

White Paper

Investment in UK Energy Infrastructure

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Changes in UK Energy Supply chain & Infrastructure Investment

Predominant changes in the energy supply chain are expected in the United Kingdom during the next decade. This requires substantial new investment in UK Energy Infrastructure. We need better regulation to protect consumers and the planet by ensuring that billions of pounds are invested in slashing energy waste, boosting the green power sector and safeguarding security of supply.

Introduction

The development of sustainable energy networks necessitates timely and adequate investment in energy infrastructure including in both the generation and delivery components. In the United Kingdom during the next decade, large changes in the energy supply chain are expected;

- by the year 2020, approximately 25% of the existing electricity generation capacity (Nuclear > 8GW, Coal > 8.2GW) is set to retire;
- by the end of the decade gas imports will account for 53% of total gas supplies increasing to 77% by 2015.

This requires substantial new investment in power stations, electricity grid and gas infrastructure in order to maintain security of supply.

The UK is in the “last chance leg” to secure investment in its creaking energy infrastructure. There is only a limited window of opportunity to implement new policies and market reforms to get ready for the estimated £200bn of investment the UK needs in the next decade. The energy industry must make far-reaching investment decisions as early as 2012 to secure finance and mobilise supply chains.

The energy generation mix for the future is of critical strategic importance and one that will be led by Government. It appears there is a focussed commitment to make market reforms that enhance energy security and

encourage investment, but the flip side could be increasing expense for energy users hastened by the renewable agenda. The government must also commit to the existing timetable for replacing nuclear power stations and reversing nuclear’s declining share of electricity generation. That means completing planning reforms in 2012 and finishing assessment of new reactor designs by the end Of 2013.



Picture 1 - Renewable Energy

The UK has 83.5 giga watts of capacity and imports 2.5 giga watts from abroad. In the winter, when demand is at its peak, the UK consumes about 60 giga watts of electricity, mostly met by 30 large power stations.

Of these, 11 giga watts of coal and oil power stations will close by 2015 and a further seven giga watts will be lost when eight nuclear plants reach the end of their functioning life by 2018. At the same time, demand is expected to increase because of new power-hungry infrastructure due to be rolled out such as high-speed rail.

According to the latest World Economic Forum's annual Global Competitiveness Report, the UK currently sits distinctly mid-table compared with the rest of the world in terms of its basic infrastructure networks. Germany is ranked number one, a position it has held for some time, with particularly good marks for its transport and telecommunications infrastructure.



Picture 2 – Electricity Transmission Network

What separates the UK from countries at the top is that most of its road networks and water systems are constructed in Victorian times. They are now needing major refurbishment, which in a developed society causes great disruption and it's very expensive to refurbish.

THE UK's energy regulator Ofgem has called for a sharp change in the country's energy policy and an end to the current strategy of de-regulation. While the liberalised market has given consumers a broad choice of energy supplier, there are not enough incentives for energy providers to invest in new capacity, leaving the country with a real risk of being unable to meet future energy demand, the regulator warns.

In its report "Project Discovery -Options for delivering secure and sustainable energy supplies", Ofgem calculates that while supplies are relative secure until 2015, by 2020 some £200bn needs to be spent on new power stations and other infrastructure to meet energy demand while reducing the country's carbon footprint. A large portion of the UK's coal-fired power plants have to be closed in that timeframe because they do not meet European emissions regulation, and the vast majority of the UK's nuclear fleet will reach the end of its lifespan in that time also.



Ofgem calls for UK energy reform

Warning: de-regulation fails to attract investment

by Claudia Flavell-White

Ofgem: By 2020, the UK needs some £200b spent on energy infrastructure

Picture 3 – Ofgem Intent

Ofgem says that current policies do not give sufficient incentives for investment. As examples, it cites the lack of a credible carbon price, unfavourable credit arrangements, consumer resistance and interdependence with other European markets.

The report suggests five different policy packages, which it is now seeking feedback on through open consultation. Four of those packages include in different combinations, measures such as a minimum carbon price, removing existing price ceilings when there is a shortage of energy, and better managing demand through smart meters, smart grids and other load-balancing arrangements.

Other measures include making suppliers legally responsible for providing a certain level of supply security, a centralised renewables market which would give greater price security to renewable suppliers, and replacing the renewables obligation with renewables tenders. The fifth option would see the UK setting up a centralised single entity which would be responsible for sourcing all of the UK's energy.

Utilities including EDF, Eon and National Grid acknowledged that market conditions in the UK would have to be changed in order to secure a supply of clean, affordable energy. Centrica however warned that a "lurch to centralisation" would be dangerous and the government should seek to support the industry.

National Grid has outlined its plans of a £22 billion investment plan for the next five years and a rights issue to raise £3.2 billion. The capital raised through the rights issue will be divided between efforts to link up new nuclear power stations and offshore wind farms to the grid, plans to update wiring in London and Birmingham and new gas interconnectors.

The investment in updated grid infrastructure will ultimately cost the average UK household an extra £4 a year, but National Grid argues that this represents “good value” for transforming the system into one fit for a new decarbonised energy future. It also expects to continue “constructive” discussions with Ofgem on the UK regulatory regime and will carry on supporting the organisation on Project Discovery, which is looking at the ability of the current energy market to support climate change targets while maintaining affordable prices for consumers. It is also progressing with a £200 million investment between now and 2012 in the energy infrastructure to enable early connection of new renewable energy sources.

In Summary – we need better regulation to protect consumers and the planet by ensuring that billions of pounds are invested in reducing energy waste, boosting the green power sector and safeguarding security of supply.

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