South Hook Gas response to the UK's Government's call for evidence to inform a gas generation strategy

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1) What are the main strengths and weaknesses of gas generation in helping deliver a secure, affordable route to decarbonisation through to 2020 and then by 2050?

Strengths

Utilising mature technology, gas plants are quicker to build and incur substantially lower operating and capital costs for a given output compared with renewable and nuclear technology. Recent investment in gas pipelines and LNG facilities means that there are lower additional levels of investment required to bring gas supplies to market compared with the infrastructure investment necessary to bring other sources of power to market. These existing investments in gas infrastructure have improved energy security in the UK market by giving the country access to gas supplies from around the world.

In 2011, the UK had access to gas supplies from the UK Continental Shelf, and Norway, the Netherlands and Belgium via three pipelines, and from eight LNG producing countries around the world delivered into three LNG receiving terminals. According to the International Energy Agency, the natural gas resource base is vast and widely dispersed geographically with 120 years of recoverable conventional gas reserves at current consumption levels while total recoverable resources could sustain today's production for over 250 years. As the UK gas market is the most liquid in the EU, we can remain confident of being able to attract gas supplies from a variety of sources.

Additionally, gas generation offers high load rates, efficiency and flexibility. This flexibility is crucial as the level of renewable power capacity increases. Having a source of power which is able to respond to rapid changes in electricity demand will allow intermittent generation such as wind and solar to be fully utilised contributing to reduced UK greenhouse gas emissions.

Gas is notably less carbon intensive than any other fossil fuel and by utilising currently available technology such as combined heat and power, gas generation emissions can be reduced still further. In the medium term (through to 2030) therefore, unabated gas generation will have a key role to play in helping the UK to meet its greenhouse gas reduction targets whilst balancing the power system and meeting peak demand.

In the longer term (beyond 2030), by setting an appropriate emission cap/target, the UK Government would foster the development of carbon capture storage (CCS) technology and abated gas generation could compete with other low carbon base load sources while gas fired plants (if not retrofitted with CCS) could still be used in high peak demand conditions.

Weaknesses

While gas generation can, and should, play a key role in decarbonising the power sector there are a number of uncertainties which could limit further investment in the sector. In particular:

- the regulatory framework (especially relating to the final form of the capacity mechanism): investors in assets with a 25-30 year lifespan need regulatory certainty to help them assess the level of risk in their investment;

- carbon price volatility and unpredictability; the carbon floor price effectiveness, the evolution of ETS carbon permit price and interactions between them;

- the level of deployment of renewable and nuclear energy, i.e. how much back-up to intermittent sources of power will be required? What will be the actual load factor of gas plants?

- CCS technology and its applications: the principle of CCS is broadly supported but there still remains considerable uncertainty about the technology and how it will be used.

The affordability of gas as a route to decarbonisation is compromised by the frequent cycling required to accommodate the fluctuations of variable generation (such as wind), or running plants at a lower capacity factor with more up and down cycling than was contemplated in the plant design, which reduces plant efficiency, plant life and plant reliability.

However, the key issue is that the affordability of gas as a route to decarbonisation is compromised by today's carbon price level as calculated under the current ETS.

2) What role can gas fired generation play in the future and what level of gas generation capacity is desirable?

As previously stated, natural gas offers the most cost-effective option for power generation in the short to medium term (i.e. up to around 2030) due to the combination of low capital and operating costs of new builds, and it will remain a vital source of flexibility to support the increasing amount of intermittent power generation capacity. New capacity however will be required to replace capacity (particularly coal and oil) expected to be lost as a result of the Large Combustion Plant Directive in the near future. As the use of intermittent power generation capacity increases, so too should the level of gas generation capacity required to support it.

From around 2030, when CCS technology is likely to become commercially viable, abated gas generation can significantly contribute to meeting secure low carbon targets at

competitive costs for the consumers, while unabated generation might still be necessary to meet peak demand and back up the low carbon generators mix. The role of gas will remain crucial therefore in supporting the transition to a low carbon economy in a secure and affordable way.

3) What are the key factors driving the economics of investing in new gas fired power generation and how are these factors likely to change?

Although capital costs for natural gas power generation are consistently lower than coal-fired or nuclear generation, the economics of gas are relatively unattractive today given the low level of clean spark spreads (much lower than the dark spreads, pulled down by the low coal prices and low carbon price accentuated by the reduction in EU ETS prices and a decrease in demand due to the recent Eurozone crisis).

Carbon pricing will be a crucial factor in driving the economics of investing in new gas generation. The current EU ETS price is not signalling new investment in gas-generation and is considered too weak to meet the goals of the decarbonisation of the electricity system. How the EU ETS price will evolve in future remains uncertain.

The introduction of the carbon floor price in the UK due in April 2013 could potentially provide better signals to the industry but there are many concerns regarding the effectiveness of its application at national level. There are also uncertainties regarding the possible interactions of the carbon floor price and the ETS permit price, and of other policies like the Emission Performance Standard (EPS) and a concern that the effects of these interactions will result in a distortion of the carbon market. There is a need therefore for stronger and longer term signals for the carbon price either through the existing scheme or by replacing the ETS with a new regulation/policy or even the old carbon tax scheme.

Investors also need to consider expected low load factors. As previously stated, gas fired plants will need to back up intermittent power generation. The increased use of wind and solar energy will lead to an increased use of peaking plant, an increase in intermediate power plants that operate at lower load factors and a decreased use of base-load generation. Plant life may be impacted as a result, making investment in gas fired plants less attractive. The capacity mechanism outlined so far does not give any comfort in this respect.

These uncertainties and an expected poor return on gas power is discouraging investment in the new plant needed to replace the coal-fired fleet due to close by 2015 under the EU's Large Combustion Plant Directive[1.] Until the end of 2013, there will not be enough clear signals to attract investment, despite introduction of the carbon floor price due in April 2013. Even in the best case, it is unlikely that there will be any additional gas capacity built until 2015.

[1] However, most analysts are forecasting that most of the coal-fired plants due to close by 2015 will shut in 2013-2014 as they will have utilised their permitted hours of operation faster than expected.

4) What barriers do investors face in building new gas generation plants in the UK? What are the key regulatory uncertainties that may prevent debt and equity investors making a final investment decision in gas generation and supply infrastructure?

The main barriers to investment in new gas generation capacity are the carbon market price (the volatility of which exposes long term investors to high risks and which seems unreflective of the real cost of carbon), uncertainties about the future level of deployment of other low carbon technologies (and therefore the required load factor of gas fired plants), and finally the financial return of the capacity mechanism. Distortion of the carbon market due to the ETS effect and the interconnection with the European market could also move investors away from the UK to a more favourable continental market.

With regards to new capacity, investors are also getting to grips with the new planning and consent framework and face uncertainties about the level and speed of investment in upgrading gas and power grids.

In the medium–to-long-term, there are uncertainties and risks regarding the use of CCS technology and also how the development of other low carbon technologies will affect the demand for gas power generation.

The return available for gas fired power generation remains unclear while the future of the UK regulatory environment remains uncertain.

The UK Government's five year target plan does not give the long-term confidence which investors (debt or equity) require. Until the first assessment planned for 2016 - which will consider whether the new contract structure for low carbon is delivering all the expected benefits - there is no clarity on whether the policy of subsidising investment in nuclear and renewables is the most efficient to achieve government's emissions reduction target.

Also, the carbon floor price versus the level of subsidies for low carbon technologies (other than CCS) is a high risk to both debt and equity investors and is likely to discourage projects proceeding to final investment decisions.

Lastly, the current economic environment is reducing the appetite for risk and driving investment toward lower risk/lower profit technology.

5) Are there any other policy issues that need to be addressed beyond the Government's proposals for the capacity mechanism and the EPS?

The uncertainties inherent in the new policy tools and the capacity mechanism need to be addressed. In particular, with regards to the capacity mechanism, the contract for difference needs to be better detailed, i.e. who is going to pay for this flexible capacity? Also, the carbon floor price needs to be carefully assessed so that it incentivises further investment in low carbon power generation.

6) Given a continuing role for gas and the potential for increased volatility in gas demand, to what extent is gas supply and related infrastructure a barrier to investment in gas fired generation? What impact will unconventional gas have on the case for investing in gas generation and the supporting infrastructure?

Unconventional gas could, in theory, improve energy security by enhancing quantity and diversity of supply, leading to a positive impact on price. Clearly, bringing this gas to market would require further investment in the supporting infrastructure and makes the upgrading of the gas grid, to allow for new, flexible gas routes, more critical.

About South Hook Gas

South Hook Gas is the largest supplier of Liquefied Natural Gas (LNG) to the UK market and one of the largest in Europe. It started full commercial operations in 2010 and in the 2011 gas year, the company supplied around one sixth of the UK's gas needs, which is enough to power eight million households. The company has supplied the UK every day since commencing operations and the £1bn investment in the South Hook Project represents a long-term commitment by its shareholders to the UK gas market. For more information, visit www.southhookgas.com