

RSPB Scotland response:

Inquiry into the Scottish Government's Renewable Energy Targets by the Economy, Energy and Tourism Committee



The RSPB in Scotland is supported by nearly 90,000 members from both urban and rural areas, campaigning on issues affecting wildlife and the natural environment. In combination with RSPB staff across the UK, and our international partners in Birdlife International, we have cross-cutting expertise and experience of spatial planning, marine and sustainability issues within Scotland, the UK and internationally. The RSPB is unusual amongst UK NGOs because we engage with individual applications for renewable and other energy infrastructure across the UK, advising developers how they can minimise the impact of their developments, as well as working with Government to develop legislation and policy. Our professional planning and conservation staff are regularly involved with individual project proposals and we comment on several hundred individual proposals in Scotland each year. This gives us an almost unique perspective into the implications of new policy for development on the ground.

RSPB Scotland and the energy sector

Bird populations reflect the health of the natural environment on which our future depends. Climate change is already affecting birds and wildlife in Scotland, the rest of the UK and globally, and it threatens to drive future biodiversity loss unless urgent action is taken to reduce emissions and keep the world within 'safe' levels of climate change. One study published in *Nature* indicates that climate change could cause up to 35% of species to be committed to extinction by 2050¹, and a recent paper from the Centre for Ecology and Conservation at The University of Exeter has shown that the documented impacts on species attributable to climate change are following the predicted effects, supporting the assertion that human-induced climate change is a major threat to global biodiversity². We therefore support the Scottish Government's aims to decarbonise the energy sector and recognise the critical role that renewable energy will play in delivering the targets as part of a wider package that prioritises energy savings. **The real challenge, however, is not just in the development of renewables, but to ensure that Scotland maintains its reputation as a leader in the sustainable development of renewables.**

RSPB Scotland is a partner in the Scottish Government led *GP Wind* project, which seeks to reconcile renewable energy objectives with wider environmental objectives³. It has highlighted existing good practice in Scotland and across Europe, barriers to deployment, and lessons that should be learnt. The project is developing a set of good practice guidelines which can be used to facilitate sustainable growth in the renewables sector in support of the 2020 targets.

Response to individual questions

Targets

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

Research commissioned by RSPB Scotland and other NGOs has shown that Scotland can produce over 100% of its electricity needs through renewables by 2020, without endangering important environmental interests⁴. The study also explores options for heat, factoring in the 11% target for renewable heat by 2020. Using electric heat pumps to contribute to the renewable heat target would cut carbon emissions from heat

¹Thomas et al. (2004) *Extinction risk from climate change* Nature 427 pp.145-148

²Ilya M. D. Maclean and Robert J. Wilson (2011) *Recent ecological responses to climate change support predictions of high extinction risk* Proceedings of the National Academy of Sciences of the United States of America

³<http://www.project-gpwind.eu/>

⁴See *The Power of Scotland Secured*, http://www.rspb.org.uk/Images/POSS_FinalReport_tcm9-272152.pdf

by up to 60% by 2030. If gas and oil prices rise, and if domestic and public buildings are better insulated, it is possible that electricity could be used extensively for heating purely on economic grounds.

We believe that we can, and must, decarbonise energy without harming species and our most important places for wildlife. The new infrastructure needed to decarbonise our energy supply can have a detrimental impact on wildlife in Scotland if poorly located and/or designed. For example, schemes such as the Lewis Wind Farm – rejected by Scottish Ministers in 2008 - would have had devastating impacts on birds and an area of internationally important peatlands. The decision not to grant consent was warmly welcomed by RSPB Scotland, particularly because it specifically recognised that our renewable energy targets could be met without building on our most important wildlife sites.

Thankfully in Scotland we have, to date, avoided some of the catastrophes seen in other countries where poorly sited renewable energy developments have not only caused huge damage to wildlife, but have damaged the reputation of the renewables industry. One such example is a wind farm on the Smøla Archipelago off the west coast of Norway⁵. A total of 39 dead or injured White Tailed Eagles have been recorded within the wind farm area having collided with wind turbines from August 2005, when the second phase of the wind farm became operational, and December 2010. There has been a reduction in the number of pairs attempting to breed within the constructed wind farm, compared with the situation before the wind farm, due to a combination of displacement and collision mortality, and a consequent decreased proportion of successful breeding attempts.

As we move closer towards achieving the 2020 targets, and in particular the 100% renewable electricity target, the pressure on Scotland's most important places for wildlife is likely to increase. Safeguards must be in place to ensure that the most valuable natural heritage features do not suffer from inappropriately sized or sited developments, thus ensuring Scotland's position as a leader in the sustainable development of the renewables industry is maintained. Renewable energy need not cause environmental damage provided a strategic approach is taken to its deployment⁶.

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?

The renewables target is important, and strongly supported by RSPB Scotland, but it must not be seen in isolation. It needs to be part of a range of measures to reduce emissions. The RSPB supports an energy hierarchy approach. This starts with a focus on energy conservation, improving energy efficiency and finally the supply of low/zero carbon energy. We strongly favour this as the most efficient and sustainable way of addressing energy production and reducing carbon emissions. Encouraging greater consumer engagement is also very important - for example, by both saving and producing their own energy, consumers can take independent action to reduce their greenhouse gas emissions and save money over time through reduced electricity bills. In addition, research has shown that consumers with microgeneration technologies in their home tangibly change their behaviour and attitudes towards energy use and are more aware of its impact on climate change⁷. Much more needs to be done on demand reduction and energy efficiency to ensure that, as well as increasing production of renewable electricity, our energy consumption per capita is reduced.

⁵ The Smøla wind farm comprises two parts. Phase 1 of 20 turbines (2MW) was constructed in 2001/2002 and became operational in September 2002. Phase 2 of 48 turbines (2.3MW) was constructed in 2004/2005 and became operational in August 2005. The 68 turbines occupy approximately 22 km², and there are 28 km of roads. The Smøla Archipelago lies off the west coast of Norway, and is an Important Bird Area (IBA) in part for its high breeding density of white-tailed eagles *Haliaeetus albicilla* (Heath & Evans 2000). Work in 1999 for the EIA for a proposed wind farm indicated that this was a potentially problematic location for a wind farm, notably for breeding white-tailed eagles. The Norwegian government took the view that any impact would be limited and local in character and that the wind farm would not be in conflict with Norway's responsibilities under international conventions.

⁶ *Meeting Europe's Renewable Energy Targets in Harmony with Nature* is a new report from Birdlife International.

<http://www.rspb.org.uk/climate/help/renewablesrevolution/index.aspx>

⁷ Source: Sustainable Consumption Roundtable 2005

The renewables target also needs to be considered in the context of other developments and policy areas that contribute towards CO2 emissions. For example, if consent were to be granted for the proposed new coal plant at Hunterston in Ayrshire, the carbon benefits of increased renewables in terms of our emissions reduction targets could be all but wiped out by 2050. It will be critical for Scotland's emissions reduction targets and our international reputation on climate change that the Hunterston proposal does not progress⁸. Similarly, the contribution of increased renewables toward meeting our CO2 reduction targets will be eroded by decisions to progress other major carbon emitting projects such as road and airport upgrades. Continued enthusiastic support for coal, gas and oil extraction also undermines progress we are making in this area. Renewables are part of the solution but urgent action is required in other areas. We must become more consistent.

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

As stated previously, much more needs to be done to reduce demand and improve efficiency. This will only benefit Scotland in terms of lower energy costs and will make the necessary transition to increased electrification of heat and transport easier. Heating and transport together account for roughly 80% of Scotland's energy use⁹. Using low carbon electricity to heat our buildings and power our vehicles, instead of oil and gas, would cut carbon emissions dramatically. Electrification of the heat and transport sectors could also contribute to security of supply by offering deferrable demand and energy storage potential¹⁰.

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

The renewable energy targets are a critical part of achieving our greenhouse gas emissions targets. The costs of not achieving these targets have been clearly established. The Stern Review on the Economics of Climate Change¹¹ indicated that the cost of acting to avoid the worst impacts of climate change is 1% of global GDP whereas the cost of not acting are estimated to be 5% of global GDP and could rise to 20%. Furthermore, by not decarbonising electricity production and not meeting climate change targets Scotland would fail to shoulder its share of the responsibility to tackle climate change.

There are strong ecological and economic reasons for reducing emissions and decarbonising electricity production. The impacts on wildlife of not reducing emissions in line with the recommendations from the science are devastating. The latest science suggests that for every one degree Celsius temperature increase, 10% of species will be committed to extinction. This is striking in the context that the International Energy Agency warned last year that the current emissions trajectory will lead to up to six degrees by 2100¹².

Challenges

(a) Technology

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

Failure to decarbonise Scotland's energy sector will lock us into decades of reliance on fossil fuels and jeopardise the ambitions of Scotland's Climate Act. The available support mechanisms for renewables must continue to support emerging technologies, particularly at development and pre-commercial stages, to ensure that a balanced mix of technologies is at our disposal. However, only the most sustainable

⁸ http://www.rspb.org.uk/Images/Hunterston_Final_tcm9-294346.pdf *Climate Change implications of the proposed Hunterston Power Station*

⁹ AEA Technology (2006), *Scottish Energy Study: Volume 1: Energy in Scotland: Supply and Demand*, for the Scottish Executive. This breaks down energy use in 2002 as 54% heat, 27% transport fuel and 19% electricity.

¹⁰ See *The Power of Scotland Secured*, Chapter 2. Assuming the use of heat pumps to contribute to the renewable heat target, and improved levels of insulation in line with energy saving targets, in winter there could be at least several hundred megawatts of deferrable electric heating demand in Scottish homes.

¹¹ http://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm

¹² http://www.worldenergyoutlook.org/docs/weo2011/executive_summary.pdf

technologies should be supported through subsidies. Technologies which are likely to cause significant adverse environmental impact – such as shore-to-shore high head barrage schemes, and large-scale electricity only biomass – should not be incentivised.

Good progress has already been made – electricity from renewables in production, consented or under construction is already almost 58% of consumption¹³; onshore wind is now a commercially deployed technology; and wind has joined coal and gas as a key source of balancing power on the grid¹⁴. Meeting the 2020 targets will rely on a significant increase in the deployment rates of onshore and offshore wind and support for emerging wave and tidal stream technologies.. Our response¹⁵ to the Scottish Government's recent review of ROC Bands goes into more detail.

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

Even in a 'low renewables scenario' substantial electrification of heat can be accommodated provided demand management is actively pursued¹⁶. Although electrification of heat would add a notable amount to Scotland's annual electricity demand, the storable and deferrable nature of such loads, and the fact that periods of high heat demand tend to coincide with high renewables output, mean that electrification should act to improve grid balancing and security of supply.

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

Continuing investment in research in to the environmental impacts of renewable technologies, both on and offshore, will be critical, particularly to make sure that cumulative impacts are monitored so that we know when thresholds of impacts on species may be reached. Research findings will benefit the whole of the industry but may not be of such immediately apparent benefit to individual developers. Government must therefore take a lead role in ensuring that post construction monitoring is carried out and critical research is delivered. Our experience from onshore renewables has been that, while individual developers have often carried out post construction monitoring of their sites, this has been inconsistent and lacking in the national coordination that is required to assist the industry as a whole.

Scotland's seas are home to half of Scotland's biodiversity and 45% of the EU's breeding seabirds. New research¹⁷ has begun to shed more light on the interactions between marine wildlife and renewable energy devices but, due to the difficulties in conducting research in the marine environment, there is still a significant knowledge gap which must be bridged prior to any significant increase in deployment rates. This will be critical in ensuring Scotland's reputation as a leader in the sustainable development of renewables, and to ensure that the offshore renewables industry develops in a way that does not harm our nationally and internationally important marine wildlife.

(b) Supply chain and infrastructure

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

We are not able to comment in detail on this point but we note that it is critical that the environmental impact of supply chain infrastructure, such as port upgrades, is considered and addressed at the outset as part of overall consideration of supply chain needs and opportunities.

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

¹³ Source: SNP report: *Our ambitions for clean, green energy*

¹⁴ Source: National Grid presentation at the Scottish Renewables Grid Conference 2012

¹⁵ http://www.rspb.org.uk/Images/response_to_review_tcm9-302285.pdf

¹⁶ http://www.rspb.org.uk/Images/POSS_FinalReport_tcm9-272152.pdf

¹⁷ A new RSPB research report, *Birds and wind & tidal stream energy: an ecological review*, will be published in the near future.

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?

The RSPB has been working with Transmission System Operators (TSOs) and NGOs from across Europe on the Renewable Grid Initiative (RGI)¹⁸, an initiative to help deliver the transmission grid that is required to meet our European renewables and climate targets. In 2011, we co-hosted a workshop in Glasgow, along with National Grid, into the environmental impact of grid networks¹⁹. There is a need to develop additional grid infrastructure in Scotland and across Europe but we are confident that this can be delivered without harming wildlife. The Scottish Government should work with partners in Scotland and across Europe to ensure that grid infrastructure is developed to avoid direct impacts on wildlife. Investing effort into strategic planning for renewables and grid infrastructure is required to ensure that development is steered away from the most sensitive sites.

(c) Planning and consents

Is the planning system adequately resourced and fit for purpose?

Issues around onshore wind have changed over the last few years. Many large sites are now operational, have consents or are subject to existing applications. This raises a number of new challenges:

- The easier large sites have been developed (i.e. those with few objections, low wildlife interest, good grid connections)
- There are many more small proposals coming forward. These can still have the potential to result in significant harm to wildlife if poorly sited or designed and assessment is still time consuming. Overall, this could lead to an increase in processing time per MW installed
- As more onshore wind in particular is deployed, cumulative impacts on wildlife and landscape are becoming an increasing concern

If we are to meet the targets without causing significant harm to wildlife, and taking account of other restrictions on development, there will be an increased need to plan strategically and identify areas which are and are not suitable for windfarm development. This would also speed up the consenting process, reducing the risk of contentious and unsuitable projects coming to the application stage. Current planning policy in the form of SPP requires planning authorities to set out a spatial framework for onshore wind farms of over 20MW. However, this misses the opportunity to consider the implications of the many developments of sub-20MW and, as the responsibility is passed to local planning authorities, it does not allow for proper consideration of the national significance (or insignificance) of areas that may be affected by wind energy. As a result, in our experience, development plans have been of limited use in influencing the location of onshore wind.

Offshore, the relatively new consenting system seems to be bedding in well but it has yet to be properly tested, with applications for offshore renewables projects expected to increase massively over the next 1-2 years. It will be critical for the reputation of the industry, particularly early on, that sites are not developed that result in significant harm to wildlife. It will also be important to be able to demonstrate best practice in developing in harmony with nature. For example, onshore wind developers have been able to deliver some significant wildlife benefits through enhancing habitats on land near their development sites. Similar initiatives must be delivered offshore.

How can national priorities be reconciled with local interests?

It is in the national as well as local interest that the quality of environments in the vicinity of renewable energy developments are not compromised. As described previously, renewable energy objectives need not conflict with local environmental objectives if a strategic approach is taken towards siting wind farms and other developments. The most ecologically sensitive environments must be identified and an

¹⁸ <http://www.renewables-grid.eu/>

¹⁹ <http://www.renewables-grid.eu/menu-dropdown/events/environment-workshop-2011.html>

assessment made of the level of investment in renewable energy that can be made without negative ecological impacts. This assessment must be accompanied by spatial guidance for developers and planning authorities.

Consideration should be given as to the best use of community benefit schemes. Whilst these contributions from developers to local communities are welcome - and we do not question the intention to ensure that communities in the immediate vicinity of renewable energy developments are compensated - we question whether it is perhaps a missed opportunity that community benefit schemes typically only benefit a small locality. The current ad-hoc nature of community benefit schemes has been a missed opportunity to deliver benefits to the wider natural environment. There is a need to review this approach to ensure that all of Scotland's communities benefit from the renewables revolution.

(d) Access to finance

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?

Funding should be identified for more research into the potential impacts of renewable technologies on wildlife and the natural environment, especially in the marine environment. This will help ensure that only the most sustainable technologies are driven forward, and help inform the choice of sites for renewable energy developments where least damage to the natural environment would be caused.

What will the impacts be on consumers and their bills?

First and foremost, consideration should be given as to the true cost to consumers if action is not taken to decarbonise the energy sector and reduce emissions. As already stated, the costs of not achieving our greenhouse gas emissions targets have been clearly established.

Analysis by the UK Committee on Climate Change has established that the main driver behind increases in energy bills since 2004 was the increase in wholesale gas prices. Over 80% of the increase in bills was unrelated to low-carbon measures. The Committee concludes that successful implementation of energy efficiency measures would largely offset costs of financing low-carbon investments and increased gas prices, resulting in bills in 2020 broadly at current levels²⁰.

(e) Skills and workforce development

Will Scotland have sufficient home-grown skills to attract inward investment? Are current policies producing the desired move towards Science Technology Engineering and Maths subjects at schools and universities? Is the skills transfer from the oil and gas sectors being realised?

In addition to the points raised by this question it is worth considering the significant export potential of Scottish expertise in the renewables sector. Scottish Enterprise have identified that the 'opportunities arising within the emerging low carbon sector provide a unique chance for the Scottish construction sector to develop world-leading technologies in designing, building or retrofitting domestic or commercial buildings in order to adjust them to zero carbon standards.'²¹ There is no reason why this cannot be similarly applied to the renewables sector, particularly if Scotland succeeds in meeting the 2020 targets sustainably and without harming the natural environment. We are aware of environmental specialists who, having gained experience from the renewable energy sector in Scotland, have been able to apply these skills to the development of the industry elsewhere in the world. Within RSPB Scotland, we are also frequently called upon to provide our expertise to colleagues working elsewhere in the UK and internationally, particularly with respect to the effects of renewables on wildlife.

²⁰

http://downloads.theccc.org.uk.s3.amazonaws.com/Household%20Energy%20Bills/CCC_Energy%20Note%20Bill_bookmarked_1.pdf

²¹ <http://www.napier.ac.uk/instituteforsustainableconstruction/Pages/GreenDragon'sDen.aspx>

(f) Energy market reform and the subsidy regime

Are the reforms of the energy markets and subsidy regimes at both UK and EU level sufficient to meet the challenge of the Scottish Government's renewable targets?

We believe that the overall aim of Electricity Market Reform should be to decarbonise the electricity sector, reducing average emissions from generation to 50gCO₂/kWh by 2030 as recommended by the Climate Change Committee. An EPS at the level proposed by DECC is inadequate, and the proposed grandfathering provision sends a message that unabated gas and partially abated coal will continue to have a role to play in to the future, which is incompatible with our longer-term emission targets.

With regard to transmission charging, currently under review by Ofgem under Project TransmiT, we broadly welcome the aims of TransmiT in trying to facilitate a timely move to a low carbon energy sector. However, where changes to transmission charging are likely to make development more attractive in certain locations it is imperative that precautions are in place to ensure that the most important places for wildlife are protected throughout the transition to a low-carbon economy. Before changes are made to the charging system, the most ecologically sensitive areas must be identified and an assessment made of the level of development of renewable energy that can be made without significant negative ecological impacts. This assessment must be accompanied by spatial guidance for developers and planning authorities. Our response to Project TransmiT is available online²².

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²² http://www.rspb.org.uk/Images/electricity_transmission_charging_tcm9-306327.pdf