WWF Scotland

Little Dunkeld, Dunkeld
Perthshire PH8 0AD
t: 01350 728200
f: 01350 728201
ISDN: 01350 728276

www.wwfscotland.org.uk

WWF *for a living planet*

Written Evidence August 2008

Scotland's Energy Future

Introduction: WWF Scotland welcomes the opportunity to input into the Economy, Energy and Tourism Committee's Energy Inquiry. In 2005 the energy sector, including transport, generated 90% of Scotland's greenhouse gas emissions[1]. If Scotland is to reduce its emissions at the necessary rate and meet its 80% greenhouse gas emission target, an immediate and sustained transformation in the generation, distribution and use of energy is needed.

As the World Economic Forum recently said in their report to the G8; "a paradigm shift to a low-carbon economy by 2050 has the potential to drive forward the next chapter of technological innovation. It will require a third - this time a green - industrial revolution"[2]. Scotland is well placed to lead such a revolution but is not alone in recognising the opportunities available. The German Government recently released a report showing how they could achieve a 40% reduction in emissions by 2020 while also saving 5 billion Euros compared to a business as usual path[3].

Context: In 2006 approximately 6% of Scotland's total energy use came from renewables, with around 20% of our *electricity* coming from renewables. The Minister for Enterprise, Energy and Tourism has stated the Scottish Government's intention is to aim to "meet 20% of our own energy use from renewable sources as part of the drive to ensure that the [EU] target is met"[4]. This aim should become an explicit target-focused policy supported by a comprehensive energy strategy.

WWF Scotland believes a strong Scottish Climate Change Bill should set the framework and prompt a Scottish Energy Strategy that addresses both production and consumption of energy. WWF also supports Sarah Boyack MSP's proposed Micro Generation and Energy Efficiency Bill.

Scotland's energy future must be built around a decarbonised, flexible and decentralised, low demand system; only this way will we meet our 2050 target and provide security of supply.

1. Scotland's energy must be significantly decarbonised by 2050 to meet an 80% reduction in greenhouse gas emissions.
2. Scotland will ensure security of energy supply through local renewable energy sources, improved efficiencies in energy use and decentralised generation.
3. Scotland's future energy system must address the almost 25% of Scottish homes currently suffering from fuel poverty.

---

1 Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990 -2005. Report to Department for Environment, Food and Rural Affairs, The Scottish Executive, The Welsh Assembly Government and The Northern Ireland Department of Environment. EPEO/ED05452200 AEAT/ENV/R/2500 Draft Final August 2007.
2 See http://www.weforum.org/documents/initiatives/CEOStatement.pdf
3 See http://www.germany.info/relaunch/business/new/bus_climate_protection_benefits_11_07.html
4 See http://www.scotland.gov.uk/News/This-Week/Speeches/Weathier-and-Fairer/allenergy

Energy Use

The potential for climate emissions savings is huge from improved energy efficiencies. Within its competencies Scottish Government should bring forward a serious package of energy demand management measures targeted at the most energy wasteful sectors. Recent work by IPPR and British Gas has estimated that good energy 'house keeping' could save Britain £4.6bn in domestic fuel bills and cut emissions by 20%. The Energy Savings Trust estimates that the average household could save around £200 a year by taking energy efficiency measures such as insulation, draught proofing, double glazing, and improved heating systems. A low carbon future will see far greater understanding of domestic energy use and the benefits available from reducing demand and improving efficiency.

Improved efficiency of our built environment will be needed to tackle the source of almost 50% of Scotland's carbon emissions. Energy use in the built environment must be the subject of focused efficiency policies. In particular Scottish Government must remove the 500 sq m threshold in SPP6 and introduce an annual or bi-annual escalator to deliver an effective 100% CO_2 reduction in 2016. Minimum energy efficiency standards (which rise over time) must be set for the private rented domestic sector. Legislation on housing sales should be amended to allow Ministers to impose housing improvement orders and set minimum energy efficiency standards that must be met before a sale or rental can progress. Such a programme would make significant inroads into Scotland's poor quality housing stock and the high levels of fuel poverty that results from current levels of inadequate insulation and inefficient heating. Recent work published by WWF[5] describes how Scotland could achieve a 32% reduction below 2004 levels in emissions from domestic housing.

Energy Production

Nearly 20% of the energy used in Scotland goes into **generating electricity.** Independent analysis commissioned by WWF shows that the electricity sector needs to be carbon-free by 2050. The report uses the same models used in the Stern Review and the UK 2007 Energy White Paper to demonstrate how this can be achieved[6]. The Scottish Government estimate that the current target of 50% electricity generation from renewable sources requires 8GW of renewables by 2020; we currently have approximately 4 GW of installed/consented capacity and over 2.5 GW in the planning system. **It is clear that achieving a *fully* decarbonised electricity supply will require a step change increase in generation from on-shore and off-shore wind, marine renewables, micro renewables and the probable deployment of carbon capture and storage technology.**

Scotland has sufficient renewable energy resources to provide up to 75% of UK electricity needs[7]. Scottish Government must act to free Scotland's renewable potential and deliver the necessary infrastructure support to ensure the 50% target is achieved and exceeded. The Scottish Government should be looking beyond 2020 and set out the contribution renewables will make to a decarbonised electricity supply by 2050. Former Vice President Al Gore has just set out a challenge for the USA to have a 100% renewable electricity supply in ten years' time. Scotland's renewable potential demands it shows an equal level of ambition, particularly in its potential to lead the marine renewables sector.

In order to achieve 80% reduction in emissions Scotland will need a rapid transition away from fossil fuels. There may be a role for carbon capture and storage, but there can be no new unabated coal power

5 See http://www.wwf.org.uk/filelibrary/pdf/how_low_report.pdf How Low Achieving optimal carbon savings from the UK's existing housing stock.
6 See http://www.wwf.org.uk/filelibrary/pdf/80summary.pdf
7 See http://www.scotland.gov.uk/Resource/Doc/47176/0014633.pdf

stations in Scotland if we are to meet our climate change targets. **Future energy policy should apply a GHG Emissions Performance Standard that would set a limit on CO_2 emissions** for all new generating plant which have yet to secure planning consent. A Scottish standard should be initially set at 350g/kWh, a level which could be achieved by an efficient gas-fired power station which makes some use of waste heat. The standard should be tightened significantly if CCS technology is proven to be technically and economically viable.

The technology of Combined Heat and Power (CHP) has a major role to play in reducing emissions and maintaining energy security. It is also a key technology contributing to the transition towards a more decentralised, highly efficient energy system. **CHP has been proven to be as much as 95% efficient**. A conventional power plant is on average only 38% efficient. Work commissioned by the Combined Heat and Power Association shows that out of all the members of the European Union the UK's current CHP capacity is the fourth lowest[8]. **Highly efficient Combined Heat and Power is market ready technology that can make a significant overall contribution to emissions reduction.**

Space heat and water heating currently make up 57% of Scotland's energy demand. In the future Scotland's use of heat will need to demonstrate significant efficiency improvements and be based on renewable technologies. The Scottish Government should act on the recommendations of the report by the Forum for Renewable Energy Development,[9] including setting an ambitious target of at least 20% of heat to come from a mix of renewable technologies by 2020**.** This transformation will take place at the community and household scale.

A recent report commissioned by BERR[10] concluded that across the UK microgeneration uptake has been limited, and of the eleven policy measures aimed directly or indirectly at microgeneration none have been designed to promote mass market uptake of microgeneration. Despite the lack of effective support, modelling work carried out by the Energy Savings Trust and supported by the Scottish Government concluded that action taken at both a UK and Scottish level could make savings of 9.6Mt CO_2/year[11] by 2050 (this is approximately 20% of today's CO_2 emissions). This analysis recommends the following decisions are made:

- One heating microgeneration technology to be installed (instead of conventional boiler) at time of replacement.
- Make microgeneration compulsory on new builds
- Provide a 30% grant to retrofit renewable technology into existing buildings.
- Provide 10 year, low interest loans on all microgeneration technologies.

Transport is a growing yet often forgotten part of the energy mix. As Scotland's Transport Strategy states; "the growth of road traffic levels is unsustainable in the longer term – it is already resulting in a range of problems that affect our economy, our environment and our quality of life"[12]. The absence of a readily available fuel alternative[13] will mean that in the immediate term Scotland's transport system will have to change to reduce the need for private transport travel and provide appropriate levels of public transport alternatives to the private car.

---

8 http://www.chpa.co.uk/

9 http://www.bioenergy.org.nz/documents/publications/Whats%20New/Renewable%20Heat%20Strategy%20-%20Scotland.pdf

10 http://www.berr.gov.uk/files/file46003.pdf

11 See http://www.energysavingtrust.org.uk/uploads/documents/aboutest/microgn%20scot%20web.pdf

12 See http://www.scotland.gov.uk/Resource/Doc/157751/0042649.pdf

13 Current biofuels have a limited role but the electrification of road transport provides a sustainable means of diversifying the fuel base. Electrification is available based on existing infrastructure and current technology and the Scottish Government should commit to supporting the necessary transformation to electrical transport. WWF recently published "*Plugged In: The End of the Oil Age"* which sets out the case for the electrification of road transport. See http://www.panda.org/about_wwf/what_we_do/climate_change/index.cfm?uNewsID=129321 The Portuguese Government has recently committed to providing electric car charging points throughout the country.

Scottish Government must remove the proposed expansion of Edinburgh and Glasgow airports from the National Planning Framework. Aviation is the fastest growing source of emissions and can not be accelerated by poorly informed predict and provide expansion models based on unrealistically cheap oil prices.[14] To produce a low-carbon transport system the Government should remove subsidies to air travel, support the continued electrification of Scotland's railways, and commit a minimum of 10% of transport budgets to walking and cycling.[15]

Energy Distribution

Our reliance on conventional centralised energy generation is hugely wasteful, approximately two thirds of energy generated is lost in the form of heat from large fossil fuel plants. Scotland's future energy distribution will have to be able to support a geographically dispersed generation base and have the flexibility to accommodate multiple sources of energy. It will provide for decentralised energy that is close to the point of use and facilitate the large scale up take of micro renewable and the potential this offers for private energy sale to the grid. It will also need to support long-distance transmission of energy from remote renewables such as offshore wind and wave power.

Commitment to decentralised energy could free the potential of CHP to provide highly efficient energy without losses associated with transmission. In 2006 WWF and Greenpeace carried out a study for Edinburgh City Council that concluded the heat and electricity needs of all buildings in Edinburgh could be met with a 28% reduction in emissions by 2025 with a decentralised energy approach[16].

A move towards more decentralised energy generation is possible now and would have the combined effect of reducing emissions and raising public awareness of the link between electricity and energy generation.

Conclusion

The urgency of climate change demands that decisions on energy production and use must be made immediately. Scottish Government must present an Energy Strategy that commits to early action on cleaner production and reduced consumption; infrastructure changes need support now if they are to provide for a low carbon future in time.

A low-carbon, efficient-energy future is a challenging but achievable goal that will require leadership and long-term commitment from Scottish Government, understanding and support from the Scottish people and investment from industry and business.

For more information please contact: Jessica Pepper, WWF Scotland on 01350 728200 or 07980 852562; email: jpepper@wwfscotland.org.uk

14 WWF recently published the results of an independent survey that examined the travel policies among FTSE 350 companies. Of the 100 surveyed, almost three quarters have, or are in the process of developing, a policy to encourage green business travel. Also 89 per cent said they expect to cut flights over the next ten years. See http://www.wwf.org.uk/filelibrary/pdf/travelling_light.pdf . In addition WWF commissioned an independent assessment of the UK Government's aviation forecasts. Examining the impacts of applying a more realistic price of oil ($106 rather than $53), the knock-on effect this could have on UK GDP, and the potential introduction of policies encouraging a switch towards alternatives shows that the UK has capacity within its existing airports to accommodate growth in aviation – there is no need for expansion.
15 See http://sustrans.org.uk/webfiles/general/take_action_on_active_travel.pdf for more recommendations to support active travel.
16. http://www.wwf.org.uk/filelibrary/pdf/pb_power_.pdf