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20 July 2005

Dear Dr Rands

**RES Inquiry - Issues for Scotland's Energy Supply**

RSPB Scotland welcomes the invitation to input to the above inquiry.

The RSPB is a wildlife charity with over a million members, working throughout the UK and abroad, researching environmental problems and campaigning for sustainable solutions. We manage land for biodiversity and people, provide educational resources and offer conservation advice to central and local government, fishers, farmers, landowners and others involved in marine and countryside management. The RSPB in Scotland is supported by over 73,000 members, with a strong membership base in rural areas as well as towns and cities.

Our detailed responses to the Inquiry Questions are attached; but in general, our view is that that human-induced climate change poses the greatest environmental threat to people and global biodiversity. We place a high priority on addressing climate change and are actively working to encourage reductions in greenhouse gases through promoting renewable energy and energy efficiency. We have two highly acclaimed schemes, RSPB Energy and Going Solar that provide renewable energy to the public. We firmly believe that Government must work to achieve climate change objectives in an environmentally sustainable way that conserves biodiversity.

I would be happy to provide any further assistance if required.

Yours sincerely

Clifton Bain  
Climate Change Policy Officer

## RES Inquiry - Issues for Scotland's Energy Supply

### Response from RSPB Scotland – July 2005

**Q 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?**

**Q 2. Should Scotland aim to be self sufficient in energy in general, and in electricity in particular, despite trends towards interdependence within Europe?**

With increasing evidence of climate change and the threat to people and the environment it is vital that Scotland's energy needs are delivered in ways that help mitigate climate change through reducing greenhouse gas emissions. As a nation with considerable renewable energy resources, it is also important for Scotland to look beyond its own needs and consider the export of renewable energy and technology to help cut emissions in other countries. An energy strategy is required to guide the development of renewable energy so as to make the most of the opportunities available within the capacity to accommodate such development without environmental harm. Scotland must deliver its energy needs in an environmentally sustainable manner and consistent with EU wildlife law and UK and Scottish biodiversity commitments.

Scotland has considerable renewable energy opportunities with around 23% of the total European wind energy resource, onshore and offshore, as well as a very large part of the UK's marine energy resource.<sup>1</sup> Scotland's renewable energy potential is so great that it should be possible to make significant cuts in greenhouse gas emissions from energy use without having to impact on sensitive environmental areas. Scottish Executive commissioned work on renewable opportunities<sup>2</sup> demonstrates the following opportunities:

- Onshore wind resource is widespread and cost-effective, even after excluding environmental and cultural sensitive areas (60% of Scottish land area) and MoD low flying areas (26% of Scottish land area), transmission limitations from North-South bottlenecks, and the social constraint of too many wind farms in one area.
- Marine technologies, including offshore wind, wave and tidal, have large potential
- Other resources individually offer relatively small but potentially cost-effective resources, with the opportunity of substantial benefits locally

#### **Scotland's Resource Potential<sup>3</sup>**

<b>Technology</b>	<b>Capacity (GW)</b>	<b>Energy (TWh)</b>
Offshore wind	25.00	82
Onshore wind	11.50	45
Wave	14.00	45.7
Tidal stream	7.50	33.5
Small hydro	0.30	1
Energy Crops	0.14	1
Agricultural Wastes	0.40	3.5
Municipal Solid Waste	0.10	0.9
Forestry residues	0.4 <sup>4</sup>	3.1
Landfill gas	0.07	0.6
<b>TOTAL</b>	<b>59.10</b>	<b>216</b>

The total Scottish demand in 2002 for electricity was 33.7 TWh and the total generated electricity was about 50 TWh compared to the 216TWh potentially available from renewables resources.

<sup>1</sup> Submission by the Scottish Executive to the PIU Energy Review 2001

<sup>2</sup> *Scotland's Renewable Resource 2001* Garrad Hassan & Partners Ltd. Scottish Executive 2001

<sup>3</sup> Ibid: Assumes that existing network constraints are managed. With no upgrade, renewable capacity is 3.1GW for onshore wind, 2.5GW for offshore wind, 0.3GW for wave, and 0.4GW for tidal stream.

<sup>4</sup> Based on recent FREDS analysis of biomass potential in Scotland

Scotland is capable of meeting ambitious targets for renewable energy over the next 50 years. In June 2005 the installed capacity of wind farms was 410MW in Scotland, with a further 1046MW already consented for development. Wind power has a load factor – the amount of electricity produced annually compared with the total potential energy capacity – of about 33% which would mean existing and consented wind generation could provide 4.2TWh. This is well above the estimated 3TWh required to deliver the Scottish Executive’s 2010 renewables target. The Scottish Executive’s 2020 target is around 17TWh (or 6000MW installed capacity).

The initial phase of renewables development has focussed on wind largely due to the policy mechanisms under the Scottish Executive’s Climate Change Programme, which favour nearest market technology. With the introduction of a UK electricity market and potential for greater exports to Europe, it is conceivable that the demand for wind power in the next 10 years could go beyond that which can be accommodated without environmental conflict. We would therefore encourage a strategic approach to energy policy to ensure a mix of technologies and avoid relying on any one beyond our capacity to accommodate it in an environmentally sustainable manner. Such a strategy is also required to help encourage greater focus on energy saving, otherwise the benefits of renewables in reducing greenhouse gas emissions could be undermined by increasing demand for energy. Energy demand-reduction targets should be set high enough so that the scale of renewable energy development need not extend beyond our ability to accommodate it, without environmental harm. The need for a strategic approach to energy has been widely recognised<sup>5 6</sup> but as yet, the Scottish Executive has failed to commit to preparing a strategy.

It should be recognised that electricity generation is only part of our energy use. DTI energy statistics show that areas such as transport and domestic heating are significant and rising sources of carbon emissions. Considerable opportunity exists for reducing our heating demands through improving insulation in homes, micro renewables, solar heating (even in Scotland, since most systems now depend on daylight and not sunshine) and district heating systems. With regard to transport, our view is that rather than simply seeking to meet the rapidly increasing energy demands, it is essential that demand is managed to reduce emissions through improved public transport and measures to reduce air miles.

***Q 5 What are the likely trends, and uncertainties, in the availability and cost of energy sources over the next 20/45 years?***

Over the next two decades, Scotland will have to deal with aging coal fired and nuclear plants. In 2003, the two nuclear plants in Scotland, Hunterston B and Torness generated 17TWh of electricity<sup>7</sup> while the two coal plants Longannet and Cockenzie, generated 14TWh<sup>8</sup> (against a total generated in Scotland of about 45.5TWh). Hunterston B is due to close in 2011, and Torness in 2021 unless a life extension is granted.<sup>9</sup> In addition, Scottish Power has indicated that they will opt out the two coal plants from the Large Combustion Plant Directive, which imposes stringent limits of sulphur dioxide and nitrogen oxides from power stations. This opt out will limit the operation of individual generating units at these plants to 20,000 hours from 1 January 2008 and requires closure of these units by the end of 2015.

Whilst some would argue that this planned drop in energy supply, either demands the building of new nuclear or unacceptably high levels of wind development, this is not necessarily the case. As shown above, renewables capacity, across a mix of technologies and avoiding sensitive sites could certainly compensate for the shut down of the nuclear facilities. There is also potential for ‘clean coal’ technology to be used to help extend energy supply from coal whilst making significant cuts in carbon emissions. Figure 1 below illustrates how renewables combined with energy efficiency and energy conservation could adequately deal with any energy gap arising from the planned closure of conventional power.

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<sup>5</sup> Energy in Scotland, Scottish Environment Link 2004. <http://www.scotlink.org/mem.htm>

<sup>6</sup> Enterprise and Culture Committee 6th Report, 2004 (Session 2) Renewable Energy in Scotland

<sup>7</sup> Figure taken from British Energy submission to the Environment and rural Development Committee Inquiry into Climate Change, Scottish Parliament 2005

<sup>8</sup> Figure taken from Scottish Power Environmental Performance Report 2003/04

<sup>9</sup> The Scottish Executive, in their submission to the PIU UK Energy Review, anticipated that Hunterston B could well operate until around 2016



**Q7. What are the key issues surrounding the development of Scotland's bulk electricity transmission and local distribution systems?**

To facilitate the growth in renewables, the UK Government is working with the electricity industry on a programme of upgrading and developing new high voltage transmission lines across Scotland. This programme is working on the assumption that Scotland will not only deliver its own renewable energy targets but will also provide a large share of the UK target, by supplying renewable energy to markets in the south of England. There appears to have been no consideration as to whether Scotland can accommodate, within environmental constraints, either the huge capacity for renewables development to meet the UK demand or the necessary development and upgrading of the transmission system. The environmental impacts of proposals for new high voltage pylon routes into the Highlands and across to the Western and Northern Isles are being considered in isolation and not as part of a strategic environmental assessment of the transmission system upgrade. The RSPB is therefore urging the Scottish Executive to work with the UK Government (DEFRA and DTI) to ensure a proper strategic environmental assessment of the proposals for upgrading and extending the transmission system.

**Q 11. What are the environmental concerns that need to be taken into account, in terms of the impact on ecological and other natural resources, as well as waste management and impacts on the landscape?**

**Q12 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 this issue?**

The environmental consequences of not reducing our greenhouse emissions are immense. Even under the 'mid-warming' scenario, up to a third of all land-based plants and animals could be committed to extinction by the 2050s<sup>11</sup>. The severity of the problem does not however justify taking action that would also cause environmental harm. The principles of sustainable development and biodiversity conservation must be retained in developing our energy response to climate change. This includes ensuring renewable energy developments avoid damaging important wildlife habitats, such as peat bogs, which themselves have a role in addressing climate change.

We believe that renewable energy targets can be achieved without irreversibly damaging the wider environment, provided sensitive areas for wildlife are avoided. All forms of renewable energy development have the potential to cause environmental harm but through careful location, design, and operation, it should be possible to avoid environmental conflict.

**Wind and marine renewables**

The renewables industry is at an early stage in understanding the impacts of their development on wildlife. Such uncertainty necessitates rigorous examination of the possible risks when developments are proposed in areas of high wildlife value and particularly those where Government has obligations under European Law. The planning system is struggling to cope with the level of applications in sensitive areas, leading to lengthy delays in the process and a drain on the resources of developers, public agencies, NGOs and local communities. RSPB Scotland has been consulted on an increasing number of wind farm proposals having implications for sensitive wildlife sites. In 2004, RSPB Scotland was involved in 124 wind farm planning applications (and numerous additional pre application consultations). We currently are involved in 8 applications affecting internationally important wildlife sites designated as Special Protection Areas under EU Wild Birds Directive 79/409. In our view, it would be more effective if the Scottish Executive provided a steer to encourage development away from sensitive sites. As environmental impacts of renewables become better understood it will be easier to determine whether or not development proposals will have adverse effects on important sites. We are therefore urging the Scottish Executive to review its planning guidance in such a way as to encourage developers to invest their efforts in locating renewables development outwith sensitive environmental areas.

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<sup>11</sup> Thomas C. et al, Extinction risk from climate change. Nature 427, 145 – 148, 08 January 2004

Ensuring the right siting and design of renewable developments at a national and local level requires sufficient information on the possible environmental impact. We believe that practical focussed research could do much to address some of the potential obstacles to new development, whilst meeting national and European wildlife obligations. The current paucity of data on environmental impacts of wind farms is perpetuated by the industry's confidentiality agreements and commercial competition, which make developers reluctant to share baseline information or post construction reports and monitoring results on impacts.

We believe the Scottish Executive should put in place key areas of work to improve our understanding of the impacts of wind farms and other renewables on birds as the basis for less contentious, better informed decision making;

- A Coordinated Research Programme with adequate funding from the Scottish Executive to ensure monitoring of sensitive bird species in wind farm and marine energy sites.
- A Shared information resource with the Scottish Executive giving encouragement to or where appropriate requiring industry and statutory wildlife agencies, to work together in compiling knowledge on wind farm-bird interactions.
- Promotion by the Scottish Executive of Remote Sensing Technologies to ensure effective recording of bird impacts in wind farms.

The Scottish Executive's intentions to take a strategic approach to the development of offshore and marine renewables is, we believe, essential in order to avoid the environmental conflicts exacerbated by the lack of strategic planning for onshore renewables. However, it is important that the environmental sensitivities in the marine environment are properly understood and defined at a strategic level, before development proposals are taken forward. To avoid unnecessary and costly conflict, we would encourage urgent resources be given to allow environmentally sensitive areas to be identified, in advance of any planning determination of marine renewables projects.

## **Biomass**

Biomass is increasingly being seen as having a role in providing renewable energy. RSPB Scotland supports the use of bioenergy as part of a renewables mix however, the industry must be developed sustainably, in a way that avoids negative impacts upon biodiversity.

Two key environmental tests for the development of the bioenergy industry are:

- (i) to ensure that biomass production and use, avoids harming the environment and is consistent with biodiversity objectives, through for example appropriate location, design and management.
- (ii) to ensure that the full life cycle of any biomass production and use does actually deliver carbon emission reductions.

We believe that one way for the bioenergy industry to be confident of addressing these issues is through accreditation systems designed to ensure delivery of real carbon benefits and high environmental management standards. Existing woodland, and wood/timber product, accreditation systems should be applied to biomass products, both from plantation forestry (either timber or co-products) and woodland management (including traditional coppice management) as well as from short-rotation coppice (SRC) on agricultural land. We recommend that the UK Woodland Assurance Standard (UKWAS) is used to certify the sustainable management of forestry and woodland management (including agricultural SRC) for biomass objectives, with linked use of Forest Stewardship Council (FSC) Chain of Custody traceable certification of the resultant wood/timber products. FSC certification of biomass products may permit better market access, if not a price premium.

Strategic guidance and environmental impact assessment also provide the means to steer development of biomass away from environmental conflict. This will need to be supported by clear guidance at a national level to encourage solutions that recognise the need to conserve the environment when planning for biomass.

Agricultural energy crops can be steered through good management practice guidance as well as subsidies to encourage environmental benefits. Since these are largely voluntary schemes, the bioenergy industry may need an additional accreditation system for agricultural energy crops to be confident that the supply of material is from environmentally acceptable sources.

The environmental impact of biomass production in forestry is potentially wide ranging and includes damage to existing habitats and species through, increased felling activity, planting in inappropriate areas, restocking areas with trees in areas which would be better restored to important non wooded, UK Biodiversity Action Plan priority habitats. On the other hand, increased markets for wood/timber products could encourage beneficial woodland management in neglected and under managed woods where biodiversity is in decline. Forestry has moved away from a single purpose approach led by government policy and powerful incentives and is now much better placed to tackle the complexity of differing demands for economic, environmental and social needs. Forestry Commission Scotland now operates an effective system built around the Scottish Forestry Strategy, the mandatory UK Forest Standard and related Forestry Guidelines. The UK Government and the Scottish Executive are also committed to improving forestry practice by encouraging UKWAS uptake. As explained above, there is also an accreditation scheme and chain of custody available which allows the producers and generating industry to show compliance with good environmental practice.

A bioenergy market, including domestic burners and large generators in Scotland could be supplied either by domestic production or by imports of raw or processed materials. In the current market, imports are likely to be the preference for companies looking to minimise costs. The preference for imports is of concern to the RSPB. Serious sustainability issues surround the production of some of these products, such as sugar cane from Brazil and palm oil from Malaysia, and an increased market for them may further the loss of globally important habitats and species.

Clifton Bain  
RSPB Scotland 2005