
FORWARD SCOTLAND CONSULTATION RESPONSE
RSE INQUIRY INTO ENERGY ISSUES FOR SCOTLAND

1. GENERAL

- Forward Scotland welcomes the opportunity to respond to the RSE inquiry on the supply and demand of energy for Scotland.
- Forward Scotland was set up in 1996 to promote sustainable development in Scotland through practical projects and influencing policy. As a company limited by guarantee and a recognised charity, the organisation has a Board of Directors drawn from a cross-section of Scottish interests and draws funding from a number of sources, including the Scottish Executive's Sustainable Action Fund.
- Forward Scotland works to promote sustainable development, by providing support to community groups who wish to adopt sustainable development practices, and working with businesses and agencies to mainstream sustainable development practice.
- Our work on energy issues includes research on the employment potential of the energy sector in Scotland, and research on the employment and energy supply potential of the renewable energy sector. This has been undertaken through our *Environment Jobs Scotland* project, which is funded by the Scottish Executive and works in partnership with a number of bodies including Jobcentre Plus and Careers Scotland. The *Environment Jobs Scotland* work has focused on the skills required to develop renewable energy technologies, and highlighted opportunities and training gaps.
- We have also worked directly with community groups to fund community renewable energy projects, to support feasibility and business planning work on renewable energy projects and with public and private partners in Lanarkshire to develop a delivery model that could support the introduction of renewables at a local level.
- Forward Scotland is happy to have this response placed in the public domain and invites RSE to question, pursue or develop any issues raised in the document.

2. RESPONSES TO CONSULTATION QUESTIONS

Question 1: How should Scotland provide for its energy needs over the next 5,15, 30, 45 years, in the context of the likely UK, European and global energy environment?

Forward Scotland welcomes the Scottish Executive's targets on renewable energy generation, and would like to see development of a diverse portfolio of renewable energy sources to meet the target of 40% of electricity generation from renewable sources by 2020. The Forum for Renewable Energy Development in Scotland (FREDS), established by the Scottish Executive with partners from industry and the development agencies, has a significant role to play in leading the strategic development of the renewables industry in Scotland. FREDS has produced a number of key documents on individual technologies that have highlighted opportunities and barriers to development.

We believe that heat generation from renewable resources offers significant potential for meeting Scotland's energy needs, and that 15 and 30 year targets should be set to develop these resources and incentives introduced to ensure that this area can reach its full potential.

We would argue that a strong emphasis should be placed on domestic and industrial energy efficiency, in order to reduce energy demands wherever possible. This would require integrated actions on sustainable construction, innovative technology and resource efficient behaviour. Forward Scotland has been involved in a number of resource efficiency programmes supporting business that have shown that there is significant opportunity to reduce consumption.

Resource Efficiency Action Programme

This programme for business in the east of Scotland was established in 1999 as partnership between Forward Scotland, the Royal Bank of Scotland, Scottish Enterprise, SEPA and Scottish Water. In 2004 REAP published findings that clearly demonstrated the benefits to business of better environmental management reporting that the 25 participating companies in the REAP programme made collective annual savings of **over £4million** by implementing low cost/no cost solutions. In order to achieve these savings companies were actively supported at a regional level where access was given to consultancy and a club structure established to provide an opportunity to share experience.

Forward Scotland has been involved in a number of local and small-scale renewable energy projects, which offer great potential for energy generation and rural development. We note recent research by Scottish Renewables Forum that indicates widespread public support for small-scale generation such as domestic wind turbines and solar panels. We have supported biomass development in Lochgilphead and the development of the community owned wind turbines on Gigha that have demonstrated the high level of enthusiasm that exists in some communities. Community owned developments have also been proposed in urban communities such as Castlemilk in Glasgow, where Forward Scotland supported a local community group to scope out a wind turbine project and facilitated a visit to a similar development in Wales.

From this experience we believe that there is active role for communities to develop small scale renewables, in addition to larger projects, supported through information, grants and planning guidance.

Question 4: What are the feasibility, availability, reliability, sustainability, efficiency, capacity and risks of the different energy generation technologies?

In terms of renewable energy, a number of technologies are well developed, while others could become more feasible if incentives were in place.

With regard to wind energy, 18 onshore wind projects totalling 600MW are due to be commissioned in 2005, and an additional 33 projects have received planning approval. Onshore wind turbines are a well established technology, and the potential to site turbines offshore is being developed. In the longer term, 94 offshore wind projects are being planned, with potential for 4767MW. Small scale wind energy also has a healthy market at present, and is expected to grow significantly as technological improvements are made to noise, vibration and connectivity.

Hydroelectricity is an established and widely used form of renewable energy. Technology development is ongoing in the lower size range, and improvements in small turbine and generator technology mean that micro hydro schemes are likely to become increasingly widespread. This could involve domestic schemes of a few hundred watts, or a minimum 25kW commercial scheme.

The Scottish biomass sector has been limited due to a fragmented supply chain and low developer confidence, but this is likely to improve due to excellent biomass potential and new innovative projects. New projects include the UK's first large-scale commercial biodiesel plant, currently under construction near Motherwell, and local woodfuel heating schemes (some of which have been part funded by Forward Scotland grant schemes).

Lanarkshire Biomass

Forward Scotland, Central Scotland Forest Trust, North Lanarkshire Council, Scottish Enterprise Lanarkshire and SNH have established partnership that is delivering the leading practical project working to **change attitudes** and access to biomass heating systems in Scotland. This Lanarkshire based project has highlighted barriers and opportunities for the installation of biomass in public and community facilities. It is developing a **replicable model**, with its commercial partners Econergy and BIB Cochranes, for use at a local authority or regional level to deliver biomass infrastructure that can contribute to meeting the 2020 targets for renewable energy.

Geothermal energy, using ground source heat pumps, is a growing market in Scotland, with a number of applications under the SCHRI scheme. In 1999, the Shettleston Housing Association installed an underground heat pump at one of its developments on the east end of Glasgow. Other technologies, such as solar thermal, passive solar and photovoltaics are limited at present because of high costs. Photovoltaics is expected to become economically viable around 2020, while solar thermal and passive solar technologies could be boosted by financial incentives and building regulations.

Wave and tidal energy resources in Scotland offer a potentially massive source of renewable energy, but these technologies are unlikely to become commercially available until around 2015. Scottish based designs are currently world leaders, but these need to be developed and commercially proven. This was highlighted in a report prepared by Highland Council, part funded by Forward Scotland, whilst investigating the feasibility of installing a marine energy generator as part of the redevelopment of Wick Harbour.

Finally hydrogen fuels offer the potential for a clean energy system relevant to transport, buildings, utilities and industry. This technology is still at a research and development stage but it is encouraging to see innovative proposals being developed by organisations such as the Business Environment Partnership in Dalkeith for a fuel cell business centre.

Question 6: What are the economic issues of capital investment in the supply and distribution of energy that need to be considered?

The development of renewable energy in Scotland (predominantly onshore wind) is predicted to require grid upgrades with a cost of over £1billion. These grid upgrades will be particularly important if Scotland is to meet its aspirational target for renewable energy, and could result in significant job opportunities for local suppliers and manufacturers.

As discussed in response to question 4, a number of renewable energy technologies will need investment in research, development and incentives to develop the market if they are to become viable sources of energy supply.

Question 9: What are the likely trends in the domestic demand for energy for space heating and other purposes? What would need to be done to achieve major savings? What are the investment costs?

In terms of savings in domestic demand, Forward Scotland has been involved in a small pilot project with employees of Allied Distillers Ltd. As part of this project, employee volunteers undertook energy efficiency measures, resulting in a 35% reduction in energy usage and a 63% reduction in gas usage. Other projects with Energy Efficiency Advice Centres throughout Scotland have demonstrated that significant savings can be achieved through small measures such as using energy efficient lightbulbs, turning down thermostats and improving insulation. Investment costs for such measures are low, and further savings can be achieved through larger investment in technology such as condensing boilers.

Forward Scotland believes that architects, planners and developers have a significant role to play in achieving high environmental standards in new developments and refurbishment programmes. The UK government has set standards with regards to the energy rating for new developments however much more could be done to push these further through leading edge and innovative design. Projects such as the Lighthouse's SUST project have been developed to raise awareness of sustainable architecture and design principles and established bodies such as the Scottish Ecological Design Association (SEDA), the Royal Institute of Architects in Scotland (RIAS) and Architecture & Design Scotland are all pursuing improvements in practice that can lead to healthier, less wasteful and more energy efficient buildings.

Question 12: Can the objectives of environment improvement and economic growth both be met without a major increase in energy costs? What steps should be taken to enable an informed debate on the issue?

In general, it seems likely that energy costs will increase as current sources of energy become scarcer and new sources of renewable energy are developed. Forward Scotland believes that these increases could be partially offset by innovation in energy efficiency reducing consumption and an increased emphasis on local generation.

The debate should not be couched in terms of environmental improvement versus economic growth, as sustainable development principles do not suggest that these are mutually exclusive.

The new UK Sustainable Development Strategy highlights a number of priorities which will be important in any debate on the environmental and economic implications of energy. Firstly, we should be placing an emphasis on sustainable consumption of resources, and working to break the link between economic growth and negative environmental impacts. This requires careful thinking about how we can use energy more efficiently, and fundamental questioning of whether we should assume a continuing growth in energy demand.

Secondly, the strategy sets climate change and energy as a priority, and states that we must **'secure a profound change in the way we generate and use energy, and in other activities that release these gases'**. Although this focus on carbon reduction has been used to support the future development of nuclear energy, sustainable development requires a long-term and global perspective and this supports the development of diverse renewable energy options.

3. CONCLUSION

Forward Scotland believes that to move towards a sustainable future society needs to embrace a culture of sustainable development. With regard to energy, it is essential that the long term impacts of all energy options are considered, and that our current energy demands are examined critically and creatively. Society is faced with difficult choices but there is a need to inform and persuade everyone to recognise the failings of our past activities and look to develop 21st century solutions and ensure the highest quality of life for future generations.

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