SUBMISSION FROM OCEANFLOW ENERGY

Targets

1. Are the 2020 renewables targets (for electricity and heat) achievable? If not, why not?

Yes. Scotland currently has an average electricity demand of ~4GW. The total capacity of Scottish wind power, comprising installed, under construction, consented and planned projects is ~12GW. With a reasonable estimate of a capacity factor of 0.33, this is an average generation of 4GW. Scotland could therefore achieve matching of Scotland’s demand with renewable generation using wind power alone. As for heat generation, around 1 in 3 of Scottish households are still not connected to the gas network. Given that ⅔ of national heat generation is consumed in the home, if just half of these off-gas households switch to sustainable woodchip or other biomass boilers / CHP units, the renewable heat generation target of 11% will have been met.

2. What contribution will achievement of the 2020 renewables targets make to meeting Scotland’s CO2 emissions targets (a reduction of at least 42% by 2020 and an 80% reduction target for 2050) under the Climate Change (Scotland) Act 2009?

Surely this involves a straightforward if detailed calculation, based on the total capacity of renewables in place at the time of targets?

3. Will increase in demand from electric heat and transport be offset by efficiencies elsewhere?

No. There is very convincing empirical evidence - simply look at year-on-year national or global statistics of energy consumption alongside measures of efficiency - to suggest that efficiency does not offset demand, it drives it further on. At least in the present system under growth-oriented economies. Absolute demand must be reduced - that is, demand for the services and activities that require energy - rather than a reduction in the amount of energy required for each service or activity.

4. Has the Scottish Government made any estimation of the overall costs of achieving the targets, and identified which parties will bear them?

The Scottish Government is not alone in having committed far more to renewables expansion in terms of words and political capital, than real funding. There are very few examples of large-scale capital investment industries, such as wind energy, that have ever got off the ground or continued to prosper without continued, extensive support from the government. This is especially true for the fossil fuel industry. If the intention is for 100% renewable electricity generation by 2020, then the current financial support pledged by the government either assumes that private investment will put up 95% of the capital for this project, or that the price of renewable power is expected to come down to £75,000 per MW. I would suggest that one of these options is highly unlikely, and the other is ludicrous.
Challenges

1. Is the technology to meet these targets available and affordable? If not, what needs to be done?

Yes. Onshore wind-power is close to £1,000,000 / MW for some sites now. This is cheaper than coal power. It is cheaper than coal + CCS. It is much cheaper than Nuclear power. We could potentially achieve 100% electricity offset with onshore wind alone, and pay less than any technology other than gas CCGT. Offshore wind will come down in price, as will tidal power.

2. Are electricity generating or heat producing technologies compatible with the need for security of energy supplies?

It depends what type of technology you’re talking about.

3. Are our universities and research institutes fully geared up to the need for technological development, innovation and commercialisation?

Yes. We are well-stocked in this area. What Scotland needs is a resurgence of its former shipbuilding facilities, and a massive reforestation program.

4. Is the supply chain in Scotland in place to meet the targets?

No. We have to import a great deal of engineered components and raw materials - these supply chains could be cut off for many reasons in the future. This is not something that we can reasonable expect to change. However, it is a much less dire and less likely prospect than the possibility of fossil fuel shortages in the near future.

5. What further improvements are needed to the grid infrastructure or heat supply networks both at a national and a local level? Additionally, are we confident that the necessary infrastructure can be developed and financed so that Scotland can export any excess electricity generated to the rest of the UK and/or the EU? What is the role for the Scottish Government here?

Household who are already cut-off from centralised distribution networks of gas and electricity should be given extensive financial support to obtain and install micro-generation technology and to engage with nearby households to commission community generation schemes.

The existing networks should be re-prioritised towards tapping renewable energy supplies in the North-West, and exporting them towards the South-East. All thoughts of a submarine cable network in the Irish Sea should be banished until both countries are in a position of strength and independence in terms of their energy needs. A submarine cable across to Norway is a much better option to pursue, if the need arises to look beyond England.

6. Is the planning system adequately resourced and fit for purpose?
No. Both the onshore and marine planning procedures generate huge financial overheads, failed projects, wasted capital and skeptical investors.

7. How can national priorities be reconciled with local interests?

By listening to people locally, and responding nationally.

8. Will sufficient funds be available to allow investment in both the installation and the development of relevant technologies? What can the Scottish Government do to influence this?

Increase renewable obligations to 7 or 9 ROCs. Implement local council reforms that do not allow wasteful capital projects such as the Edinburgh Tram, the Union Terrace plans in Aberdeen to go ahead, by demanding that council money is spent on renewables investment instead.

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