The role of gas in the electricity market

A 2Co Energy response to the Department of Energy and Climate Change's call for evidence

28th June 2012

Summary

2Co Energy welcomes the stated aim of the Government within this call for evidence, to *'generate an open discussion with interested parties about the role of gas in the UK's electricity sector.'* Within the context of Electricity Market Reform (EMR), we believe that such a conversation is vital.

The UK Government has committed to ambitious objectives in CO2 emissions reduction, while recognising the energy security agenda as increasingly urgent. Yet economic recovery remains the primary focus.

Against this backdrop, EMR seeks to ensure 'secure, clean and affordable energy'. Fossil fuel such as gas has a clear role to play, yet it is essential that the role afforded to gas is appropriate in the context of the Government's objectives in energy security, CO2 emissions reductions targets and boosting economic growth.

This submission seeks to warn against the promotion of a 'dash for gas' that risks undermining wider UK policy. Further, it seeks to highlight the importance of Carbon Capture and Storage (CCS) technology in helping fossil fuel such as gas to play an appropriate role. Finally, it seeks to underline the importance of ensuring the right balance of energy generation, and, by way of illustration, we outline the potential role of coal with carbon capture in the UK's low-carbon energy mix and green economy.

We have organised this information under the headings of the three key objectives we believe must be borne in mind when establishing the appropriate role of gas in the electricity market.

Our overall recommendation is that the UK would be unwise to consider the role of gas independently of coal: rather than a gas strategy, a wider strategy for fossil fuel is the only way to ensure delivery of 'secure, clean and affordable energy'. In particular, CO2 emissions reduction targets, and the decarbonisation of the electricity sector, will not be delivered with unabated gas.

Pressure of climate change and CO2 emissions reduction targets

- Carbon dioxide released into the atmosphere through the burning of fossil fuels is one of the main political issues in the world today. Western Governments in particular are under immediate pressures to tackle climate change through implementing major reductions in CO2 emissions. European regulations, and the UK's own targets, are forcing the UK to introduce measures to promote an increase in low-carbon energy generation.

- Elements of the draft Energy Bill have led some commentators to believe the UK Government favours gas-fired electricity generation. This has led to warnings from those concerned with long-term climate change goals that a 'dash for gas' would leave the country locked in to a high carbon trajectory at the expense of renewable and low-carbon energy deployment.

- Government advisory body the Committee on Climate Change (CCC) has said that the power sector must decarbonise substantially if the UK is to stay within its carbon budget: by 2030 it should produce no more than 50g CO2/kWh. Yet the provisions in the draft Energy Bill will allow new gas fired power stations built before 2015 to emit 450g CO2/kWh until 2045, placing our carbon budgets at significant risk.

- The IEA recently warned that while natural gas is cleaner than coal (without CCS), greater reliance on gas alone could lead to a 3.5 degree warming, well above the two degree limit most scientists say will avoid the worst effects of climate change.

- Coal-fired plant with CCS produces over 75% less CO2 emissions than unabated gas, and, unlike unabated gas, could make a substantial contribution achieve the UK's legally binding CO2 emissions reduction targets.

Energy security

- Carbon Capture and Storage (CCS) technology has been identified globally as able to align the often conflicting pressures of energy security and climate change. Combined with the UK and world's abundant reserves of coal, the technology offers a particularly attractive solution to our future energy needs.

- Recognition of this pivotal role is reflected in the UK Government's commitment to developing CCS through the CCS Commercialisation Programme. If successful, this will provide a pathway for coal and gas to be a part of the energy mix in a low-carbon future.

- Global energy use has risen by around 50 per cent over the past 25 years and will continue to climb at a similar rate over the next 15 years, according to the International Energy Agency (IEA). Coal has met almost half of this increase in global energy demand, further underlining the need to deploy CCS on coal fired power stations, and remains the greatest available resource of all fossil fuels with an estimated 861 billion tonnes in reserves.

- In the UK, coal supplies 30 per cent of the fuel required to meet power generation needs, and this proportion has recently seen a significant increase - at the end of May 2012, the Department of Energy and Climate Change announced that coal consumption in Britain had risen to 46 percent of total energy generation in the first quarter, the highest level in six years.

- Coal is an essential component of the UK's baseload supply, offering specific benefits where we need to expand our electricity supply quickly and flexibly to meet fluctuations in demand. During winter the proportion of demand met by coal generation can rise from 30 per cent to almost 50 per cent - the lights would, in all likelihood, go off without it.

- By the end of the decade the UK will face the closure of around a fifth of its current generation capacity. As early as 2016 security of supply will become a real issue unless we can find a way for reliable fuel such as coal to remain part of the low-carbon energy mix. Development of renewables and other forms of low-carbon generation is not currently progressing at a pace whereby it could meet the gap.

Boosting economic growth

- While the UK government has committed to ambitious objectives in carbon emissions reduction, and recognises the energy security agenda as increasingly urgent, economic recovery remains the primary focus. Investing in low-carbon energy infrastructure has been identified as a key opportunity to deliver and align these objectives. Specifically, CCS technology is in a unique position to help. The technology is vital to achieving carbon emissions reduction targets with minimal economic impact: the IEA estimates this would cost 70 per cent more without CCS.

- The UK coal and coal power industry employs in excess of 10,000 people. Coal output in the UK is increasing and the coal mining industry alone is worth £1 billion to the UK economy. UK industry is heavily reliant on coal – for example coking coal is an essential raw material for blast furnaces used in steel making and has no effective substitute. Without successful commercialisation of coal CCS this is all under threat.

- CCS will enable energy intensive industry to continue to operate in a carbon restrained future, sustaining jobs that would otherwise disappear. Moreover, by increasing the lifetime of North Sea oil production, Enhanced Oil Recovery (EOR) linked to CCS would sustain well-paid, highly-skilled jobs offshore, and in UK regions dependent on the oil economy.

- Energy demand is set to increase as the global economy recovers, and there remains a huge demand for coal. China is building new coal fired power stations at a fast rate, while both Germany and Spain have reported higher coal consumption in recent months. In Europe, the profitability of coal-fired generation has risen over the course of the current economic crisis. Electricity from coal for sale in 2013 is now more than 16 euros per megawatt-hour, more profitable than gas generation. Reflecting this, coal consumption by UK utilities increased by 20.2 per cent over the first quarter of 2012 while gas consumption fell to 25 per cent, its lowest share in 14 years.

- Growing coal dependence on a global level provides significant economic opportunity to the UK. Expertise in engineering, both within the coal and oil industries, as well as the unique geographical benefits of the North Sea, for permanent storage of CO2, can be leveraged to provide a strong commercial advantage.

- If the UK is able to produce some of the first commercial-scale end-to-end CCS projects in the world - through the Government's CCS Commercialisation Programme – this would position the UK at the forefront of the global CCS industry and create an international center of expertise, with all the export and employment opportunities that engenders.

About 2Co Energy

2Co Energy Ltd is a UK-based company committed to delivering substantial CO2 emissions reductions through carbon capture, use and storage (CCUS) projects. The company was founded on two highly experienced teams; one with two decades of CO2 transportation and Enhanced Oil Recovery (EOR) operations experience, and the other with a background in developing two of the world's most advanced CCS projects. This provides an unparalleled wealth of experience.

In May 2011, 2Co Energy acquired Powerfuel Power Ltd and the Hatfield CCS project at Stainforth in South Yorkshire, via its wholly owned subsidiary 2Co Power Ltd, and renamed the project the Don Valley Power Project (DVPP).

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