

SUBMISSION FROM SCOTTISHPOWER

You have already received evidence from our networks business on the matters within their areas of responsibility as a transmission owner and distribution network operator within the South of Scotland.

This response considers the issues at an overall level, concentrating on the non-network businesses within ScottishPower.

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1. Introduction

Security of supply is a wide ranging subject. At one level, it can be considered a major geopolitical issue with a global or international dimension, as witnessed by the current focus of EU institutions on the Energy Union concept and a desire to diversify fuel supply routes.

At a Member State level, there is a clear imperative for the UK to focus on security of supply, in terms of ensuring that the market mechanisms are in place to ensure timely investment to achieve a secure, cost effective, and low carbon energy system.

Against this backdrop, security of supply is however also an important local issue, with both consumers and employers needing reliable supplies at their premises. Ensuring security of supply on average across the energy system cannot be considered a success if parts of the system were to face a significant deterioration in security of supply.

In Scotland, the way in which security of our electricity supplies is achieved is changing. The current policy landscape including carbon pricing, grid charging and compliance with EU environmental legislation has had adverse implications for thermal plant in Scotland. As this plant closes or reduces capacity, security of supply in Scotland is being increasingly supported by interconnection with England, especially at times of low wind output. In this context, storage facilities such as ScottishPower's unit at Cruachan could play a key role.

It will be for National Grid (NG), as system operator of the single GB market, to assure itself that it has access to all the tools it needs to maintain a secure supply of good quality in Scotland, including in fault conditions.

In assessing where energy security challenges may arise in future, it is important to define what is meant by security of supply in physical terms. Three distinct measures of energy security need to be considered:

- **Generation capacity (as measured in MW):** Ensuring sufficient generation capacity on the transmission and distribution networks to meet peak demand.

- **Energy production (as measured in MWh):** Having sufficient fuel and other resources to produce electricity to serve demand 24 hours per day, seven days per week.
- **Flexibility and quality:** Ensuring system stability and resilience through the provision of reactive power, balancing, black start and other ancillary services.

While the first two of these are matters which can be approached at a GB level within the GB single energy market, the third has a more local element. Ensuring secure energy supplies across these three areas during a period of declining conventional generation will require new approaches to be developed. We understand that NG, the GB system operator, in conjunction with the two Scottish transmission system owners (including ScottishPower Energy Networks), have completed the necessary system studies and have accelerated investment within the RIIO frameworks in order to mitigate the risks associated with accelerated closure of thermal generation. It is for NG to ensure that these arrangements are sufficient to fulfil its role in ensuring secure supplies.

With the potential for new security of supply challenges to emerge, both in the short to medium term, but also in the longer term as Scotland's nuclear plants reach the end of their lives, it is imperative that the policy responses are well considered. In our opinion, the main priorities to underpin security of the energy system in Scotland are as follows:

- Maintaining a strong focus on **infrastructure and interconnection investment**;
- Maintaining a strong focus on **cost effective onshore wind** as a key source of energy production;
- Promoting the future role of **pumped storage** and other **sources of flexibility**, especially in Scotland;
- Ensuring that the GB arrangements are sound and in particular that adequate capacity is being procured under the **Capacity Mechanism**.

2. Topics highlighted in the call for evidence

Q1: Supply and whether there is sufficient generation to meet demand, in particular to the end of the decade. *What role will new generation that is under construction, or has been consented play?* The Scottish Government aims to have a "largely decarbonised electricity system by 2030". *What does this mean in practice, and are there sufficient tools to bridge the move from fossil fuels to renewables?*

Scotland operates within a single, integrated GB energy market. Evidence provided by Ofgem and NG through the annual capacity assessment process highlights an expectation of a decline in the de-rated GB capacity margins to below 2% in some scenarios for 2015/16 and for tighter than historic margins in subsequent years. NG has developed additional tools, such as the Supplementary Balancing Reserve and Demand Side Balancing Reserve, to help manage supplies and we understand that

these are considered by NG to be sufficient for the immediate future. From autumn 2018, overall system adequacy is intended to be supported through the capacity mechanism (see Q4 for discussion).

In terms of reflecting that position into Scotland, the most immediate factor is the timely completion of sufficient new transmission and distribution infrastructure and interconnection to facilitate the flow of energy across the integrated GB electricity system. The investments envisaged in RIIO:T1, including the innovative West Coast HVDC sub-sea connection and further onshore reinforcements, will greatly enhance import capacity onto the Scottish system, though appropriate storage and thermal generation plant in Scotland is also likely to be required to assure flexibility, resilience and quality of supply. The precise requirements here are for NG to determine so that it can if necessary purchase additional services to support security of supply.

Investment in renewable energy is delivering strong growth in energy production from a variety of renewable technologies in Scotland, principally onshore wind. The Scottish Government has confirmed that renewable output in 2014 equalled 49.6% of gross energy consumption in Scotland, well on track to deliver the interim target of 50% by 2015. Onshore wind, in appropriate locations, produces renewable energy at significantly lower cost than offshore, thus mitigating the bill impacts of the move to renewables. The auctions under Electricity Market Reform (EMR) are driving down costs, which gives the opportunity of further benefits for consumers.

Scotland retains significant potential to continue this success story. For example, ScottishPower Renewables has almost 500MW of consented onshore wind capacity (including the 288MW Kilgallioch project) and a further 130MW awaits planning decisions. Our remaining development pipeline currently totals around 800MW and is to a great extent dependent on the future political context for onshore wind. As well as helping drive decarbonisation, cost effective onshore wind in Scotland can make a contribution to energy security by reducing the dependence on imported fuels. The continued deployment of increasingly low cost onshore wind in Scotland will however depend on the continued availability of Contracts for Difference (CfDs) under EMR, until such time as costs reduce (with the pressure of competition driving efficiency and technological innovation) to a level where no support is needed.

In terms of non-renewable technologies, the current system of locational transmission charges places a material cost disadvantage to projects seeking to locate in Scotland. The current reforms, still under legal challenge from a southern generator, will only partially alleviate the position. As a result, the economics of new thermal generation in Scotland look weak and this will have implications for the 2.5GW of thermal generation included in the current version of the Scottish Government's Electricity Generation Policy Statement.

Under current policies, it is therefore likely that the supply of electricity in Scotland will be largely decarbonised as soon as 2020, with the closure of much of the fossil fuelled generation and a fleet comprising mainly wind, nuclear, hydro and storage. During the 2020s, there is a possibility that some of the nuclear generation will close, and it is unclear whether new thermal generation would be feasible at that stage.

For now, it seems likely that the necessary backup for when the wind is not blowing will be provided through interconnection with the rest of the GB single market.

In this context, it is important that new sources of flexible generation and pumped storage hydro are considered. Not only could this be valuable for the GB system as a whole but it could increase the available ancillary services in Scotland and balance out the grid to use the interconnection more efficiently. ScottishPower and other generators in Scotland are exploring the potential for investment in new pumped storage projects. However, there are significant risks around whether the relatively high capital outlays required can be recovered through market revenues and ancillary services payments over the project life. It will therefore be important for developers to work with policymakers to explore whether a new investment or risk reduction framework can be established to bring forward this valuable source of system flexibility. We note that a similar problem for new electricity interconnectors is being addressed by Ofgem through a “Cap and Floor” approach.

We would advocate close cooperation between Scotland and UK Governments to assess these issues. Further review of the locational signals within generator transmission charges may be one aspect of such a review; however it will be important to ensure Ofgem decisions on Project TransmiT are implemented in full in the interim period.

Q2: How predictable peak demand is at present, and how is this likely to change in the coming decade. In particular what impact will the development of demand side response have? What could be done to improve developments in this area?

Peak demand on NG’s system has been on a downward trajectory over the last decade. At a Great Britain level peak demand, as evidenced by peak TRIAD demand has fallen from 59.5GW in 2007/08 to just over 51.3GW last year. The trajectory within Scotland is not dissimilar.

The factors that have driven this reduction include:

- the growth in embedded generation capacity,(i.e. generation connected to distribution systems, which shows up as negative demand on the Grid);
- the scaling up of energy efficiency programmes (including significant improvements in appliances); and
- reduction in industrial demand, in part as a result of the financial crisis.

Some of these factors are inherently difficult to predict with any certainty, and past trends are not necessarily a guide as to what will happen in future.

We have also observed significant growth in demand-side response, both from customers with “discretionary” tranches of load which they are willing to reschedule for suitable commercial incentive and from customers with onsite backup generation capacity connected to the distribution network such as diesel generation. We believe that Demand Side Response (DSR) load is increasingly active in competing in the market for TRIAD management and a whole range of balancing services including reserve, frequency response and frequency control. DSR providers can

now also compete in the short term balancing services market tenders operated by NG, and in the Capacity Mechanism.

Q3: A number of new transmission projects are currently under construction or being planned. *What role will these have in securing electricity supplies, and where should future investment be directed? What role might the distribution network, and a single European energy market play in securing supplies?*

Please refer to the ScottishPower Energy Networks response submitted to the Committee on 6 May. In addition, we would highlight the potential for the single EU internal energy market to introduce new, mandatory changes to market arrangements in Great Britain. Whilst we expect some flexibility in implementation to be afforded to National Regulatory Authorities, these changes have the potential to impact security of supply. For example, EU developments might:

- harmonise the approach to transmission tariffs, which could reduce the high charges borne by generators in Scotland;
- level the playing field with imports (GB generators currently pay carbon taxes and grid charges not borne by interconnectors or overseas generators); or
- create new pricing zones, so breaking up the single GB market.

Q4: A number of significant changes to the electricity market have recently been finalised and are being put in place to ensure competition and cost reflective pricing for consumers. *Are policies such as the capacity mechanism under Electricity Market Reform adequate, and what other long term signals might be necessary to ensure security of supply?*

The electricity industry has worked hard with the UK Government to ensure the policy mechanisms introduced in EMR are well designed and can underpin enhanced security of supply for GB consumers.

The first capacity mechanism auction was largely successful. However, we think that the UK Government may have set the volume to be procured in the first auction slightly on the low side and that some topping up may be required in the year before delivery. It will be important in subsequent auctions to ensure both that the quantity is adequate and that there are sufficient measures to deal with speculative plants. We would encourage the UK Government to proceed with the second auction on the planned timetable, addressing these two issues.

The first Contract for Difference (CfD) allocation round was also successful, achieving significant progress in cost reduction to the benefit of consumers. We would encourage the UK Government to build on that success with further auction rounds for both established and less-established technologies, including onshore and offshore wind, with a view to drawing out further cost saving progress. It will be important to give some clarity at a reasonably early stage as to the timing of the next round and on the roll forward of the Levy Control Framework into the mid-2020s.

The existing EMR mechanisms are also unlikely to bring forward new investment in flexibility and storage capacity and, as noted above, we would advocate exploring alternative policy options to secure such investment.

Q5: Any other matters concerning security of supply that you would like to the Committee's attention.

None.