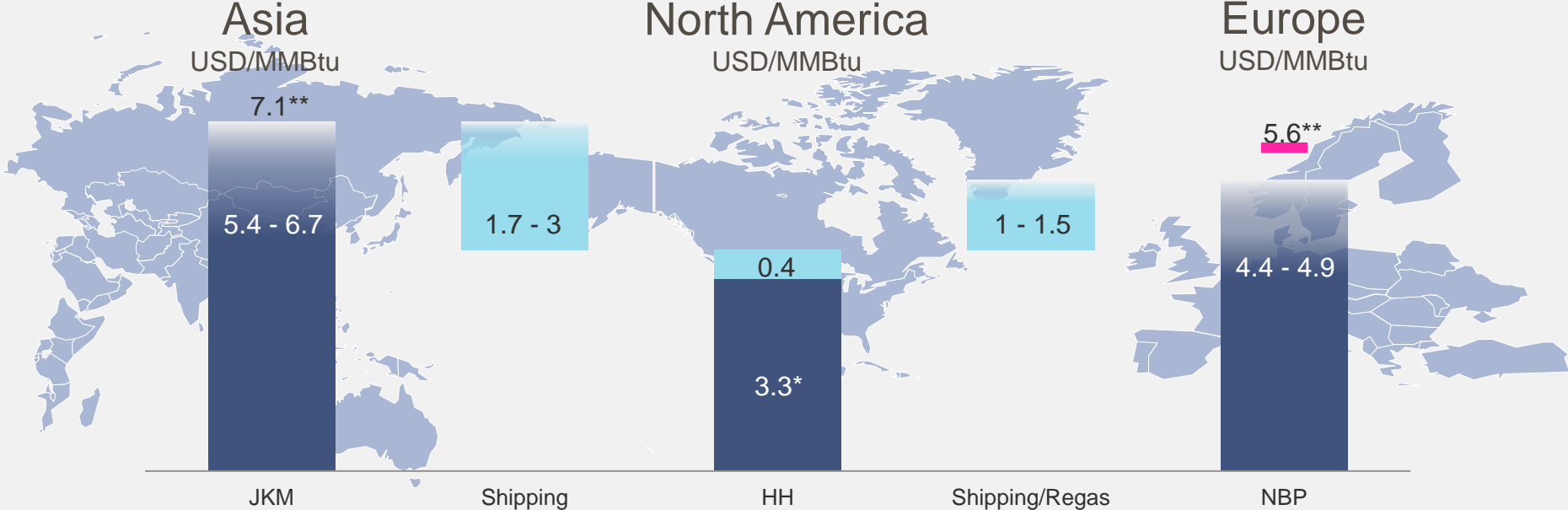
Sources: Historical data (until September 2016) European TSO's, ENTSOG, Eurostat, IEA, PIRA, IHS Cera, Statoil ASA



# US LNG currently on the margin in Europe

US LNG will flow according to price signals

Short-run marginal cost ranges for US LNG supply to Asia and Europe



\* NYMEX Henry Hub Forward curve for Calendar 2017 November 2016  
 \*\* ICE NBP Forward curve for Calendar 2017 November 2016 and Platts JKM spot  
 Source: NYMEX, ICE, Platts, Pira, Statoil ASA



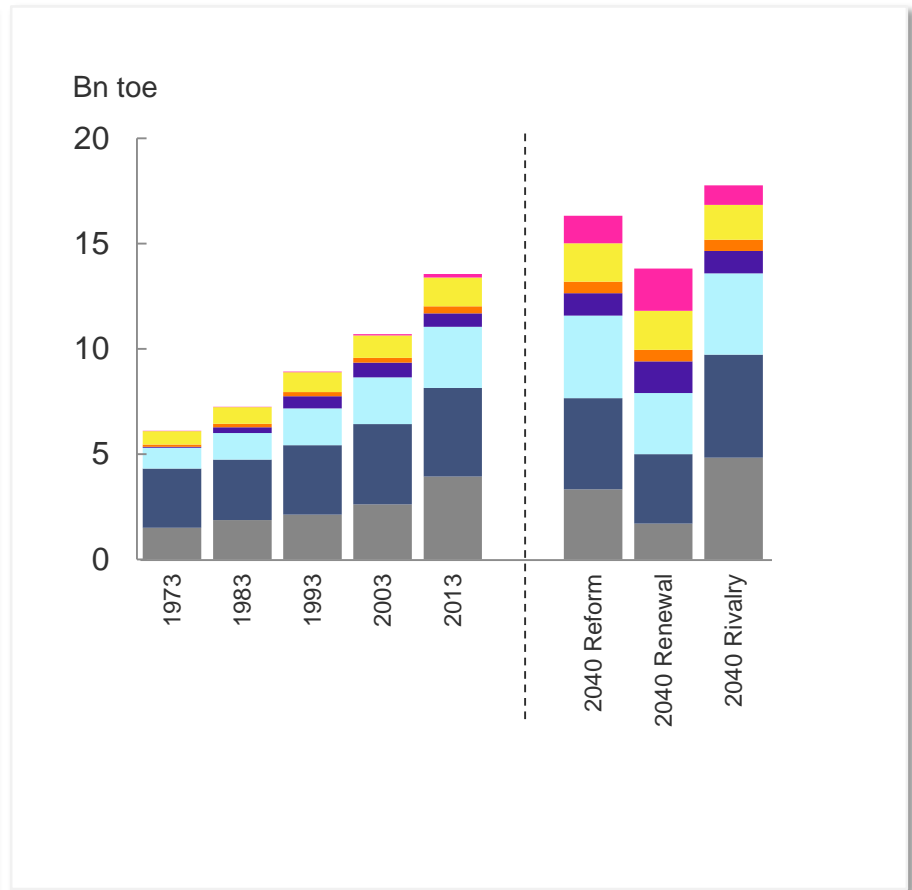
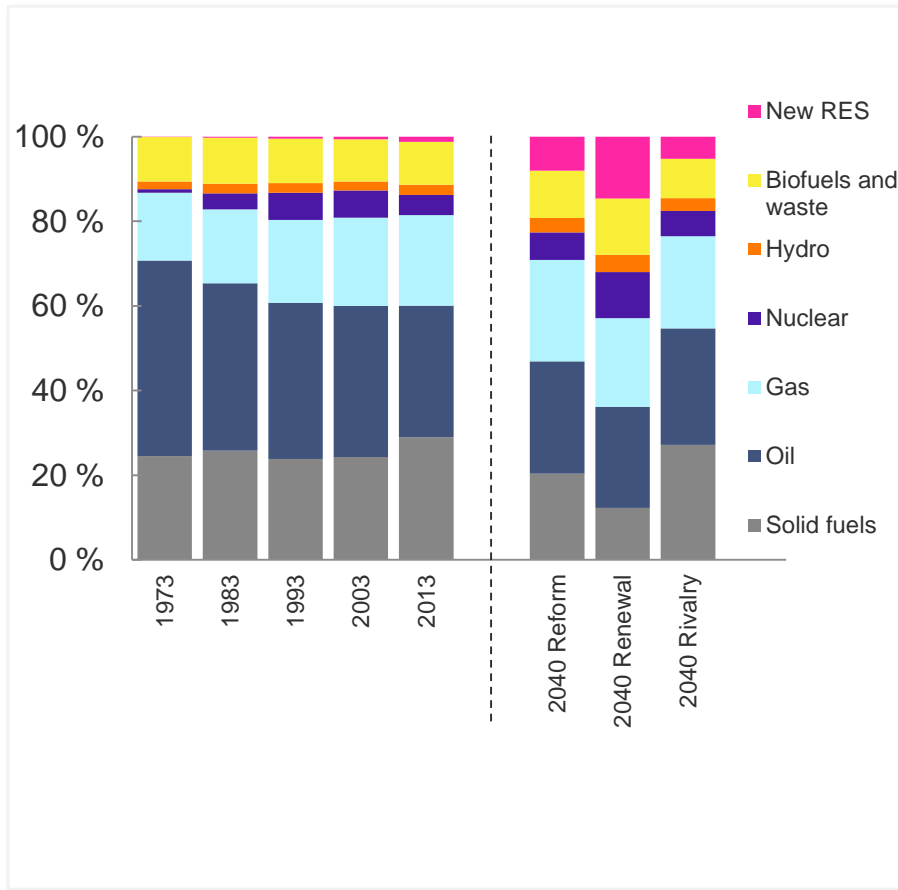
# Main drivers affecting long-term outlook

- Macroeconomic outlook
- Reinforced focus on climate policies after COP21
- Geopolitical development, regional conflicts
- Technological change, consumer patterns
- Speed of change in transport sector and power sector
- Cost curve developments affecting cost of new supply
- Availability and cost of shale resources
- Less exploration success – more dependency on existing resources?
- Lasting change in Opec's strategy?
- Gas trade developments tighten global gas spreads



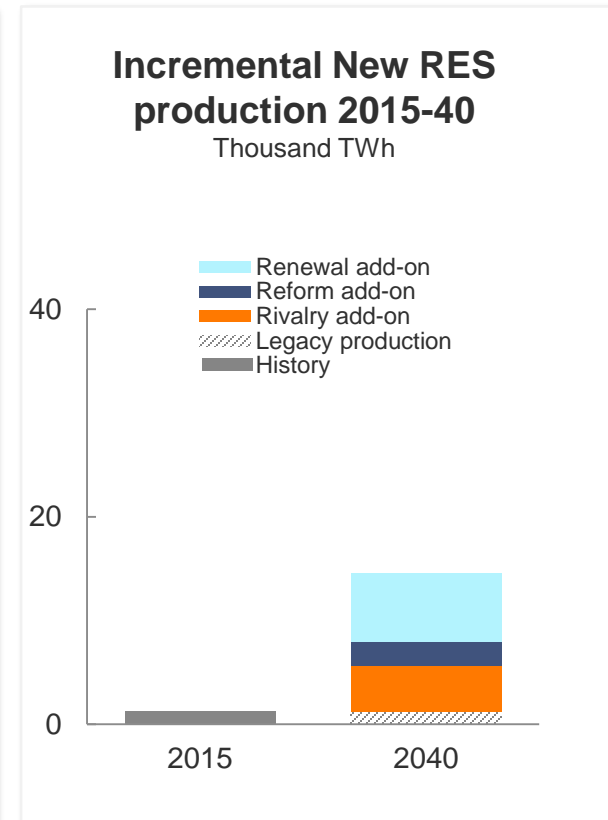
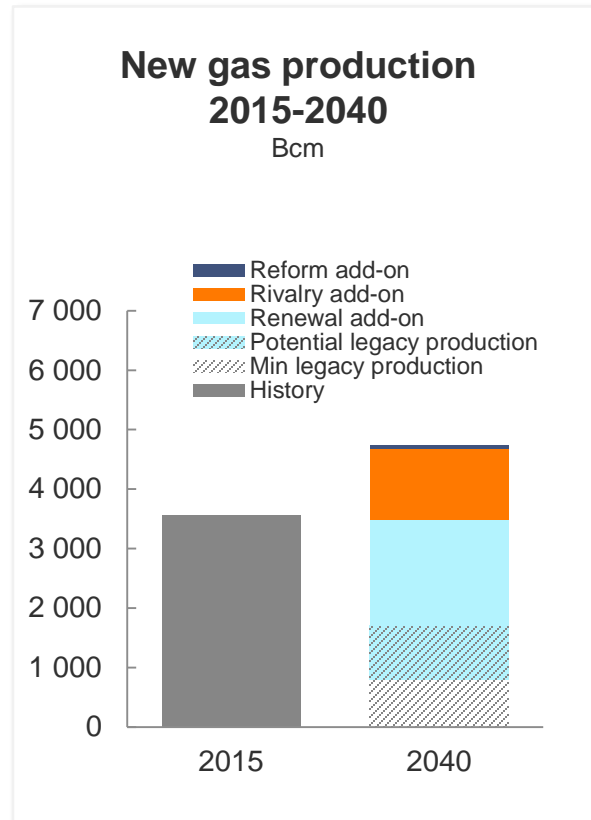
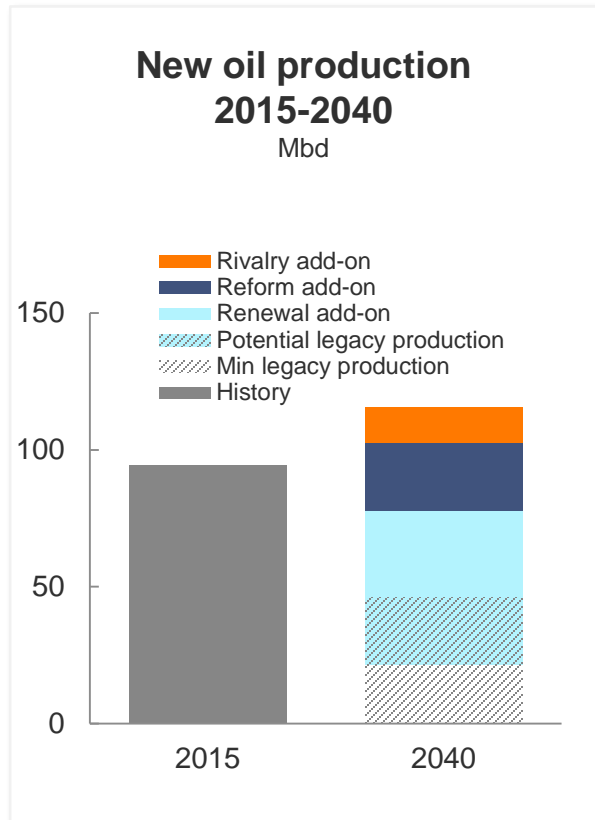
# 3 scenarios, speeding up change in the energy mix

... with Renewal displaying a paradigm shift



# Huge investments needed in oil, gas and renewable electricity

...to replace declining production and ensure sustainability



Source: IEA (history), Statoil (projections)



# NGL markets

Eivind Lie, manager, oil market analyst team  
IR seminar, 6 December 2016, Oslo

# NGL markets

NGL	APPLICATIONS	END USE PRODUCTS	PRIMARY SECTORS
Ethane	Ethylene for plastics production; petrochemical feedstock	Plastic bags; plastics; anti-freeze; detergent	Industrial
Propane	Residential and commercial heating; cooking fuel; petrochemical feedstock	Home heating; small stoves and barbeques; LPG	Industrial, Residential, Commercial
Butanes	Petrochemical feedstock; refinery feedstock; blending with propane or gasoline	Synthetic rubber for tires; lighter fuel; alkylate for gasoline; refrigerant; LPG	Industrial, Transportation
Natural gasoline	Blowing agent for polystyrene foam; blending with vehicle fuel; exported for bitumen production in oil sands	Gasoline; polystyrene; ethanol blends; oil sands production	Transportation

Source: EIA



# Statoil's NGL position

Key figures 2015

Equity production:  
1.97 mboe/day

NGL field production:  
150 kboe/Day

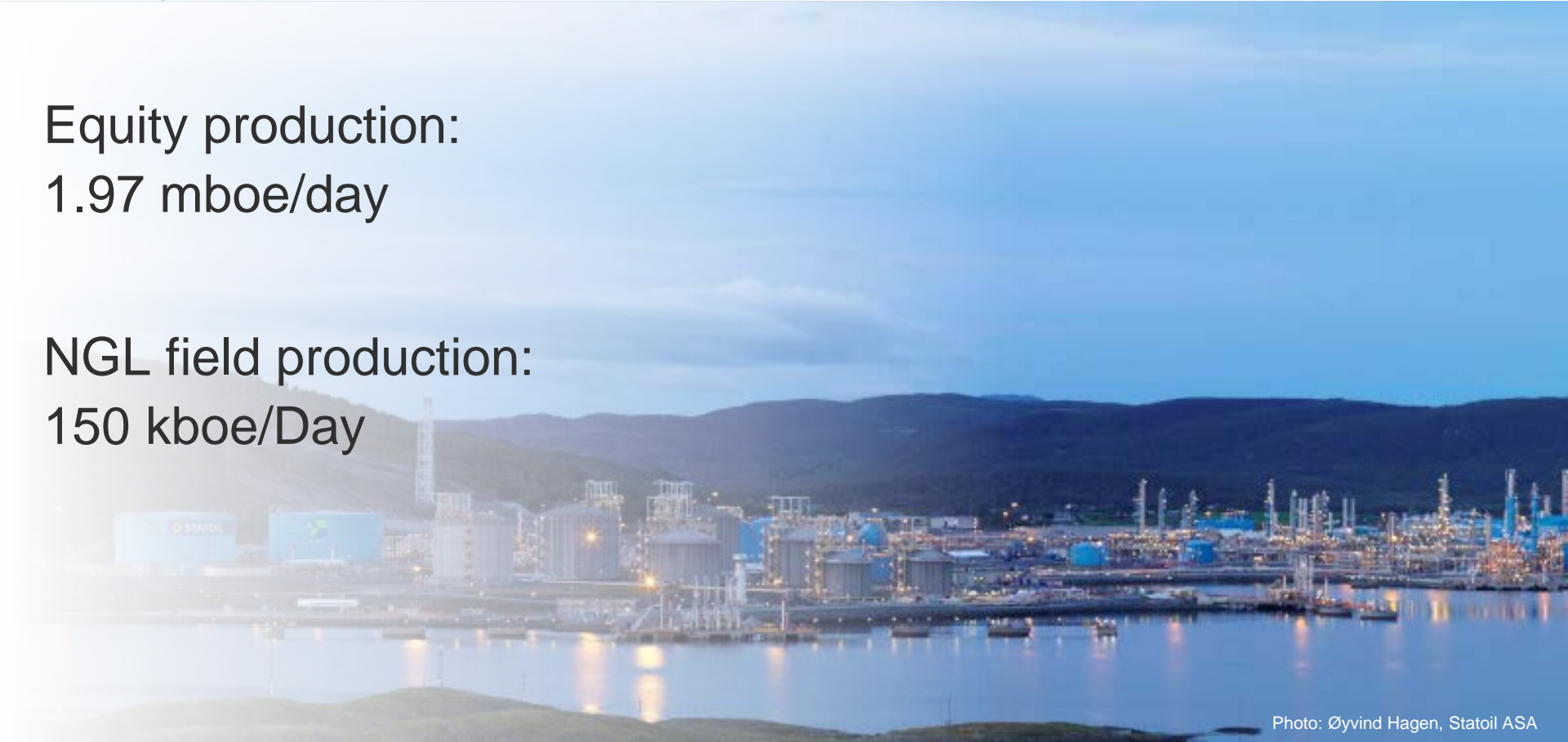


Photo: Øyvind Hagen, Statoil ASA

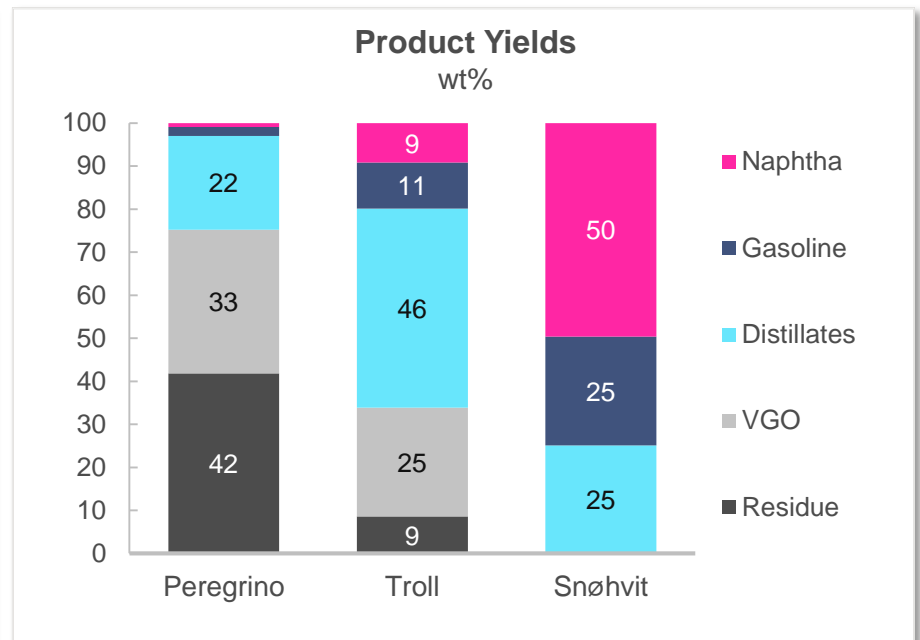
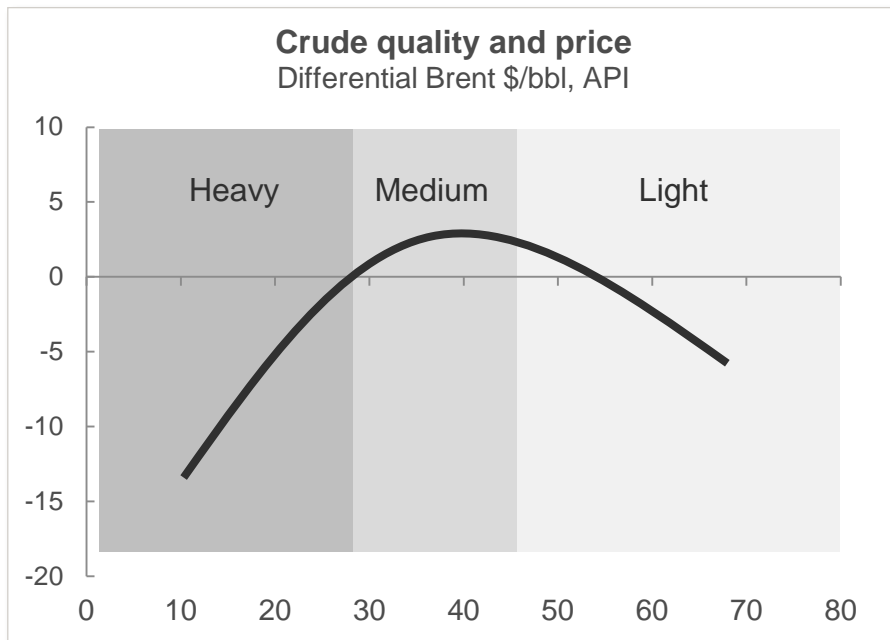
Source: Statoil Annual report 2015 and internal analysis

# Crude oil qualities and price differentials

Heavy and light grades are lower valued vs medium grades

**Statoil 2016 3Q reporting – first 9 months:**

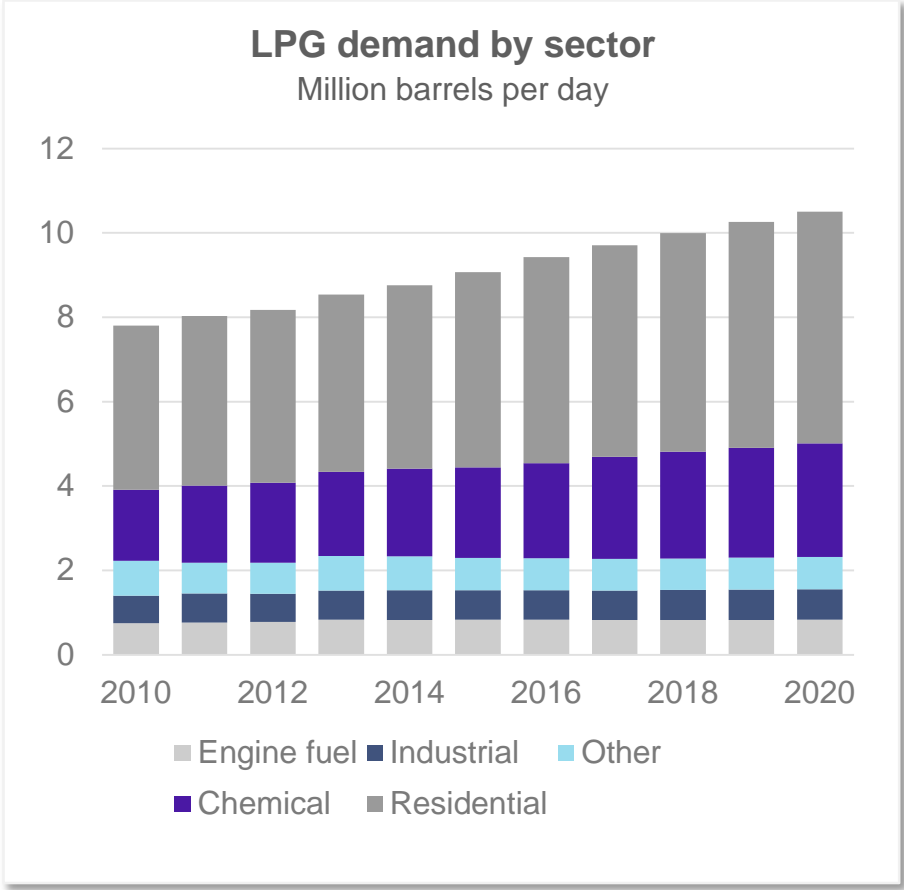
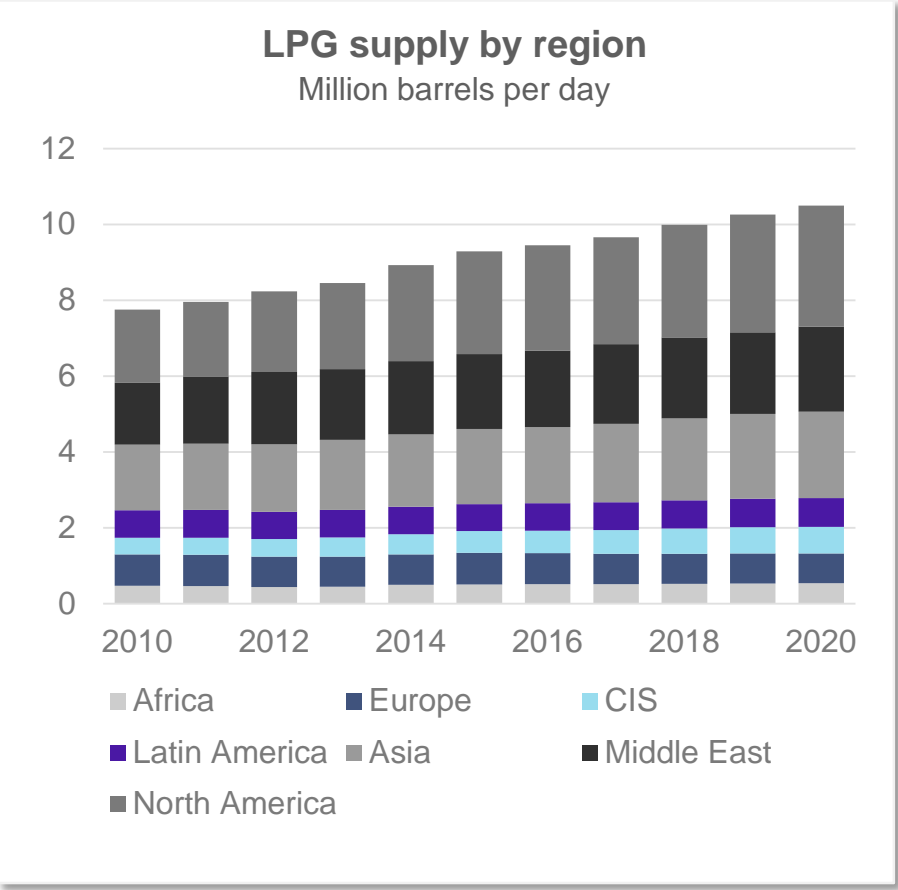
- Average Brent oil price 41,9 USD/bbl
- Group average liquids price 35,9 USD/bbl



Crude oil qualities after processing (i.e. NGL components have been taken out)

# LPG – A market in transition

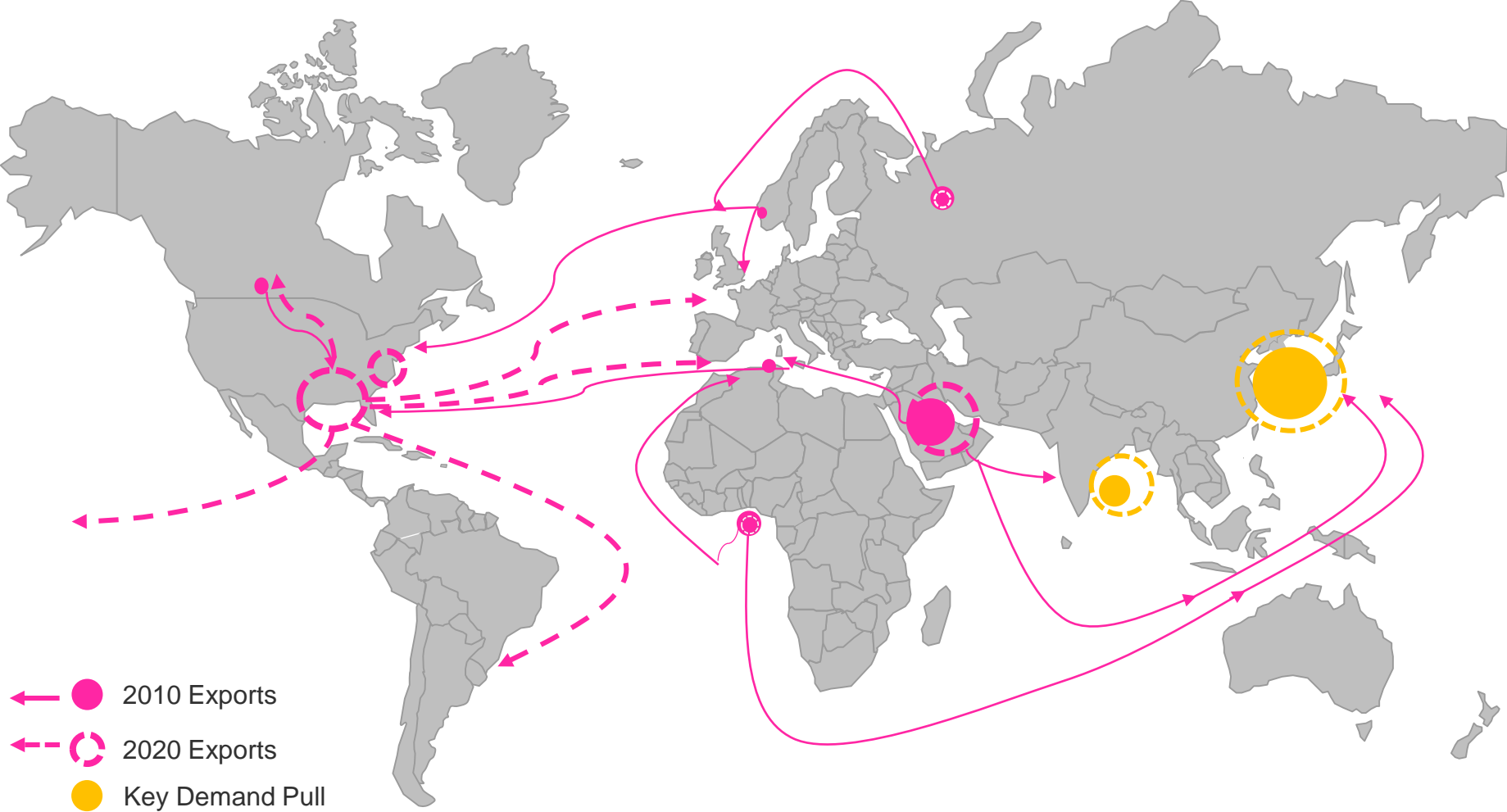
US dominate supply growth – Asia pivotal in absorbing the supplies



Source: IHS NGL service



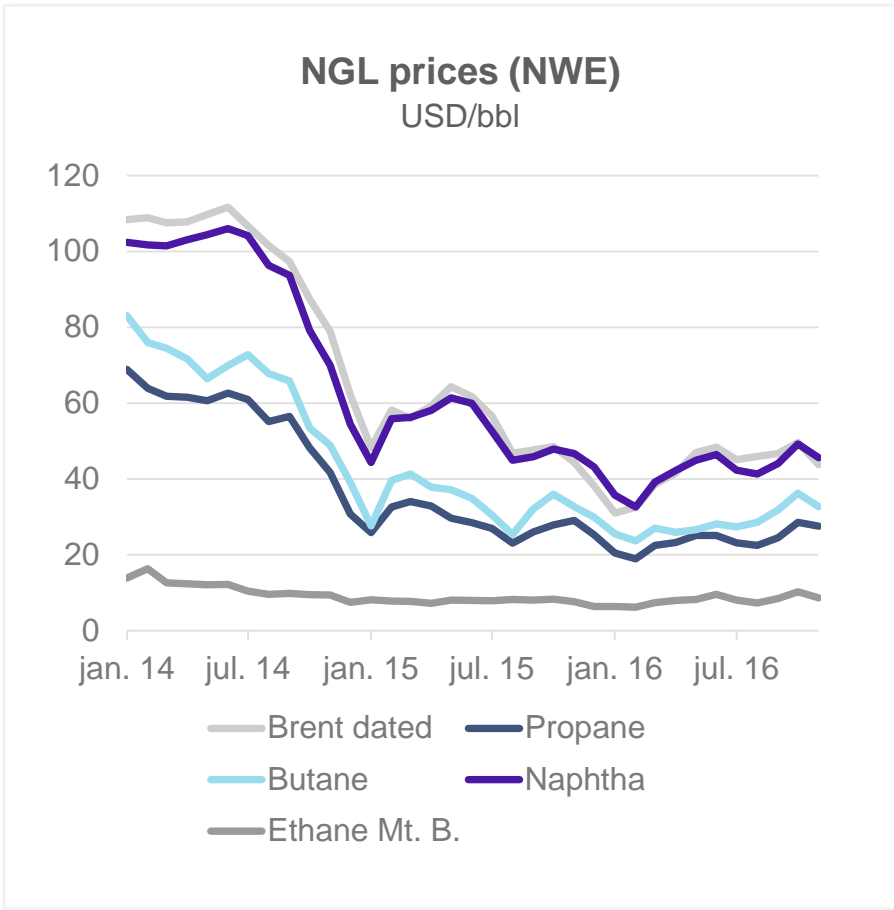
# Global LPG trade continues to grow



Source: IHS Waterborne, Statoil



# NGL prices correlate strongly with crude oil

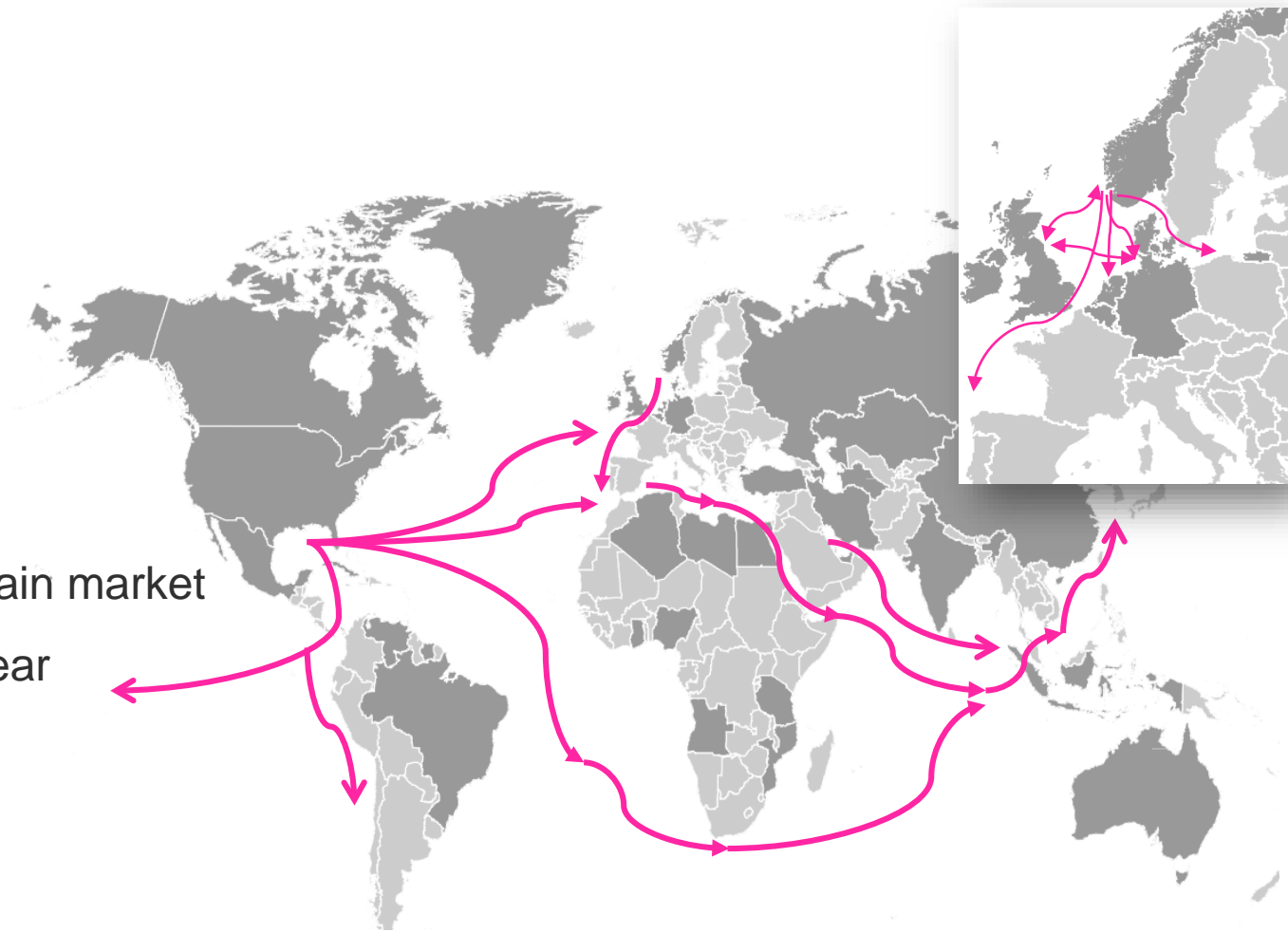


- NGL prices have fallen deep to stimulate new demand
- Low crude oil prices will slow NGL production in North America
- Waiting for cold weather

Source: Platts (NWE) and Opus (Mount Belview)

# Marketing & trading of NGL

- Global presence
- NW Europe is the main market
- ~800 voyages per year



# Summary

- Absolute prices for global LPG correlate strongly with crude oil
- Crude oil prices will determine NGL production in North America
- Asian demand growth will be key to absorb the growing supply
- Heavy and light grades are lower valued vs medium grades (Brent)

# Offshore wind

Stephen Bull, senior vice president, offshore wind & CCS  
IR seminar, 6 December, Oslo



# Statoil's New Energy Solutions

## Our Mandate



Build a **profitable**  
**renewables business**



Develop **new lower-carbon business**  
**opportunities** for Statoil's core products

# Providing offshore wind to >1M homes

Playing to our strengths




Offshore wind projects currently in progress delivering >1100 MW

Attractive market

- Attractive risk/return
- Predictable revenue
- OECD countries
- High entry barriers



Hywind demo	Sheringham Shoal	Dudgeon	Hywind pilot	Arkona	North West Europe	Japan
						
In operation	In operation	In development	In development	In development	Consented	United States
<b>2.3 MW</b>	<b>317 MW</b>	<b>402 MW</b>	<b>30 MW</b>	<b>385 MW</b>	<b>4 x 1200 MW</b>	
2009-	2012-	2017	2017	2019	2020-	

\* All capacity figures on 100% basis

# Statoil's competitive advantage in offshore wind

Deeply **competitive** financing,  
development & operations

Leveraging our global  
**presence** & supply chain

Ability to apply **technology**  
to reduce energy costs



Managing complex projects

Financial strength

Marine operations competence

Leading floating technology

O&M & HSE ability

# High activity level in 2017



Statoil taking operatorship role in 2017

Seeking improved opex through synergies with Dudgeon



On time and well under budget

WTG installation starting January 2017



On cost and schedule for 2019 start-up

June 2017 - installation of first monopoles

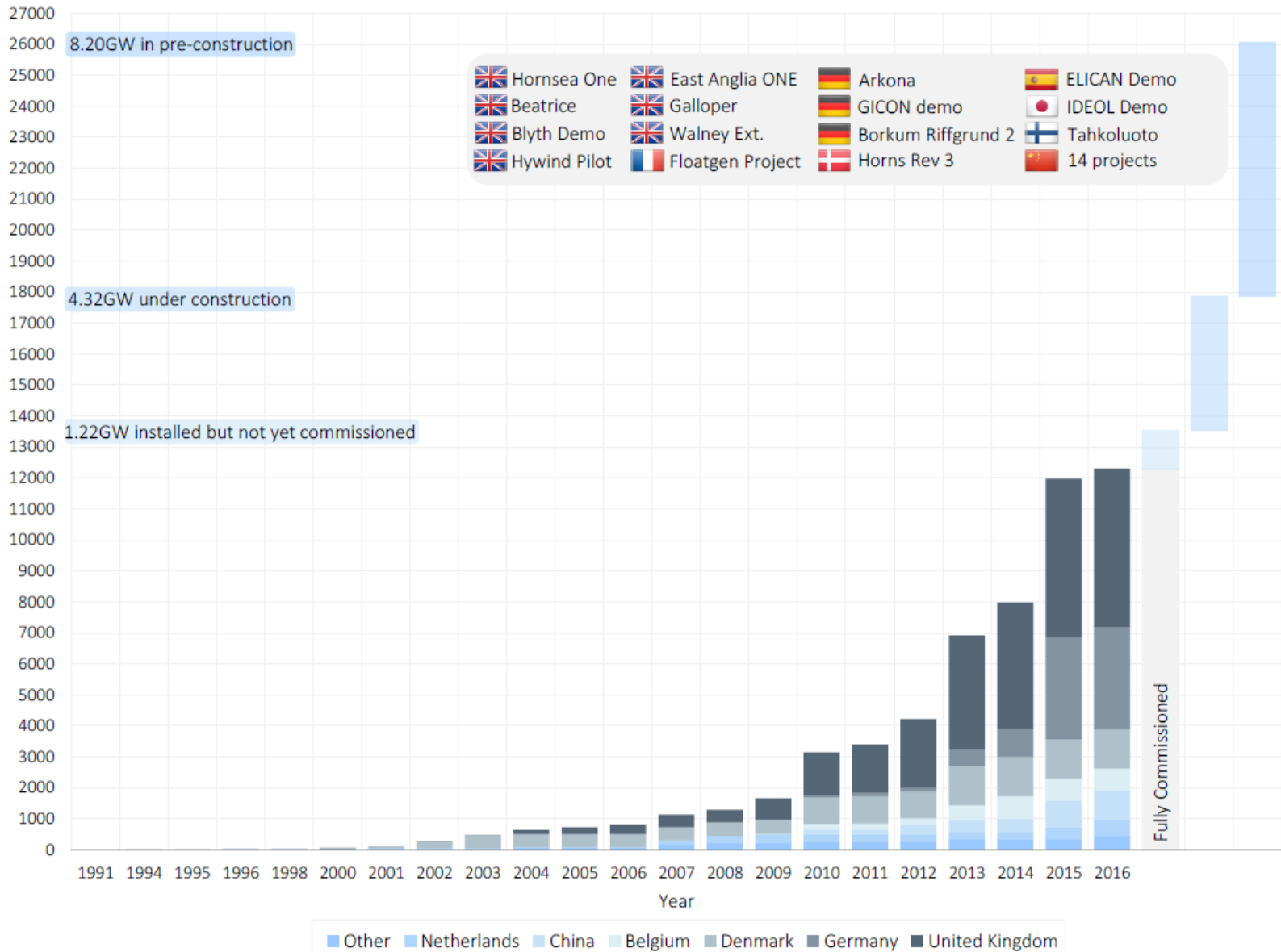


Assembly at Stord in June 2017

Maturing Batwind with Scottish Enterprise

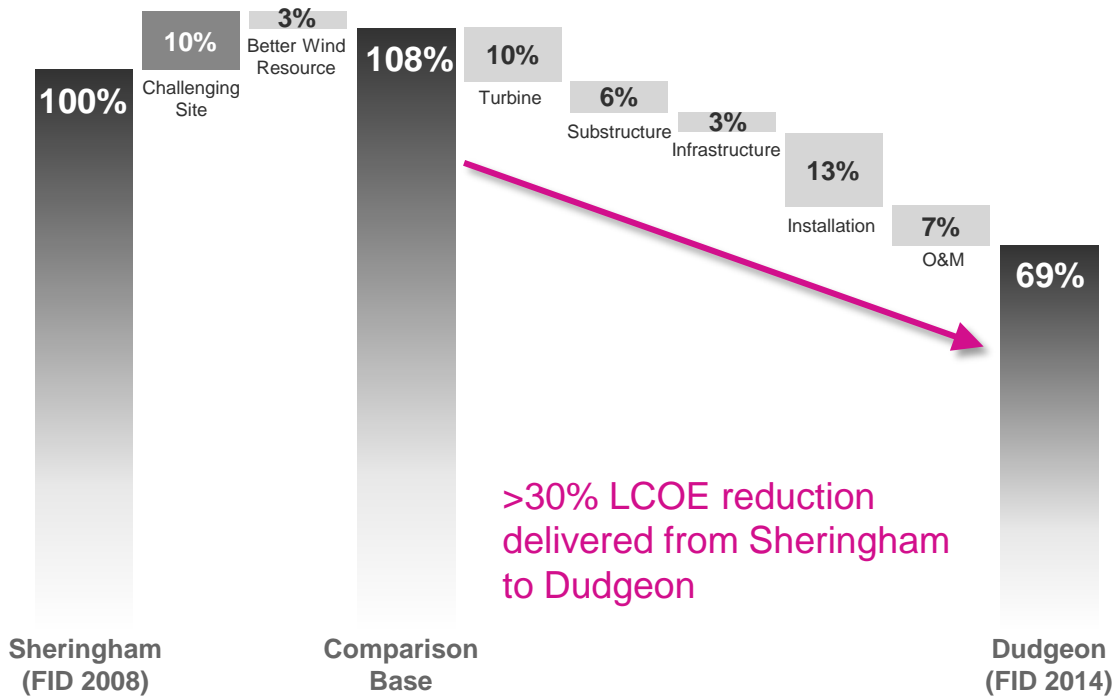
# Global offshore wind total will exceed 20GW by 2020

Cumulative fully commissioned capacity (MW) divided by country





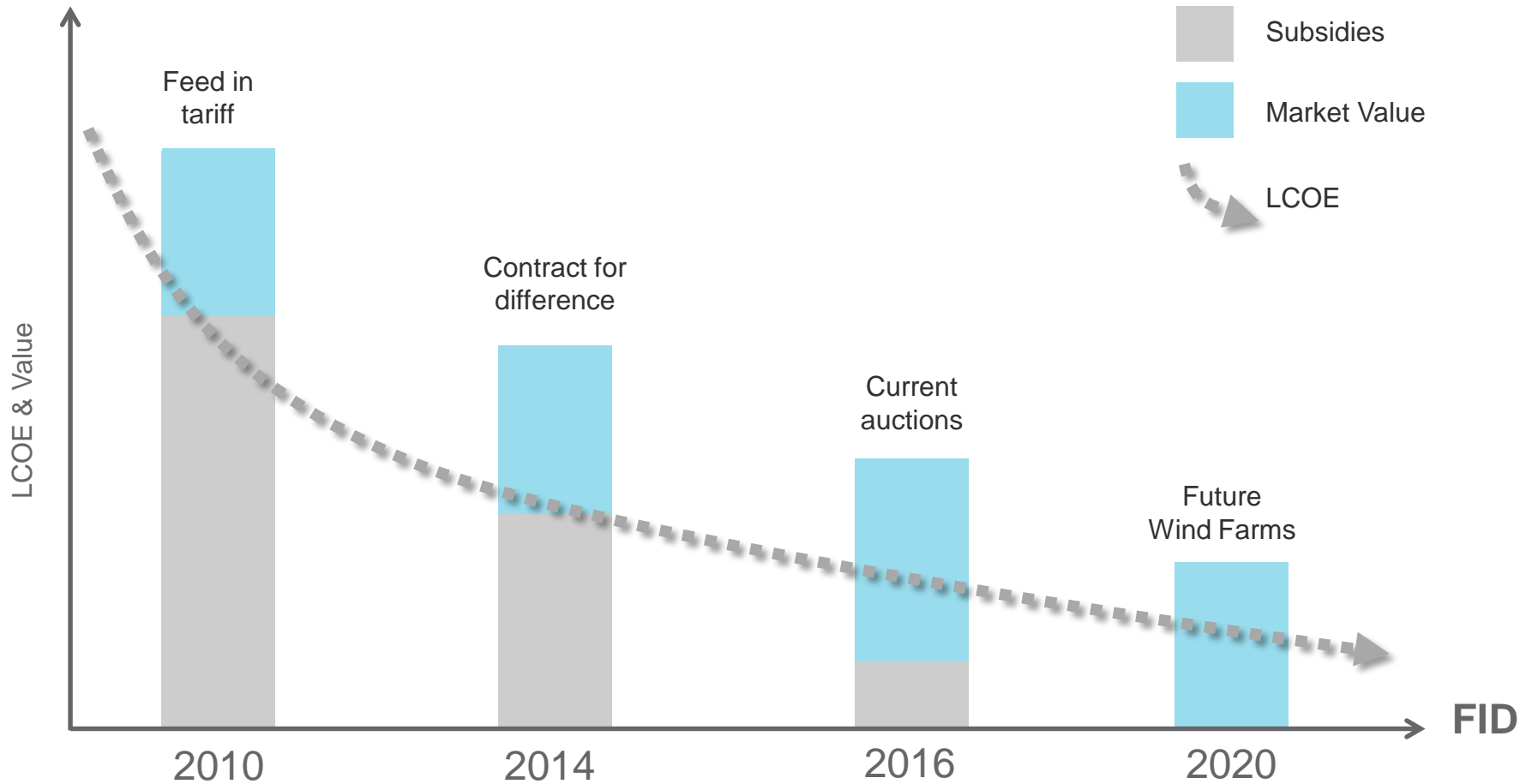
# Efficiency today, opportunities tomorrow



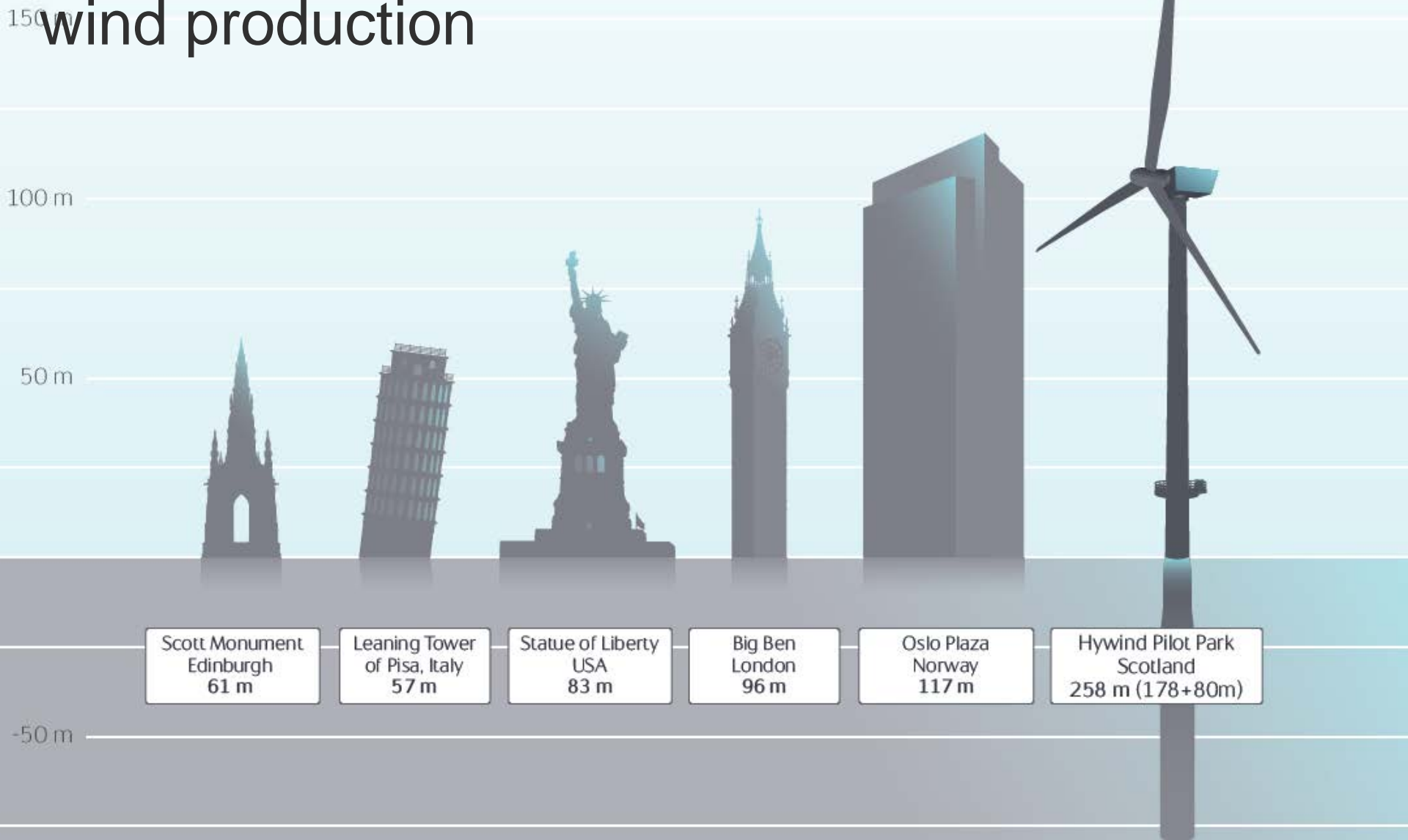
Costs will continue to decrease:

- Longer operational life
- Larger wind farms
- Larger turbines
- Improved O&M
- Supply chain/industrialization

# Offshore Wind - towards grid parity



# Enabling *large-scale* floating wind production



# Where are the next floating wind opportunities?



## Why floating wind?

- Security of supply
- Limited space
- Sustainability

- Transmission
- Electrification
- Limited space

- Cost of alternatives
- Security of supply
- Limited space

- Emission taxes
- Cost of fuels
- License to operate

Illustration photos from Flickr.com: Moyan Brenn, Darshan Simha and Nosha. Oil and gas photo by Statoil.

# Building a new growth leg for Statoil in new energy

- High growth, returns-focused business
- Distinct synergies with Statoil's core business
- Positioned for further energy transition







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