The debate on energy policy in Scotland has too often focused on examining the differences in policy between the UK and Scottish Governments. It is also overshadowed by the debate on nuclear energy. Reform Scotland believes we need a long-term energy policy for Scotland that looks at what sort of energy sector we want for the next generation. This should take into account how we can ensure a stable, diverse, clean and cost-effective supply to meet the needs of households, businesses and industry in the future. Further, we should decide whether we intend to become a net producer, exporting electricity to other countries.

The written evidence below summarises our publication, ‘Powering Scotland’, which can be downloaded from our website.

**Current picture**
The current mix of energy supply in Scotland, dominated as it is by fossil fuels, is not sustainable in the longer term either in financial terms (as global economic growth increases the demand for and, therefore, price of scarce fossil fuels) or in environmental terms (due to the carbon emissions from fossil fuels and their contribution to climate change).

Energy policy is largely retained at Westminster, although some elements of energy policy sit at the European Union level and some are devolved to the Scottish Government or to local government. However, the Scottish Government has control over the most effective mechanism for realising energy policy objectives, planning powers for any power station with a capacity of 50 megawatts (MW) or more.

Scotland is connected to the UK electricity grid and is currently an exporter of electricity. In 2009, Scotland exported 12,000 Gigawatt hours (GWh) of the 51,000 GWh generated and so exports were equivalent to 24% of the electricity generated in Scotland.

With the lives of some of the large power stations being extended, plans for a new gas fired power station to replace the coal fired power station at Cockenzie and substantial further investment planned in renewable energy (in particular wind power), encouraged by the Scottish Government’s 2011 and 2020 targets, the risks of an ‘energy gap’ have receded, at least in terms of the overall annual supply and demand for electricity.

Renewable energy has made an important contribution to the electricity generation mix in Scotland since the post war investment in hydroelectric power, particularly in the Highlands and Islands. In 2009, hydropower accounted for 12% of electricity generated. Over the last decade there has been substantial investment in on-shore wind power, which contributed 11% of the electricity generated in Scotland in 2009, an almost 20-fold increase in a decade.

In early 2011, the installed capacity of on-shore wind had increased to 2,364 MW, from 1,487 MW in 2009. Scotland has led the UK in the development of on-shore wind and
currently has 61% of the UK’s operational capacity. If all of those on-shore wind projects in construction and consented and half of those in the planning stage are added, this would increase the installed capacity to 7,297 MW, representing an almost five-fold increase on 2009, and capable of meeting around 57% of the 2009 electricity demand from Scotland. These figures do not include on-shore wind farm projects being considered by developers (but not yet in the planning system), the offshore wind farms currently being planned, energy from waste, biomass and biofuel generation and new technologies such as wave and tidal power. When all of this is added to current and planned on-shore wind, the 100% target for 2020 seems achievable.

The lesson from other Northern European countries, which have comparable energy requirements, is that all are investing in new, low carbon electricity generation capacity. The energy policies being pursued reflect each country’s resources. So, for example:

- Norway is close to achieving a 100% renewables target, based on its natural hydro resources;
- Sweden also has extensive natural hydro power resources (although much less than Norway) but in 2009 reversed a previous phase out policy, deciding to replace its nuclear power stations;
- Finland has decided to invest in new nuclear, in order to meet emissions targets and achieve energy security.

Electricity generation from renewable sources has price disadvantage when compared to fossil fuel generation. However, with rising fossil fuel prices and economies of scale achievable as renewable energy sectors grow and the technologies mature, the price differentials are narrowing. In any case, the cost of generation is just one of the factors to consider when developing energy policy. Security of supply, environmental impact and economic development potential should also be considerations. There is no single source of generation that is preferable to others across all four of these factors. A decision therefore needs to be based on a balance of these factors. Renewable energy, wind power in the short term and new low-carbon technologies in the medium to long term can provide security of supply and significant economic development opportunities for Scotland, whilst delivering environmental benefits associated with decarbonising the economy. The generation costs are likely to be higher than we have become used to, although with increasing fossil fuel prices and carbon pricing, this is likely to be an issue whatever generation mix is pursued.

Reform Scotland’s energy policy recommendations

Devolve energy policy to the Scottish Parliament:
The UK Government has theoretical responsibility for energy policy. However, the Scottish Government has an effective veto through planning powers. Energy policy should be formally devolved to the Scottish Parliament so that the Scottish Government can formulate a clear energy policy that meets Scotland’s needs.
Increase energy exports:
We would support the aim of a substantial increase in energy exports with a target of around half of electricity generated in Scotland being exported because, even using conservative assumptions on prices, this would increase Scottish exports by £2 billion per annum, equivalent to around 17% of Scottish manufacturing exports to the rest of the UK. Given that some of the current fossil fuel and nuclear capacity will still be available in 2020, this is feasible if the 100% renewables target set by the Scottish Government is met.

Develop the potential of renewable forms of energy:
We support the policy of the SNP Scottish Government and the previous Labour and Liberal Democrat Scottish Executive, which has been to promote renewable energy development. This policy has been successful and it is now the time to go further. The Scottish Government was right to encourage the further acceleration of renewable energy generation by increasing the 2020 renewables target to 100% of Scottish electricity demand. A large proportion of that target can be achieved by wind power (on-shore over the next few years and increasingly off-shore as 2020 approaches) and so to encourage investment and to signal that Scotland is an attractive location for the development and deployment of new and emerging technologies, the Scottish Government should set longer term targets:
- that a significant majority of the electricity generated in Scotland, (between 50% and 75%), is met from low carbon sources by 2030;
- so that enough electricity is generated from renewable sources to exceed Scottish demand, so that Scotland becomes the biggest exporter of low carbon electricity in Europe.

Move away from a certificate-based system towards a carbon tax:
As part of the devolution of energy policy, we believe that the Scottish Government should consider a well-designed carbon tax (either particularly targeting the energy sector or as part of a wider carbon tax). This would be a direct tax on negative environmental impact rather than a subsidy for a particular solution such as the main tool currently used to provide an incentive for the growth of renewable in Scotland and the rest of the UK - Renewable Obligation Certificates (ROCs).

The introduction of a carbon tax in Scotland may require the devolution of greater fiscal powers to the Scottish Parliament and a carbon tax should be designed to price-in environmental costs rather than to raise revenue. However, if it did increase net revenue, there should be reductions in taxation elsewhere (e.g. VAT paid on energy by consumers) to maintain Scotland’s economic competitiveness.

Create the policy environment for energy innovation:
Following the devolution of energy policy to the Scottish Government, we would support a policy environment that encourages innovative, ‘low carbon’ sources of energy to accommodate new and emerging technologies that can make a significant economic
development and environmental impact, including carbon capture and storage. This would include:

- increased support for research and development (R&D) and commercialisation so that the excellence in the Scottish academic research base is translated to the market and to encourage both indigenous and international companies to invest in R&D in Scotland;
- a strategy for skills provision to ensure that universities and colleges are aware of future skills needs and have provision in place so that the industry can recruit the staff it will need;
- identification of other areas that could support energy policy. These could include transport, where the introduction of electric vehicles, combined with an increase in renewable energy could help to decarbonise the transport sector;
- set out a framework for the infrastructure provision that might be required to facilitate the further development of renewables. This is likely to include port facilities, development and testing facilities for new technologies and sites suitable for manufacturing facilities. These could be funded by a model such as tax increment financing (TIFs) or by issuing of energy infrastructure bonds, should the increased borrowing powers of the Scottish Parliament allow for such a model;
- accelerated planning arrangements for renewable projects;
- investment in domestic grid to facilitate an increase in new electricity generating capacity, distributed across Scotland;
- support for a wider European grid to facilitate a competitive Europe-wide market in electricity supply;
- access to grid at prices that do not discourage investment, which will require Ofgem to take account of the Scottish Government's energy policy as well as UK policy.

Phase out nuclear power stations: We do not think that Scotland's existing nuclear power stations should be replaced and we believe that the sites should be used to develop new energy technologies. New nuclear capacity is one option to meet international obligations and climate change targets set in legislation passed by the Scottish Parliament. This approach would have the advantage of delivering low carbon electricity and some estimates that have been made suggest that the generation costs per unit of electricity for nuclear are competitive with some other generation sources. However, the disadvantages of nuclear electricity generation include cost risks (associated with the risks of capital cost over-run and uncertainty about the long term costs associated with treating and storing waste) and the limited potential for the nuclear sector to contribute to economic development in Scotland, compared to other generation sources. The cost uncertainty and limited economic development potential means that there is not a strong case for nuclear generation in Scotland.
Conclusion
Energy policy is crucial to Scotland’s economic future. The energy sector has the potential to make a major contribution to the development of the Scottish economy. As a result of Scotland’s natural energy resources, the strengths of the university research base, the energy companies based in Scotland and a favourable policy environment, Scotland could become a world-leader in new energy generation technologies. Scotland could become a case study in sustainable development and export the technology and know-how around the world. Scotland needs an energy policy that recognizes this opportunity and removes the barriers to realising it.

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