



Thank you Jens, and good afternoon everyone!

I am Elisabeth Aarrestad and I head up the Statoil Market Analysis group. We are responsible for

- 1) short- and long-term commodity markets for oil, gas and electricity,**
- 2) we support Jens with related advice to corporate management,**
- 3) as well as supporting Tor Martin and his organization on the trading activity.**

I will focus on the latest developments in the global gas markets, take a closer look at some of the key drivers in these markets as well as some expectations for the near future.

But first I would like to take a look back to refresh what has happened since our last gas seminar in 2017.

Globalizing gas – flows according to price signals

US LNG in the money; prices driven by other factors as well



With the increasing globalization of gas, I also would like to show you this price illustration which we have used in our previous gas seminars.

The bars represent the short-run marginal cost for US LNG supply to Asia and Europe.

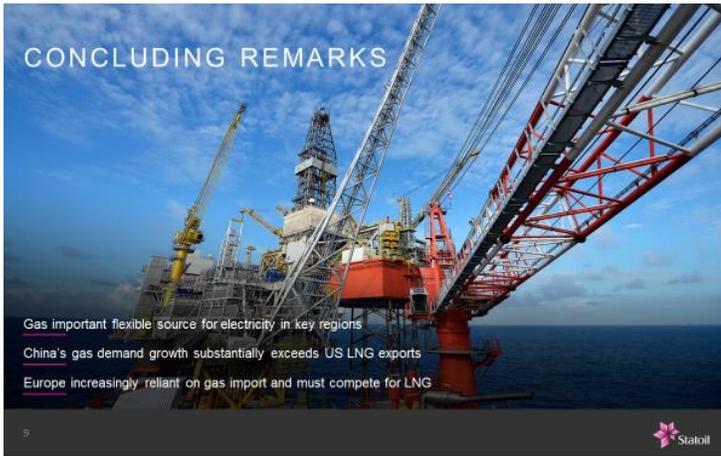
Starting in the middle with the US, there is a sourcing cost for gas at HH + a 15% cost to liquify the gas. Based on forward prices for , this sums up to 3.1 USD/MMBtu.

To bring this US LNG to Asia, a shipping cost is added, resulting in a SRMC for US LNG delivered in Asia between 4.6 and 5.3 USD/MMBtu.

To bring the US LNG to Europe, we need to add both a shipping and a regas cost as we are comparing with a piped gas price and not an LNG price. The SRMC in Europe is then between 3.9 and 4.3 USD/MMBtu.

When comparing these SRMC with forward market prices here indicated as magenta lines, it is clear that the US LNG is in the money, but also that Asia is a premium market.

There is price variation over time, and we have indicated the minimum levels and maximum levels observed over the last 2 years in the white and black lines.



The key messages that I hope I have been able to convey to you, and that is our expectations are

Firstly, that gas will be important flexible source for electricity in both the US as well as in Europe.

Secondly, that Asia will be the engine for global gas demand growth, China's gas demand growth substantially exceeds the US LNG exports.

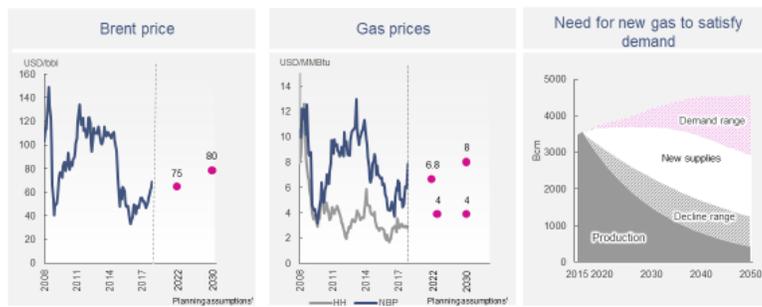
And finally, Europe is increasingly reliant on gas imports and will face competition to attract the required LNG.

Before leaving the stage, I will share with you some of the long-term perspectives for gas, from Eirik Wærness' presentation.



Prices are up from the bottom – uncertainty prevails

Important: Substantial need for new investments to satisfy demand

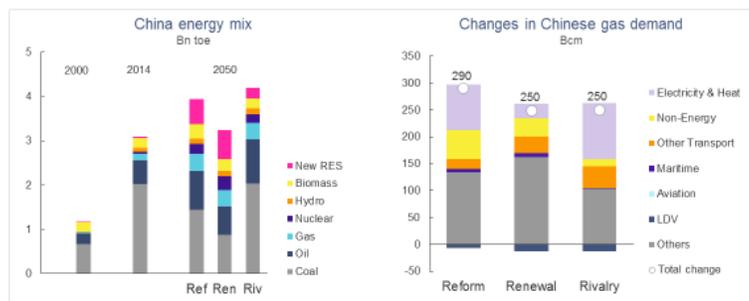


18 Sources: Platts, ICE, ICS, NYMEX
1 Planning assumptions are 2010 real



- In our Energy Perspectives from 2017, we extended the time horizon with 10 years, going all the way to 2050. Here I would like to draw your attention to the illustration on the right hand side.
- This illustration show in the grey area how gas production will decline based on decline rates of 3-6%.
- Further, the pink shaded area shows the gas demand range for our 3 EP scenarios up to 2050.
- And the white area shows the gap that needs to be filled with new supply.
- Over the long term, there is a significant need for new production capacity, irrespective of scenario
- The production declines far outweigh any demand reduction
- In a 2-degree scenario (the lowest demand level), we might need to deliver 50% more new gas supplies over the next 35 years than the accumulated deliveries from the US, Russia and Middle East combined over the last 35 years.
- This is a huge challenge

Asia, and China, play an important role in our energy future
 Growing gas demand in all scenarios – part of the energy transition



Our long-term energy future will be determined in Asia.

A bit of background:

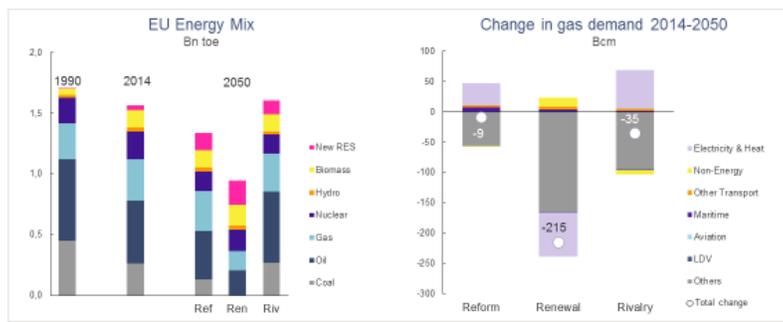
- **Half the global population lives less than 4000 kms from Hong Kong**
- **Strong economic growth and growth in energy demand**
- **Currently high use of coal as you can see on the left hand side – and there is consequently a need to reduce pollution and climate emissions**
- **So here there is a strong case for gas (and renewables)**
- **Asia has low indigenous supply – which means that there is a need for imports**

In our scenarios for China:

- **We see significant changes in the energy mix, with growth in new renewables and nuclear**
- **Sustainability will require a large reduction in coal use**
- **There is a large growth in gas demand towards 2050 in all scenarios. The growth is 250 – 290 Bcm growth which is ~the same as total EU imports of gas today**

EU: Improving energy efficiency, and fuel mix changes

Electricity sector demand change key for gas development



20 Source: IEA (History), StatOil (projections)

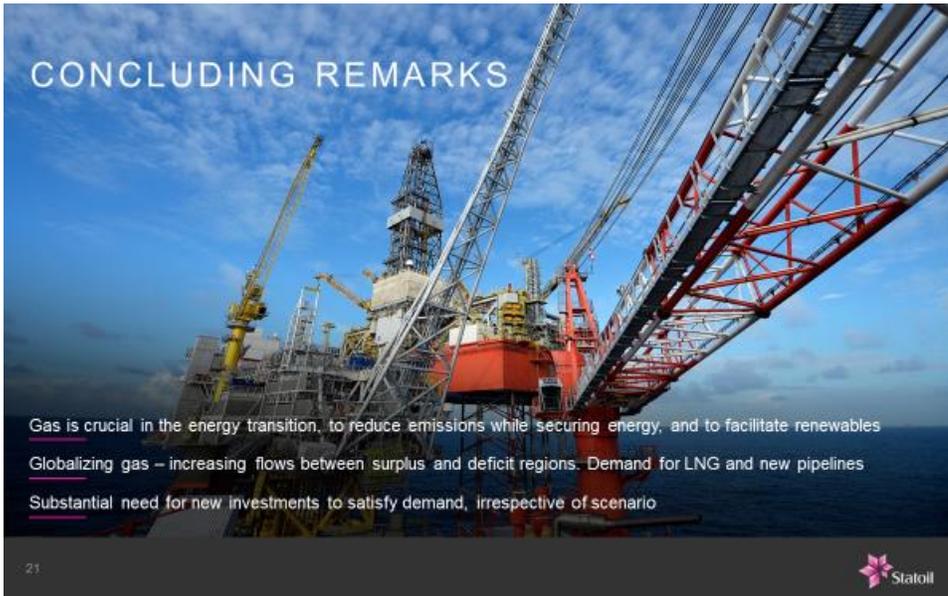


EU's total energy demand has probably peaked, and the future is about energy efficiency and fuel mix changes.

What the future will be, is uncertain

- **For gas demand, the key is how the electricity sector and the use of gas in industrial processes, direct use in housing/office buildings etc. will develop towards 2050.**
- **In a 2-degree scenario, which is the Renewal scenario in the middle, EU is rapidly decarbonizing. 60% of the electricity generated is from intermittent renewables in this scenario. Consequently, gas demand is rapidly going down.**
- **On the other hand and as I showed you in the short-term picture, indigenous supply falls even faster, so import needs do not fall as quickly.**
- **In the other scenarios, demand is more stable, with increasing imports as a result.**

To sum up: For Europe, we have 1 scenario, the 2-deg scenario where the gas demand is rapidly going down, and we have 2 scenarios indicating similar demand levels for gas in 2050 as today.



And finally, to conclude on the long-term perspectives for gas:

Gas is crucial in the energy transition. Gas is required to reduce emissions and at the same time securing energy as well as facilitating for increased renewables.

We will see increasing globalization of gas, with increasing gas flows between surplus and deficit regions.

Finally, there is a substantial need for new investments to satisfy the growing global demand, irrespective of scenario.

Thank you very much for your attention, and I will now leave the stage for Tor Martin.