Scotland's electricity infrastructure: inhibitor or enabler of our energy ambitions?

SME engagement event, 18 April 2023

The Committee held an engagement event with a number of Scottish-based energy sector small and medium-sized enterprises (SMEs) or other enablers of innovation in green energy technology. There were brief introductions then participants split into two groups to discuss these three questions:

1. How would the vision set out in the Scottish Government's Draft Energy Strategy impact the current operations and future prospects of your business?
2. In terms of electricity infrastructure, what one thing do you encounter as the main barrier to your company's success? There may also be time to discuss any additional barriers you face.
3. What do you see as the most effective means of overcoming this, as we move to a zero-carbon electricity system by 2035? (Please note: Members want to hear your respective experiences and don't need you to reach mutual agreement on anything).

Everyone then reconvened to hear feedback on main themes from the two break-out sessions.

Four Members (Edward Mountain, Fiona Hyslop, Liam Kerr and Mark Ruskell) took part. The following organisations took part:

1. Stortera: makes two types of "intelligent" long-life batteries;
2. Gravitricity; long-life below ground electricity storage;
3. TownRock Energy: geothermal heating, mainly from flooded mine-workings;
4. Nova Innovation: tidal energy in Shetland and other sites around the world;
5. Trojan Energy: low-clutter EV charging technology
6. European Marine Energy Centre: Orkney-based test facility for wave and marine energy;
7. Invinity Energy Storage: long-life storage through vanadium batteries Manager
8. Flexitricity: Edinburgh-based flexible energy firm, providing energy to clients in real time in response to demand;
9. Locogen: renewables construction – solar, hydro, wind;
10. Orbital Marine Power, tidal energy in Orkney and two other UK sites
11. FOR:EV, EV charge point infrastructure provider.

The following is a note of the main points arising from break-out discussions. The note reflects the variety of views expressed.

Q1: How would the vision set out in the Scottish Government's Draft Energy Strategy impact the current operations and future prospects of your business?

1. Views on Draft Strategy: One view was that the strategy seemed a bit "limp". More generally, it was agreed that it should have more targets to encourage investment in specific technologies e.g. solar, battery storage and geothermal; Others stated that although there was a vision there needed to be more targeted, detailed, technology-specific support. Another view was that the strategy was 'old fashioned' and not detailed enough. National Grid strategy documents were used as a more effective example of planning and engagement. Overall views were that the strategy should be tightened and strengthened.

2. It was considered positive that the language of the strategy heavily prioritises innovation but local entrepreneurs want to see real change to give them a route to market in Scotland rather than having to rely on export trade to be commercially viable.

3. Policy addressing grid capacity seemed to be missing from the draft strategy. Some participants asked where particular technologies like tidal and geothermal energy fitted into the strategy.

4. System efficiency: Another view was that, with its reliance on renewable electricity and an undue emphasis on supply, the strategy was taking us down the route of requiring 200% installed capacity to meet everyday energy needs. Poor siting of generation assets and support for hydrogen were also used to suggest that the future system will be low efficiency.

5. Storage: There was a view that the strategy did not have a strong enough message about storage or about targets for storage (which links to the points made about system efficiency).

6. Hydrogen: There was a view that hydrogen has been talked up for 20+years as a new energy source but has yet to really deliver. It is not that hydrogen has nothing to offer but is the strategy continuing to over-sell it and, if so, why? Is it to placate the oil and gas industry? A related view was that improving the business case for oil and gas undermines the business case for low carbon technologies

7. There was a view that the strategy had insufficient things to say about addressing the skills gap.

8. Regulation is burdensome – how will the strategy address this? There needs to be a competitive incentive to decarbonise.

Q2: In terms of electricity infrastructure, what one thing do you encounter as the main barrier to your company's success? There may also be time to discuss any additional barriers you face.

1. Grid connections: A key issue referenced multiple times by multiple participants was the length of time and resource required to secure a grid connection for new projects, which can be ten years or more for projects that apply now. It was suggested that in other countries connection timeframes can be much shorter. This has an undue impact on smaller businesses and is highly detrimental to their development and growth. There was also a view that large developers gobble up

available capacity with speculative requests in relation to projects that may take years or be mothballed. When this is raised with Ofgem they reply that they are simply doing first-come-first-served.

2. Regulation, planning and permissions: It's too complicated and it takes too long. An example given was of a type of infrastructure project that in Scotland would take at least seven years to realise and in Canada two. This also has a chilling effect on financing. There was a view that in Scotland "everything goes too slowly".

3. Storage struggles to be commercially viable in Scotland/ the UK under current arrangements. Products are often mainly for export. It needs a boost from government.

4. Insufficient sense of strategic ambition from Ofgem or government. Ofgem don't put net zero at the top of the hierarchy, with all the consequences for industry that would flow from that. We need to recognise the role of government, and so does government. Post WW2, pumped storage hydro happened because the Government willed it. We need more interventions of this type and scale in long-life green energy assets.

5. The coupling of electricity unit prices to gas prices has a knock-on effect on the financial viability of technology we need for the net zero journey. Non-fossil fuelled domestic heating is an example.

6. Distribution network: Anticipatory investment is needed on the distribution network and not just the transmission network, it was also raised that Ofgem do not allow distribution grid owners to own storage.

7. Local authorities and electric vehicle charging: the public electric vehicle charging fund which provides funding to local authorities was criticised as it is challenging for business to apply for funding from 32 (number of local authorities) places.

Q3: What do you see as the most effective means of overcoming this, as we move to a zero-carbon electricity system by 2035? (Please note: Members want to hear your respective experiences and don't need you to reach mutual agreement on anything).

1. Government should focus on a "big three" of more financing, more streamlined consenting mechanisms, and more grid capacity and connections.

2. While there has been a move to more anticipatory investment on the transmission network in recent years, participants expressed confusion as to why a similar approach was not being taken for the distribution network (with relevance to anticipated rise in electrified transport and heating).

3. Some contributors spoke of a need to have effective "consent and manage" options. It also does not help to have different approaches to the same legislation across council areas. Creating a common and more nimble national approach to consents and permissions would help business.

4. Better R&D overall: a perception that Scotland has become bad at this in international terms. One suggestion was that SME tech innovators struggling to find a grid connection should be allowed a "sandbox" to experiment, with grid connection at small scale. If the product works, then that should open more doors.

5. Decouple electricity from gas prices. What one contributor called a “fixation on liberal energy systems” did not make sense as, under our current system, energy is not actually cost- effective.

6. We need loads more EV chargers. This requires intervention and leadership.

7. Look into the next public sector energy contract. The current one (with EDF) does not allow signatories to generate more than 10% of energy in renewables.

8. Numerical targets for different technologies were seen as helpful.