SUBMISSION FROM SCOTTISH RENEWABLES

Introduction

Scottish Renewables is the voice of the renewable energy industry in Scotland. We represent more than 320 organisations working across a range of technologies including wind, marine, hydro, bioenergy and solar.

Scotland's renewable energy sector is now a major part of our economy, supporting well over 11,000 jobs and generating over £1bn of investment in 2013 alone and it is key to our environmental ambitions having displaced almost 12 million tonnes of CO_2 in 2013[1].

We have structured our evidence in line with the Economy, Energy & Tourism Committee's questions that specifically relate to renewable energy in Scotland, focussing on measures that can be employed between now and 2030 to increase our portfolio of renewables generation and maintain security of supply.

Supply and whether there is sufficient generation to meet demand, in particular to the end of the decade.

We refer to the recent submission by National Grid, SP Transmission and SHE Transmission[2] in which it was stated:

> Security of electricity supply in Scotland is a function both of the availability and flexibility of 'local' generation plant located in Scotland and the capability of the Main Interconnected Transmission System (MITS) to support Scottish demand from generation plant located in England and Wales. Having undertaken a review on MITS, it was concluded that the existing transmission system can support a transfer in the winter months of approximately 2.65GW from England and Wales to Scotland. This represents 48% of the approximate 5.5GW winter maximum demand for electricity in Scotland. To secure this maximum demand at times of low wind generation output, around 2.85GW of generation output will be required across Scotland. While due consideration must be given to unforeseen plant breakdown and unavailability, this requirement can presently be met from a combination of generating stations, including Hunterston, Torness, hydro and pumped storage stations, Longannet and Peterhead.
>
> However, there remains a low probability although credible risk that during periods of low wind and hydro output combined with low availability of the large thermal plant, the winter peak demand may not be met.
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> Completion of the Western HVDC Link in 2016/17 will significantly enhance the capability of the transmission system, and enable transfers from England and Wales to Scotland of up to 3.9GW. This represents 70% of the prevailing 5.5GW winter maximum demand.

[1], 1http://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Commons/2014-10-16/210931

[2] ,

There is sufficient transmission capability to secure Scottish electricity demand now and this capability will be significantly increased from early 2017 on completion of the Western HVDC Link and Beauly – Denny 400 kV reinforcement. There is a low risk that the power transfer from England to Scotland may exceed system capability prior to the completion of the Western HVDC Link. This risk is for limited periods when neither Longannet nor Peterhead generation is available and coincidental with periods of low wind generation. This risk will be mitigated by post fault SO actions.

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 in place to bridge the move from fossil fuels to renewables?

The role of renewables generation in meeting demand: Renewable energy continues to play an increasing role in our energy mix. The installed capacity of renewables generation has grown significantly in recent years and there are currently over 7GW of renewable energy projects connected to the network, making a significant contribution to our electricity mix. In 2014 renewable energy was confirmed as Scotland's largest source of power, meeting almost half of the country's electricity needs (49.6%).

Given Scotland's vast resource of renewable power this capacity is set only to grow. There are currently 600MW of renewable electricity projects under construction this year. A further 8.2GW have secured planning permission, though much of this can only be built if projects are able to secure a Contract for Difference and/or a grid connection (for example, Viking Wind which is more than 400MW in size).

The 2030 electricity system: The Committee on Climate Change and National Grid have both clearly set the importance of increased renewable generation as a fundamental part of a low carbon 2030 electricity system and that renewable energy will form part of a balanced energy mix in this transition[3][4].

The right tools to bridge the move from fossil fuels to renewables: The growth of renewables has ensured that Scottish exports of electricity have increased over recent years while CO2 emissions have reduced and it is clear that renewables will form part of a wider system for significant time to come, albeit a growing one. New technologies such as storage and demand side response will have a pivotal role to play in supporting this transition and will provide a valuable source of flexibility within our electricity capacity.

Although there is a growing expectation that the capital costs of storage will fall, cost is often viewed to be a key barrier to deployment of this technology. However, a number of projects taken forward under the Low Carbon Networks Fund have shown that it is possible to significantly improve the commercial viability of storage by realising the additional value that it can add to the system. Additionally, Distribution Network Operators (DNO's) have also shown that they are well placed to realise

[3], http://www.theccc.org.uk/wp-content/uploads/2013/12/1785a-CCC_AdviceRep_Chap3.pdf
[4] http://www2.nationalgrid.com/UK/Industry-information/Future-of-Energy/Future-Energy-Scenarios/

many of these benefits which include the avoided cost of investing in new network assets, revenue from providing services to the national grid and revenue form the wholesale market.

As it stands, there is some uncertainty around the ability of DNOs to do this given the commercial and regulatory definition of 'storage' and the restrictions around DNOs being active in generation or supply markets.

We would suggest that this regulatory uncertainty should be considered further and that it is now time for Scottish Government to assess the potential development of storage in Scotland over the short medium and long term and the

In addition, Scotland has significant potential for pumped storage although it is not clear if economic, and we believe that assessment of the potential for pumped storage, its role in the energy mix, and the necessary regulatory and financial framework should be a priority for the new UK Government.

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?**

The Committee on Climate Change anticipate a 30% increase in demand by 2030 due to the increased electrification of heat and transport[5] and The DECC Smart Grid Forum have modelled a range of scenarios for increased demand and found that overall levels of demand are likely to rise 29% - 54% by 2050 over 2007 levels.6 Although it is unclear how this will impact on peak demand, it is estimated that expanding the uptake off DSR services could lead to a 10% reduction in electricity system costs7 and a number of trials in households have shown that smart meters combined with time of use tariffs can lead to a 10 – 14% reduction in peak demand8 with significant potential to reduce energy bills.

Providing consumers with the tools to more actively manage demand with the roll out of smart meters is an important step to enable consumers to benefit from DSR. However, the ultimate success of smart meters rests with the ability of network operators or suppliers to set incentives through smart pricing which appears contrary to the regulatory focus on reducing the number of tariffs that suppliers are able to offer.

Overall, there is a growing need to set out a clear vision as to how demand side response will develop and to capture the benefits of this solution across the network and at a local level

A number of new transmission network 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

[5] http://www.theccc.org.uk/wp-content/uploads/2013/12/1785a-CCC_AdviceRep_Chap3.pdf
[6] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48550/6099-elec-system-assess-future-chall-full.pdf
[7] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48551/5759-electricity-system-analysis--future-system-benefit.pdf
[8] https://www.ofgem.gov.uk/ofgem-publications/59105/energy-demand-research-project-final-analysis.pdf

the distribution network, and a single European electricity market play in securing supplies?

Transmission projects: Improving the transmission infrastructure in Scotland has been a significant focus for the renewable energy industry in Scotland and delivering these upgrades on time will be a vital in maintaining security of supply.

While we recognise that it is impossible to deliver a network that will ensure that the system is always in balance we are pleased to see that progress is being made on the majority of the planned upgrades identified by the Electricity Network Strategy Group (ENSG)[9] and that where certainty is provided in the future further reinforcements will be taken forward – including the East Coast interconnector.

Distribution network: Allowing low carbon generation to connect to the distribution network not only helps to increase the energy mix, but can also reduce the need for network infrastructure and reduce transmission and distribution losses (if it is connected close to the point of use). For consumers, distributed generation has the potential to lower electricity bills where the energy is used on site and offers opportunities to generate revenue through selling unused generation to the network and through providing ancillary services.

However, the distribution network has become increasingly constrained with a number of generators seeking connection agreements with the Scottish DNOs being offered connection dates beyond 2020, often involving high costs. With this in mind, it is our view that creating the right regulatory environment to allow DNOs to take on more 'system operation', to balance supply and demand within the distribution network, and deliver innovative solutions such as 'active network management', could help to facilitate earlier connections.

Single EU market: We are aware that Ofgem has recently approved a number of interconnector links. While these are useful in helping maintain security of supply, there is some concern that, as we move to a single EU market, GB's locational pricing structure could create a significant disincentive for new capacity if generators are able to locate in other countries with comparatively lower prices.

The current transmission tariff structure in the GB market, as one of only three members' states with a locational pricing structure and the only member state with negative charges, creates a significant disadvantage to the GB market participants. A lack of harmonisation under the existing system of transmission could distort the market and potentially make it more expensive to generate electricity in Scotland than out with UK

While we welcome the proposed amendments to the transmission charging regime that were developed through Project TransmiT, we would strongly encourage the continued scrutiny of this pricing system and its potential to disadvantage Scottish and UK generators as we move towards a single EU market.

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

[9] https://www.gov.uk/government/groups/electricity-networks-strategy-group

prices 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 success of many of future renewable energy projects will rest in their ability to secure support, either through the Renewables Obligation before it closes in April 2017, or through the competitive allocation of Contracts for Difference, and ultimately constrained by the Levy Control Framework.

The first round of the UK Government's CfD auction has highlighted the competitive advantage of Scottish renewable energy generation, with over 500MW of onshore wind projects securing a contract out of a total of 748MW, as well as one offshore wind project securing support for 448MW. However a number of future developments are significantly put at risk without any sight of future support to be made available through the Levy Control Framework beyond 2020.

Having worked closely with all stakeholders through the extensive consultation process in developing the Contract for Difference, industry is increasingly confident that this new mechanism in combination with the renewables obligation to 2017 will be able to meet UK targets. However it is our view that in order to provide the necessary confidence in and ensure the effective operation of the CfD mechanism for projects both now and in the longer term a number of changes to the contract terms will be required in addition to providing greater information on future budget availability.

Overall, we strongly support the extension of the Levy Control Framework beyond 2020 which should be underpinned by a 2030 decarbonisation target, in order to provide the necessary confidence to industry to continue investment in generation and maintain security of supply.