



**How UK is adapting to the New Energy Future  
London Stock Exchange 3 Oct 2019**

**Chairman's notes**

The Natural Resources Forum breakfast roundtable on how the UK is adapting to the new energy future took place at the London Stock Exchange on 3 Oct 2019. Industry professionals from leading companies, finance and academia met alongside board directors, advisors and investors to review progress, opportunities and problems as the UK transitions to a low-carbon economy.

As is so often the case, we were able to review the key points, and identify many areas where further discussion and work is needed. Our concerns ranged from the financability of projects to the speed of delivery, to the balance between long term success and short term wins, to prioritisation and opportunities.

This document summarises the key points made by the speakers in their presentations and in discussion; our meetings are conducted under the Chatham House Rule, so the notes do not ascribe individual speakers to comments.

I trust you find the notes useful.

**The importance of the transition to low carbon**

“Energy transition is nowhere near fast enough to meet the Paris climate change goals”.

DNV report projection: at current rate of change - by 2028 exceed +1.5%; by 2048 exceed 2% and 2100 exceed 2.4%

We could see energy demand peak in 2035, caused not by a drop in demand but by an improvement in energy efficiency.

Other participants:

- “We regard climate change as one of the two most important structural drivers of asset markets”.
- 2.8 billion people do not have access to clean cooking fuels 1 billion people have no

access to electricity at all. access to energy is one of the most important sustainability drivers.

- Our modelling is particularly less optimistic than DNV. We project a business as usual curve to three and a half degrees to four degrees by 2100
- How do we engage with the people who this is going to affect? 2.7 million people in the UK are in fuel poverty.
- We need to understand the externalities. Blue Planet and Greta Thunburg both have far greater impact than government policy.
- Public views can quickly change: Look at the speed of single use plastic reduction. This is more anchored to clean air than anything else. Flight shaming is already having an effect.

“Over 10 years there has been a complete attitude change. In 2019, more energy is generated by clean than dirty sources.”

### **Financing the transition**

\$110 trillion of capital needs to be deployed by 2050.

There are a multitude of pathways to Paris, of realistic and unrealistic scenarios. We should have an aspiration to the realistic.

Who's going to pay for it? There's no incentives for that. Lloyd's has a green initiative fund of 2 billion pounds, but has low uptake.

Rules on funding and recouping investment are not helping. Banks can't fund wind farms because there's no return on capital. We need different rules.

Energy policy is a political football. The Lib Dems have committed to no more gas in homes. 85% of homes today are heated by gas. 1 million homes per year to convert will cost £300 billion in the domestic market alone.

How do we manage cost competition in a zero-return world?

### **The impact of government policy**

“The UK has high political declarations to which we give a cautious welcome But there are no policies in place to meet the markets. Offshore wind is the only clear path. It is now 44 pounds per megawatt hour versus 55 pounds. Solar and onshore wind all very well but where's it coming from?”

Wind: will be improved by planning commissioners committing an increased height of a wind

turbines.

There are currently policy disincentives to invest in the energy sector. It must be inclusive and sustainable. But we need a policy change.

Energy efficiency in buildings is the number one priority: but how do we resolve home heating in light of the UK's housing stock?

The role of government is essential in this process. UK government's move to net zero by 2050 is an advantage because there is nowhere for anyone to hide.

The whole policy architecture needs to be across the whole space. Gas has no VAT electricity has the carbon price built in.

How do we deal with infrastructure decisions? Hard to divorce them from a more centralised government steer. Town gas went to methane in the 1960s. It only took 10 years, but it needed government intervention.

Government is providing 15 year contracts but the economies of solar have a return on asset life of 30 to 35 years: what happens after the conclusion of the contract?

Price control is an excellent way of dealing with investment in a steady state market. Who pays changes the view of the political triggers

BUT: "I want to change the narrative that investors should wait for policy. This is a transition scenario: investors need to look above the parapet. It's a big sector and there will be returns."

AND "The Energy Systems catapult is a skunk works and living laboratory. It is helping us understand the difference between persuasion, regulation and instruction".

As governments include younger people, as the older generation moves on, there will be an increased acceptance of the need for regulatory change: "There's a clear generational divide on the importance of climate change across Europe."

## **Sectors**

Portfolio development and mix of contracted and merchant may be the way forward.

Technology improvements now mean that capex is sub 1 million pounds per megawatt.

"The delta between the tech costs and prices is increasing".

There's a minefield of robust and not robust business models.

### *Oil*

- is a manufacturing feedstock. Very difficult to transition out from

### *Gas*

- Carbon price is now upwards of 15 euros a tonne. This supports gas prices. The gas price curve is supported by the costs of carbon and coal.
- We need to price the cost of carbon into gas properly

### *Solar*

- Substantial improvement in solar
- Portugal auction price for solar is 1.5 cents per kilowatt hour.

### *Wind*

- There's an enormous cost advantage in offshore wind.
- How do we fund onshore wind without subsidies?

### *Battery*

- We are struggling with the battery space. The short term frequency response market is a problem as is the day market.

### *Nuclear*

- "Nuclear is very key" - need to get over the PR issues.

## **Resourcing the transition**

Technical innovation requires more rare earths and copper. The UK could consume half to one full year of the world's copper to electrify our electric vehicle fleet. We need to start talking about the system's impact.

How do we pay for the extractives requirement for copper and rare earths? 80% of the world's cobalt is in the DRC.

A lot of this is about inefficiencies of resource caps or the availability of materials, the extraction and transport costs.

Copper mining is difficult to finance We need to make it clear that there is an understanding of a mineral scarcity. Nickel, cobalt and copper will never correct after 2023. It's a one time crop

which will lead to an infinite Bull Run.

### **Improving efficiency**

Home insulation makes all of this work.

Developing world can take advantage of leapfrogging There are a number of technology learning factors, things will get more efficient.

Energy Efficiency means less GDP on energy.

“Maybe Brexit will increase the needs to invest in UK PLC: interconnectors and there will be an issue with Northern Ireland. The UK has carbon offshored for many years by putting its heavy industry offshore.”

### **In conclusion**

There certainly been a step change in ambition but we remain cautious.

**No one knows the answer and time is moving at a pace. It is everything: electric and hydrogen, regulatory issues, climate change, industrial strategy, air quality and those elements not picked up by the regulator. The challenge is to just get there. We could decarbonize transport right now. We need to collaborate across those sectors, with clear messages to government and an understanding of what are the unintended consequences of this debate.**

### **Further notes**

Dr Will Blyth is conducting a research project at the UK Energy Research Centre which is looking for participants from the energy investor side. Please contact him at [william.blyth@oxfordenergy.com](mailto:william.blyth@oxfordenergy.com)

DNV GL have produced an excellent set of reports which were discussed at the breakfast. We are grateful to Graham Bennett for the following references:

- The materials for the ETO report can be found here:- <https://eto.dnvgl.com/2019/download>
- There is additional video material, and some deep dives into key topics here <https://eto.dnvgl.com/2019/>

- During the discussions, we also touched on a couple of other topics such as hydrogen and ammonia. The audience may also therefore find these websites of our useful:
- For alternative fuels such as LNG/Ammonia/methanol in shipping  
:- <https://www.dnvgl.com/maritime/publications/alternative-fuel-assessment-download.html>
- And for hydrogen usage as a gas decarbonisation option:- <https://www.dnvgl.com/news/new-dnv-gl-research-sees-long-term-expansion-of-hydrogen-use-for-energy-134934> and <https://www.dnvgl.com/oilgas/natural-gas/hydrogen-decarbonizing-the-heat.html>
- Or for hydrogen as part of a variable renewable value chain:- <https://www.dnvgl.com/news/green-hydrogen-to-become-affordable-alternative-by-2035-dnv-gl-study-finds-142921>

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