Institute of Energy Economics Japan (IEEJ)
Edmund Hosker Speech
UK Energy Security

Introduction

I am delighted and honoured to be invited to address the Institute of Energy Economics Japan. I will talk to you about long-term energy policy and energy security; topics close to the hearts of both the Japanese and British governments.

Energy security in the UK means different things for different types of energy. With electricity, we want to ensure that we have adequate supply to meet demand and a diverse range of sources, from gas and coal, to nuclear and renewables. With gas, it is equally important to three major sectors: for power generation; for heating; and for industrial customers. We need to make sure that we maintain a diverse range of suppliers, which at the moment includes domestic production, connection to the Continent, pipelines from Norway and LNG. With oil, which we use mainly for transport, we need again to ensure a diverse range of suppliers and the proper functioning of global markets. And with each of these, having the right infrastructure sits front and centre.

So securing energy supplies is right at the heart of UK Government energy policy. Disruption to our energy supplies, or inadequate infrastructure investment, could have serious consequences for individuals, businesses and society. But we must ensure that securing energy does not come at unacceptable cost to consumers, public acceptance or the environment.

Energy Security Policy

Our energy security policy is based around competitive market structures with robust regulation. Suppliers compete with one another for customers and any seen as unreliable would quickly lose out to their competitors in a country where any business or household can choose from a wide range of suppliers, regardless of where they are based. Our regulation also incentivises consistent deliver of gas and electricity. Any company under- or oversupplying the system faces financial penalties, overseen by an independent regulator. For serious breach of regulation, suppliers can ultimately have their supply licenses revoked.

More than this, we also have a system which encourages investment in energy infrastructure. We have a planning system which aims to deliver rapid, predictable, accountable and transparent decisions on major infrastructure projects, price controls for monopoly transmission companies and a competitive framework which encourages businesses to invest.

This approach has served the UK well for over two decades. There have been no major physical interruptions to UK oil supplies in recent history. Electricity capacity margins are currently high. Our gas market coped with the coldest December for 100 years in 2010 and, more recently, the cold snap of February 2012. In recent years, the gas market has brought forward import infrastructure equivalent to some 150% of annual demand.

Challenges

However, we keep our energy security situation under constant review and are particularly conscious of four key challenges in the years ahead:

First, over the coming decade, UK production of oil and gas will continue to decline and our dependence on volatile global fossil fuel markets will increase. In the longer term, the pressure on price from increased global demand, investment uncertainties and supply constraints are only expected to increase.

Second, many of our coal and nuclear power stations will reach the end of their lives over the next decade. We need to ensure that the market brings forward sufficient generating capacity to replace them.

Third, the current tough market conditions have hampered the investment we need to ensure our energy security. The UK downstream oil industry in particular is facing challenging economic conditions with high competition, low refining and fuel marketing margins, and declining refined product demand. Eight European refineries have closed operations since 2009, and more closures are likely to happen in future.

The fourth challenge, is the pressing need to address climate change. The Climate Change Act commits the UK to reducing the UK's greenhouse gas emissions by at least 80% by 2050, and meeting a series of carbon budgets along the way. European legislation also commits the UK to producing 15% of its energy from renewables by 2020. Decarbonising our fossil fuel hungry economy raises particular issues. At the moment, we depend on oil for transport, gas for heating, power and generation, and electricity for power. This will change as we become more dependent on electricity for heating and transport. Gas will continue to play an important role, particularly as back-up generation to renewables. However, the changing roles of these different fuels will have implications for the security challenges we face, making the gas and electricity systems more difficult to balance and meaning gas security will have increasing implications for electricity security.

Vision

In addressing these challenges, we have developed a vision for the future of energy security where low-carbon technologies, including renewables, nuclear and fossil fuel generation – in time, equipped with carbon capture and storage - compete on price. Our aim is a secure energy system with adequate capacity, with diverse and reliable energy supplies and a demand side that is responsive to unexpected changes in supply.

Policy Response

In the Carbon Plan, we set out our vision for a long-term transition to a low-carbon economy. Looking 40 years ahead, there are, of course, huge uncertainties, so our Carbon Plan explores a range of plausible scenarios for what the UK might look like in 2050. Our energy mix, and the energy security challenges we face, will depend on which of these scenarios ultimately comes to be. We have developed a policy approach that will deliver an energy system that is robust to energy security challenges with adequate capacity, diversity, reliability, and demand side response.

Adequate Capacity

Taking these in turn, we have policies in place to ensure that the energy system has adequate capacity. The UK market has successfully delivered adequate capacity, whether electricity generation or gas import infrastructure. Competitive markets have had a key role in delivering this capacity. This is a principle to which we must adhere, despite challenges we face in the coming years: one fifth of our power generation fleet closing by 2020 and the changing nature of UK gas supply. The UK has an urgent need for energy infrastructure investment. We estimate that the UK will need £110 billion of investment by the end of this decade alone. That's nearly half of all UK infrastructure investment.

So part of solution to this problem is supporting private companies in delivering new capacity through our **programme of Electricity Market Reform.** Government will legislate for a **Capacity Market**, which will offer small incentive payments to traditional power generators and demand side response to ensure we have sufficient reliable capacity to meet electricity demand. We hope that this will stimulate the 26GW of new gas-fired capacity we will need on the system by 2030.

Similarly, **Contracts for Difference** will offer payments to low-carbon generators – including renewables, nuclear and carbon capture and storage – to make such forms of generation an attractive investment prospect, whilst the **Carbon Price Floor** will levy an increasing cost for emitting carbon.

Our **gas** demand is met through a varied range of sources; from domestic production and imports via pipeline or LNG. **Gas storage** adds further to our resilience, particularly during the winter months. Two projects are either under construction or expanding, which will add around 20% to current capacity and almost double deliverability when completed.

We also have key policies to **reduce energy demand**. Our Green Deal policy will provide household and business energy efficiency improvements at no up-front cost, with consumers repaying through the savings they make on their energy bills. Furthermore, the roll-out of smart meters will enable consumers to optimise their electricity consumption and smart grids can help distribution companies deliver electricity more cost effectively and securely from a more complex network of generation sources.

Diversity

We currently have a diverse **electricity** generation mix, which insulates us to an extent against supply shocks in energy supplies. Looking to the future, diversity will be maintained with roles for nuclear power, gas and coal with CCS and the development of our vast **renewable resources**. Exploiting all these will help deliver on our climate change goals and contribute to our future energy security by reducing our dependence on imported fossil fuel.

The **UK Continental Shelf** has historically provided us with secure supplies of oil and gas. We have policies in place to maximise the economic recovery of our indigenous hydrocarbon resources. We received 224 applications from companies looking to explore and develop in the North Sea in our 27th licensing round. This is the largest number of applications since offshore licensing began in 1964, and 37 more than the previous round's high of 187.

Finally, there is also some potential for **unconventional gas,** in particular shale gas, although this resource is in its infancy in the UK and the role shale gas might play in our future energy supplies remains uncertain.

Reliability

Moving on to reliability, it is vital that we have the right electricity grid to connect generation to demand. Our regulator is looking to reform our ‘cash-out’ incentives for electricity supply to provide better financial incentives to the market and bring forward new investment and we are enabling faster grid connection of new generation projects, putting in place an innovative regulatory regime to deliver offshore energy connections. Furthermore, we are working with our European partners to improve the interconnection of the European electricity market, and better allow electricity to be traded around Europe.

Gas security is also critical. For that reason, the Government has given our regulator, Ofgem, **new powers** to penalise gas shippers who fail to meet their contractual supply obligations. We are also working with our European partners to improve the way gas is traded around the EU and remove the barriers which exist in getting gas to areas of Europe which need it.

To ensure reliable supplies of **crude oil** and **oil products**, we:

- work internationally to **restrain demand for fossil fuel** by encouraging greater energy efficiency and deployment of lower carbon alternatives,
- **encourage investment in oil production** working with key producer countries, both bilaterally and though international organisations, to support positive investment climates open to international energy companies,
- **promote more reliable supplies of energy**, through deepening bilateral relationships with key suppliers and producers and encouraging associated business links; and improving the operation of international energy markets, and
- **improve the operation of international energy markets** by increasing transparency, improving dialogue between energy producers and consumers, and sharing analysis of energy and financial market outlooks and interactions.

Demand side response

The final characteristic we believe a secure energy system should have is a responsive demand side. It is essential that our **electricity system** is prepared to deal with the future challenges around a more diverse, and perhaps variable, electricity generation portfolio. Smart Meters could allow consumers a degree of individual demand side response based around electricity prices and, on a larger scale, smart grids could allow electricity distribution companies to manage power consumption.

In the event of gas supply shocks, our regulator is also exploring measures to incentivise the signing of more demand side response contracts where large gas consumers would reduce consumption during emergencies.

Conclusion

Let me close by looking at the energy relationship between Britain and Japan. Despite being separated by nearly 6,000 miles, our markets are nevertheless connected. We share great similarities: we both have gas-hungry and highly developed economies; we are both island nations reliant on global LNG supplies; and the prosperity of both our countries is threatened by climate change.

So we share many aims: a desire for energy security in a world where much of our oil and gas flows through the Straits of Hormuz; concerns around consumer prices and price volatility in economies too reliant on fossil fuels; and a pressing need to tackle climate change to maintain our high standards of living. All of these challenges can be mitigated at least partly through the deployment of low-carbon technologies such as renewables, carbon capture and storage for gas and coal and nuclear power.

These shared aims bring opportunities to learn from each other, for example, through comparing market structures or energy efficiency strategy. It also encourages even greater bilateral co-operation between the UK and Japan, whether through encouraging investment in energy infrastructure, promoting open and flexible markets worldwide or working together to achieve our mutual aims in international institutions and expand the deployment of low-carbon technology worldwide. So it's clear that ever-increasing interconnection in global energy markets will strengthen the relationship between our two countries and encourage us to work together to achieve our mutual aims.

Thank you.

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