SCOTTISHPOWER

Gas Generation Call for Evidence,
Area 4E,
3 Whitehall Place,
London
SW1A 2AW

31 July 2012

Dear Gas Generation Team,

A CALL FOR EVIDENCE ON THE ROLE OF GAS IN THE ELECTRICITY MARKET

We welcome the opportunity to respond to this call for evidence on the role of gas in the electricity market. ScottishPower is a major UK energy company with networks, generation and retail interests. It is a major operator of gas-fired and coal generation in the GB market and a leading UK wind power developer. It is part of the Iberdrola group, a major international utility and the world's leading renewables developer which also has significant nuclear interests.

Our response to the detailed questions is set out in the enclosed Annex.

We welcome the Government's ambition under its Carbon Plan to largely decarbonise the electricity sector by the 2030's, so helping meet its target under the Climate Change Act 2008 to cut greenhouse gas emissions in 2050 by at least 80%, compared to 1990 levels. Progressing with delivery under the Government's renewable energy strategy and with the new nuclear programme are clearly key parts of this. However, we also agree with the assessment that over the next decades there will continue to be a central role for gas generation as a means of providing a secure and reliable source of electricity at minimum cost to consumers. Indeed, gas-fired plants will help to provide the crucial flexibility needed to meet peak demand and manage intermittent wind generation. We therefore consider that the Government is right to be committed to a mixed portfolio approach in securing our energy future, based on a diverse range of generation sources including renewables, nuclear and thermal generation.

In terms of investment in new gas build, we welcome DECC's recent commitment to legislating for the 450 g/kWh annual EPS limit to be grandfathered through to 2045. This is very important in providing the necessary certainty on any future CCS requirements, so that investors can respond to any price signals to build CCGT plant. It provides a good platform for the development of the Gas Strategy. Equally important will be the early introduction of an effective market-wide Capacity Mechanism to ensure that the investment signals are stronger and more predictable.

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We would also wish to emphasise that any Strategy properly reflects the continuing potential contribution from existing coal plant to maintaining cost-effective security of supply in a way that is entirely consistent with transitioning to a low carbon electricity system. While these coal plants are aging, and are unlikely to last until 2030 even if upgraded to meet the requirements of the Industrial Emissions Directive (IED), the UK fleet is able to operate cost-effectively on unsubsidised domestic or imported coal and accordingly it remains a flexible and significant contingency against any physical or economic squeeze on gas supplies, especially in the light of the relatively low level of UK gas storage. The remaining UK coal plants therefore have an important role to play.

Payments under the Government's planned Capacity Mechanism could help with decision-making in respect of existing coal under the IED. In the case of plant that opts out of the IED they could provide the necessary incentive for optimising the limited running hours, so that this flexible thermal plant could be available into the early 2020s.

A continued transitional role for existing coal would complement delivery of new build nuclear, taking account of the likely timing of that plant coming into operation around the end of this decade and through the 2020s. In short, therefore, we consider that the early introduction of a market-wide Capacity Mechanism in 2014, allowing existing coal and gas plant and new gas build to participate on a level playing field, is crucial to providing the right incentives to deliver affordable security of supply.

Finally, while we recognise that CCS may have an important role in the long term, we think that the difficulties of deploying this technology are sometimes underestimated. We therefore agree that a flexible approach to delivering a secure, affordable, decarbonised electricity sector is important given that CCS is still some way off being proven at a commercial scale.

We look forward to engaging further on these issues with the Government in advance of the publication of a strategy for gas generation in the autumn.

Yours faithfully,

A CALL FOR EVIDENCE ON THE ROLE OF GAS IN THE ELECTRICITY MARKET:

SCOTTISHPOWER RESPONSE

Introduction

ScottishPower welcomes the opportunity to respond to the call for evidence on the role of gas in the electricity market. ScottishPower is a large UK energy company with networks, generation and retail interests. It is a major operator of gas and coal generation, as well as the UK's leading wind power developer through ScottishPower Renewables. It is part of the Iberdrola group, a major international utility and the world's leading renewables developer which also has significant nuclear interests. Our group is therefore a major player in the UK electricity market reform process and the drive to a low carbon electricity sector.

Progressing with delivery under the Government's renewable energy strategy and with the new nuclear programme are key components of a low carbon approach. However, as a result of the relatively low carbon intensity of gas compared to coal, gas generation offers the possibility of a low carbon bridge to a decarbonised future. Indeed, it has the potential to provide an important complement to increasing volumes of intermittent wind generation and baseload nuclear generation. We therefore welcome that throughout the Electricity Market Reform (EMR) process it has been accepted, along with driving forward on renewables and seeking to deploy a new nuclear programme, that gas generation will continue to be central to the future of the UK's generation mix. However, we would also wish to emphasise that with appropriate technology neutral incentives under the Government's planned Capacity Mechanism there is also an opportunity to optimise remaining coal plant life to the benefit of the wider economy, consistent with the trajectory towards a largely decarbonised electricity sector by the 2030s.

Whether upgraded to meet the requirements of the Industrial Emissions Directive (IED) or not, existing coal plant is likely to retire before 2030 (and before 2023 where opted-out). In the interim, it could offer cost-effective security of supply with no real impact on carbon emissions across Europe given the short to medium term operation of the EU ETS. It is important that this potential role for existing coal – which aids security both directly in the electricity market but also in the gas market by providing a very substantial demand side option using unsubsidised UK or imported coal – is fully reflected in the Gas Strategy.

We welcome the opportunity to continue our engagement with DECC on the Gas Strategy and the design and implementation of a Capacity Mechanism under EMR which will be critical to incentivising new gas build as well as optimal decision-making on existing coal plant. A well thought-out Capacity Mechanism will complement the important parallel work under EMR on the proposals for the Feed-in-Tariff with Contract for Difference (CfD) to incentivise investment in large-scale low carbon generation.

Questions

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?

The aim of largely decarbonising the electricity sector in an affordable way whilst maintaining security of supply is central to EMR. Alongside delivering on the renewables strategy and developing new nuclear, we consider that gas generation has an important role to play in making progress towards these objectives through to 2020 and then on to 2050. The relatively low level of carbon emissions per MWh of electricity generation from gas will make it increasingly important to the UK system as a long-term backup to intermittent and inflexible low carbon generation and potentially as a baseload fuel. The optimisation of the remaining life of existing coal plant could also play a key role through to the early 2020s (or late 2020s if environmental upgrades are fitted) with the right incentives under a technology neutral Capacity Mechanism. In UK conditions, that role can promote security of supply both in the power and gas markets.

In the medium term, the long lead times for the deployment of large-scale low carbon technologies will put a significant onus on new gas plant. In particular, the relatively short lead times for the development of gas generation could allow capacity to be installed with sufficient speed to avoid forecast shortfalls towards the end of the decade and into the early 2020s. Thus, assuming that regulatory reforms (including incentives under a Capacity Mechanism) provide developers with sufficient confidence, there are a number of sites with consents in place that could be progressed. Moreover, gas generation also benefits from being a well established technology with well understood construction risks within the industry. In addition, the Long-Run Marginal Cost (LRMC) for new gas plant is relatively low compared to most low carbon technologies, so allowing it to maintain security of supply during the transition to a decarbonised system is reasonably cost-effective (provided that new build is not excessive relative to energy system needs).

However, there are risks associated with developing new gas plant to the exclusion of other options. In particular:

- although it has a low carbon intensity, the carbon content of unabated gas may be too high for it to be the dominant power source post 2030 – and the retro-fit of CCS may be economically challenging; and

- the lack of diversity could leave the UK with few options in the event that prices rose on international gas markets or there was a physical supply problem, especially given the relatively low levels of UK gas storage. These issues could be partly mitigated if the UK was able to develop significant shale gas resources, but that also is uncertain.

In the longer term, the role for gas will need to be assessed within the context of other developments such as the renewables strategy, the level of success in pursuing the UK's nuclear programme and the practicality and costs associated with CCS.

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

As highlighted in the response to Question 1, gas-fired generation will be crucial in the transition to a decarbonised electricity system helping to maintain security of supply and meeting future flexibility requirements.

The level of gas capacity required will be dependent on the rest of the generation mix, particularly the delivery and timing of a new nuclear fleet. It is widely recognised that the existing coal plant will be phased out during the 2020's – indeed the IED legislation will force the closure of all opted-out coal plant by 2023 and the present trajectory of the carbon price floor would make the economics of any coal plant extremely challenging prior to that date.

It is our view that the planned trajectory of the carbon floor price is not sustainable in the longer term because of the significant impact that it might have on industrial and domestic consumers. However, uncertainty on when and by how much the trajectory might be altered may make it difficult for investors to judge decisions, for example between upgrading existing coal plant or building new gas.

The requirement for new gas build in the coming years could be reduced by a well-designed capacity mechanism that incentivises opted-out coal plant to smooth their running hours out to 2023 (and possibly encourages mothballed gas plant to be brought back into operation). This could in turn reduce costs to consumers by delaying the requirement for new build gas capacity. Indeed, key decisions on the timing and design of the Capacity Mechanism will affect 18GW of flexible and reliable generating plant that currently plays an important and cost-effective role in the system. DECC have indicated that the first Capacity Mechanism auction could be run in 2014 with a delivery date for winter 2015/16 and we would emphasise the importance of this timetable to providing the right incentives for optimal decision-making on existing thermal plant.

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?

Investment decisions for new gas-fired generation are driven by the expected rate of return on the investment. This is determined by forecasts of clean spark spreads, i.e. revenue derived mainly from the wholesale price minus the marginal cost per MWh, which includes gas and carbon costs etc. This spread must be sufficient to provide a return on the fixed costs of construction and maintenance of the plant. The drivers of the spread include expectations of commodity prices, an assessment of the relative competitiveness of the different thermal technologies (i.e. what technology is at the margin) and the level of scarcity in the market.

Another central factor that has changed the investment landscape is the introduction of the Carbon Price Support mechanism under EMR. The effect of this is to reinforce the argument for the early introduction of a Capacity Mechanism in 2014 with the first delivery year in 2015/16. In particular, we consider that with the early introduction of a properly designed and technology neutral market-wide Capacity Mechanism, the right incentives could be created for the optimal utilisation of existing coal plant using unsubsidised fuel and running to the benefit of the wider economy. This is crucial for decision-making around the IED, both whether to opt out, and if so whether to use the running hours as quickly as possible or spread them out in the period to 2023. The early introduction of a Capacity Mechanism will be equally important for incentivising sufficient new gas build.

Some key considerations in ensuring a workable and cost-effective design of a market-based Capacity Mechanism are as follows:

- The design should be as simple as possible;
- New and existing thermal plant should compete on a level playing field.

- Contracts of at least five years should be offered to both new and existing plant – longer contracts are likely to reduce the volatility of prices, to the benefit of suppliers, generators and customer.

- Any penalty regime, if deemed necessary, should be designed to avoid unnecessary cost to consumers: excessive penalties will be priced in to auction bids. (We believe that the incentives to deliver in the energy only market remain strong.)

- It will be important to ensure that any Ofgem work on reforming the existing electricity cash-out regime does not undermine the increased investor certainty that an effective market-wide Capacity Mechanism should bring.

Going forward, other key factors driving the economics of investment will be the introduction of more intermittent renewable plant onto the system and the possible narrowing of the overall energy mix. This will need to be assessed over time through dynamic forecasting/analysis.

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?

Most of the existing barriers to building new gas generation plants in the UK are market incentive and regulatory ones, including, crucially, the timing of the introduction of a new Capacity Mechanism. The technology, costs, construction risks, operational and maintenance issues, and ancillary benefits from flexibility, are generally well understood. (One qualification to this is to note the potential disconnect between long planning lead times (eg 7 years) under the Planning Act 2008 in respect of major new infrastructure needs, such as pipelines, and an otherwise shorter project development timeframe for a new build CCGT.)

Most of the key regulatory uncertainties are referred to in our response to Question 3 above. In particular, the uncertainty around the design and timing of the new Capacity Mechanism under EMR, the trajectory of the carbon price floor and the Ofgem cash-out review are all currently adding to investor uncertainty and will be likely to drive up the cost of capital until they are satisfactorily resolved.

One key regulatory uncertainty which is in the process of being addressed relates to the new Emissions Performance Standard (EPS). The confirmation from the Government that it intends to enshrine in primary legislation the grandfathering of the 450g/kWh annual emissions limit until 2045 will provide the necessary certainty over the appropriate investment horizon. We would add that any differentiated approach by the devolved administrations on this issue would have obvious consequences for locational investment decisions.

There are also uncertainties around some of the commercial elements of investments. These include the evolution of international commodity markets, including the structure of long-term contracts and the extent to which they are linked to oil prices. In addition, there may be greater risk of price fluctuations if contracts are to be increasingly hub-linked. However, we would emphasise that market participants should be equipped to mitigate these risks.

Developers will also need to be confident over future gas supply availability. Accordingly, energy policy and regulatory frameworks must continue to foster a stable investment environment focussed on competitive wholesale market arrangements both here and in the development of the wider EU competitive market.

Finally, given that 'swing supply' will be increasingly important to help meet peak demand, it will be important to ensure that our gas infrastructure is appropriate for this. The UK currently has a very liquid gas market with diverse supplies from mainland pipeline and imported LNG. However, flexible storage capacity will be increasingly important in the future, including fast-cycling storage facilities. In this context, we note Ofgem's continuing work on possible gas security of supply interventions due to report this summer. We are continuing to engage with Ofgem on this work and we comment further on this in our response to question 6 below.

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

We have set out above our key concerns in respect of the Government's proposals for the Capacity Mechanism and the EPS. We would also highlight the following issues:

- The Carbon Price Support (CPS) trajectory is being questioned – there are increasing concerns around the bankability of the CPS given the potential for a growing divergence from other European countries and the differential impact this has on large industrial energy users and other consumers in the UK. We do not consider the trajectory to be sustainable in the longer term and this creates uncertainty as to when and by how much the trajectory will change.

- The results of Ofgem's cash-out review will be central to understanding risks and the value of flexibility in new plants. Any cash-out reform must not undermine the effective operation of the Capacity Mechanism.

- The proposals for changes to transmission charging being developed under Ofgem's Project TransmiT are also important for new investments. A central issue here is the connection between load factors and transmissions charges under any proposals for reform. This is key, both for investments in life extensions of existing plant and in new plants. This is of particular importance for those projects that would expect reduced load factors in the event of new nuclear and offshore wind capacity increasing significantly in the future.

- Overarching all of these issues are regulatory changes required in the GB market to ensure compliance with the EU Third Package and other EU legislation. These changes might lead to more harmonisation of products and processes across the EU, and could include codes for capacity allocation and congestion management, balancing and tariffs. Early clarity on any such changes and adequate lead-times will be important to provide investor confidence.

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?

Developers of gas generation will need to have confidence that the NTS and other gas infrastructure will be sufficiently robust and flexible to meet the changing demands that may

be placed upon it as a result of system changes such as the growth in intermittent generation. In this context, we are engaging with Ofgem on its gas security of supply work and understand that this is due to report to DECC in the summer so as to feed into the Gas Strategy. Whilst we welcome this, we would note that a number of the possible interventions under consideration could have very significant implications for the existing market and therefore the timetable for completion of this work does look challenging. For example, we understand that one option under consideration is a strategic storage option involving central procurement or underwriting of storage capacity which would represent a major intervention in the existing market with significant consequences for market incentives. Another option being considered is some form of storage obligation; this could be more consistent with the existing market. However, the design of any such obligation would need to be carefully considered, especially taking account of any potential transitional impacts on existing market incentives.

The UK currently has one of the most flexible gas systems and we would emphasise that energy policy and regulatory frameworks must continue to foster a stable investment environment focussed on competitive wholesale market arrangements both here and in the development of the wider EU competitive market.

With the introduction of a Capacity Mechanism, it will be important to understand the possible interactions between stressed conditions in both the electricity and gas systems. Thus, a Capacity Mechanism is likely to encourage investment in new gas build and this in turn will have implications for gas security of supply. This is therefore an issue that should be considered by DECC in their Capacity Mechanism design work.

Shale gas outlook

There are a number of potential scenarios for the future of global gas demand and supply that must be considered when deciding about investments in gas generation or infrastructure capacity. Parties will wish to carry out their own assessments. In summary, we note the very significant exploitation of shale gas reserves in the US and other areas of new potential around the world. There is, however, clearly uncertainty concerning on the one hand, the extent of opportunities in the UK, and, on the other, the implications of global developments for the UK market. On the latter issue, one key question will be the extent to which growing demand in Asia absorbs any new export potential from other parts of the world such as North America and Australia.

However, what is clear is that future gas supply sources will need to become more diverse as the UKCS continues to dwindle and in time the demand side flexibility provided by the coal generation fleet begins to diminish. Policy should look to maximise what can still be extracted as well as promote viable alternative indigenous sources. Beyond that, diversity of supply sources will remain fundamental to ensuring security of supply. The approach adopted in the GB market thus far has successfully delivered the infrastructure investment necessary to meet GB demand. Going forward, the focus should remain on addressing regulatory, market or physical barriers that might discourage investment in the GB market or the delivery of gas to it.

ScottishPower
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