



Briefing: Scottish Conservative Debate, 25th February

SCOTLAND'S CHANGING POWER SECTOR

Decarbonising electricity generation by 2030 should be key to Scotland and the UK's future energy system. An almost fully-renewables based electricity system is technically feasible and achievable by 2030. Even if Longannet closes, Scotland will continue to be a net-exporter of electricity to the rest of Great Britain.

Key Points

- The Scottish Government has followed UK Committee on Climate Change advice and set a target of decarbonising Scotland's electricity generation by 2030. This is a welcome commitment, but to be meaningful it requires current decision making to be consistent with this goal.
- Independent analysis for WWF Scotland has shown that **an almost fully-renewables based electricity generation system**, with Scotland not relying on thermal power (i.e. nuclear, coal or gas) for electricity generation, **is technically feasible and achievable in 2030**, with Scotland continuing to export electricity to the rest of Great Britain.
- Any decision to close Longannet is a commercial decision for Scottish Power. The Scottish Government have **long assumed that Longannet would close by 2020**.
- Analysis by industry experts has shown that electricity generation from **coal does not need to be retained in order to maintain security of supply in the UK**.
- **If Longannet closes in the immediate future, Scotland will continue to be a net-exporter of electricity to the rest of Great Britain.**
- **The inevitable closure of Longannet and signals from Scottish Power that its immediate future is uncertain should trigger focussed efforts on securing new employment investment into the area.**

Vision for 2030: A Decarbonised Electricity Sector

WWF Scotland strongly supports the Scottish Government's electricity sector decarbonisation target for 2030 of 50g CO₂/kWh and is calling on all political parties to commit to an equivalent target for the whole of the UK at the UK General Election. The Scottish Government's currently planned pathway for achieving its 2030 target is set out in its Electricity Generation Policy Statement¹. This assumes that the 2030 decarbonisation target will be achieved in part by installing Carbon Capture and Storage (CCS) to thermal power in Scotland at scale, alongside strong renewables growth. Whilst WWF Scotland continues to firmly support the testing of CCS technology in Scotland, we are

concerned that the commercialisation of CCS has not yet been happening at pace. The Scottish Government has a responsibility to plan and cater for a scenario in which CCS does not establish itself commercially as quickly as might previously have been hoped. **WWF Scotland is calling on the Scottish Government to review its Electricity Generation Policy Statement** in light of this.

An independent report for WWF Scotlandⁱⁱ, undertaken by the internationally-renowned engineering consultancy firm DNV-GL, has shown that **an almost fully-renewables based electricity generation system, with Scotland not relying on thermal power** (i.e. nuclear, coal or gas) for electricity generation, **is technically feasible and achievable in 2030**. The scenario assumes Scotland remains part of a GB grid. In the scenario tested, Scotland continues to be a net-exporter of energy to the rest of the GB grid.

There are important roles in this vision for electricity demand reduction, demand-side response, interconnection and storage. Electricity demand reduction especially must be the focus of greater efforts from both the Scottish and UK governments. To support efforts in this area **the Scottish Government should publish an electricity demand reduction strategy** to ensure we decarbonise our electricity supply at the lowest possible cost.

There should also be continued effort to improve grid interconnection, in particular for the Scottish islands, and to improve flexible energy storage options in Scotland, such as pump-storage.

Longannet

Concerns have recently been raised about the future of the Longannet coal-fired power station. It is important to note that **Longannet is now over 40-years old and that its closure has been long anticipated**, for example in the Scottish Government's climate action plan, the Report on Proposals and Policies, and in the Scottish Government's Electricity Generation Policy Statement, both of which assumed that Longannet would be closed by 2020. **Failure of Longannet to close by 2020 would make it extremely difficult for Scotland to hit its future Climate Change Act targets.**

Ultimately, **any decision to close Longannet is a commercial decision for Scottish Power**, and their intention about its future was most recently signalled by their decision not to bid in the UK Capacity Market Auction for 2018/19. This course from Scottish Power is ultimately being driven by a combination of factors, including the Carbon Price Floor and the EU Industrial Emissions Directive, which requires coal plants to retrofit technology for meeting sulphur dioxide limits.

The Conservatives, Labour and Lib Dems recently committed to ending the use of unabated coal for electricity generation. Recent analysis by a group of industry experts for E3Gⁱⁱⁱ shows that **coal does not need to be retained to maintain security of supply in the UK**. Even in an extreme scenario of early coal closures, it shows that "the electricity system is extremely robust ... such extreme circumstances can be managed without any loss of supply for consumers. **Any additional risk to security of supply of early coal plant closure is, therefore, negligible and does not justify the material threat to decarbonisation objectives** associated with retaining the option for coal plant to generate throughout the 2020s."

Does Longannet closure threaten security of supply in Scotland?

Figures from DECC^{iv} and the Scottish Government show that across the course of a year without Longannet, Scotland's electricity generation will still comfortably exceed Scottish electricity demand. **Even if Longannet closes in the immediate future, Scotland will continue to be a net-exporter of electricity to the rest of Great Britain.**

	Electricity generation ^v	Scottish annual electricity consumption (2013 figure)	Net annual exporting to rest of GB-grid
Total Scottish electricity generation (2013)	53,071 GWh	38,256 GWh	+ 14,815 GWh
Total Scottish electricity generation from all sources excluding Coal*	42,118 GWh	38,256 GWh	+ 3,862 GWh

*In 2013 (the last year for which full-year consumption figures are available), some electricity from coal was generated by the Cogenzie power station. However, Cogenzie closed in March 2013, meaning that the vast bulk of the year's figures are from Longannet. This makes this figure a conservative overestimate of Longannet's contribution to total generation in 2013.

At peak demand, the National Grid have also said in their Electricity Ten Year Statement 2014 that currently 3GW of generation is required to maintain security of supply in Scotland during times of low wind energy generation. National Grid say that this amount is expected to fall to just 1.5GW, once the Western HVDC ("Western Bootstrap") is completed in 2016.

However, according to the figures we have available, even without Longannet, 2.44GW of nuclear generation capacity, 1.5GW of hydro generation, 0.78GW of gas capacity at Peterhead and 0.74GW of pump storage, as well as some biomass capacity, remains. So our understanding would be that even without Longannet, far more than the currently necessary 3GW would still be available in Scotland to meet peak demand at times of low-renewables power generation.

Therefore, any concern about imminent closure of Longannet should not be about meeting peak demand for power or maintaining the import/export balance in Scotland's favour.

What is not yet commonly accepted is whether there is a particular role Longannet plays in maintaining grid stability in Scotland, and whether any such role can be provided by other means (e.g. existing nuclear plants, biomass, pumped storage, interconnection). Other roles could include technical issues relating to system stability and balancing, such as black start, inertia and frequency control.

If there is any such issue, then it is National Grid's responsibility to independently describe the nature of that need, how long it will be an issue for, and what the range of potential solutions are. If National Grid makes such a statement, then there could be an informed debate about whether Longannet was needed to meet such a need, and whether it was the best solution in terms of cost to the bill-payer and cost to the environment.

Conclusion

We are in a global energy transition. Ultimately, the future electricity grid must move away from a system optimised around conventional 'baseload' power plants, which run all the time, towards a system where renewables become the new 'baseload', supplemented by flexible back-up generation, demand side response, storage (including heat storage) and interconnection.

ⁱ Final version available here: <http://www.gov.scot/Publications/2013/06/5757>

ⁱⁱ WWF Scotland's summary report, Pathways to Power, <http://assets.wwf.org.uk/downloads/pathwaystopower.pdf> based on DNV-GL Technical report, available on request

ⁱⁱⁱ Skillings et al (2015): Assessing the balance of risks associated with early plant closure: <http://e3g.org/x5wGb>

^{iv} https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/386870/Electricity_generation_and_supply.pdf

^v Available from the Scottish Government Energy Statistics Database



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.
wwf.org.uk

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