Scottish Environment Link

Electricity in Scotland – Transmission and Distribution
Briefing Paper - December 2005

Summary
An examination in public, either through Strategic Environmental Assessment or by a Planning Inquiry, must be undertaken by Scottish Ministers before significant upgrading of the electricity transmission system in Scotland. Major expansion of the grid should not take place without a clear policy context and proper integration with sustainable development principles.

Key Issues
Plans to develop the electricity transmission system in Scotland have been developed in isolation, with limited strategic consideration of how to sensitively accommodate new energy developments in the environment. This includes the environmental impacts of lines and pylons and the subsequent location of renewables development once capacity has been increased.

There is no clear published policy background for the development of high-capacity electricity transmission lines, and the sustainability of encouraging reliance on long-distance electricity supply needs to be questioned.

Full consideration of demand reduction initiatives and the development of alternative, off-grid approaches to delivering renewable energy is lacking in projections for transmission upgrades.

Background
The Government's efforts to reduce greenhouse gas emissions through the development of renewable energy technologies have precipitated an overhaul in the system for transmitting energy from power generation plants to our homes. This potentially raises serious environmental issues as the electricity grid is upgraded to carry more electricity, and new routes constructed to extend the grid.

There are significant indirect impacts associated with reinforcing the transmission network, in that development of the grid may influence the location of new renewables projects, potentially opening up new "energy highways", steering development into more remote and often environmentally sensitive areas as extra carrying capacity is filled.

Fundamental questions have to be asked of how to best meet the renewable electricity generation targets set by the Scottish Executive of 40% by 2020. Development of electricity generation and distribution has to take place within the context of how we use and generate energy and how CO_2 emission reductions can be effectively achieved.

The Government's Sustainable Development Commission, in a study of the development of wind energy resources in the UK (May 2005),

emphasised that reducing demand on the national grid was “essential” and “perhaps the most cost effective way of meeting our obligations to cut greenhouse gas emissions”. In addition, a key principle should be to keep sources of generation close to where power is needed.

It would be useful, at the outset, to create a clear hierarchy of energy management in terms of overall environmental and social impacts, which would help prioritise policy implementation. This needs to start with energy conservation as the primary objective (as the SDC suggest above), followed by energy efficiency, then micro- and community scale renewables, followed by macro-renewables.
Once these targets are well in hand attention may be turned to fossil fuels with Carbon Capture and Sequestration. Nuclear should be the final option.

We acknowledge that these principles do not eliminate the prospect that in shifting from fossil and nuclear sources of energy, limited grid development or extension into new geographic areas may be required. However we should optimise our use of renewable resources and take a strategic look at the grid network to move power around so it can meet our electricity needs. This requires appropriate planning controls to ensure that desirable renewable generation capacity can be connected to the grid, whilst environmental impact is minimised, and that the resource is not wasted through excessive transmission losses.

The Department of Trade & Industry’s Transmission Issues Working Group in June 2003 produced a report in which a Renewable Energy Transmission Study (RETS) gave options for different scenarios of renewables energy penetration into the existing grid infrastructure. This study, when it was produced, was not open to any public debate on how the nation’s future electricity generation from renewable sources should develop.

The arguments of the benefits of energy efficiency coupled with microgeneration and CHP do not appear to have been fully considered: the savings in CO_2 emissions through generating power close to where it is used; the economic benefits to communities and individual consumers; the avoidance of landscape impacts from new, large powerlines; and the increased security of supply through less demand being put onto the national grid.

Recent claims by power utilities about the capacity of renewables that can be delivered with or without powerline upgrades raise questions about the way these upgrades are being handled. The case for the Beauly to Denny 400kV upgrade has been made by Scottish and Southern Energy (SSE) and Scottish Power on the basis that renewables targets will not be met without it and that there is sufficient demand from generators. Scottish Power (SP) however in submission to Ofgem have suggested that SSE can deliver 1.55GW without the Beauly to Denny upgrade and that SP have additional 2.83 GW windpower already contracted to connect in their area with up to 4.3GW available if the Western Interconnector with England is approved by Ofgem. This would suggest that there are practical

alternative ways to meet the 6GW required to meet the 2020 renewables target. The apparent contradictions should be resolved before investment is committed to a particular option.

In this context, the Beauly to Denny transmission line proposal is premature as this particular proposal is not required in order to meet the Executive's 2010 target of 18% of Scotland's electricity needs generated from renewable sources. Nor is it likely to be needed for the 2020 target of 40% provided the Scottish Executive takes a more balanced approach to renewable energy generation. This should embrace more than just electricity generation, but include biomass and biofuels for space heating, along with demand reduction measures and use of clean fossil fuel generation. Any delay brought about by an inquiry would not undermine the 2020 target. Nor would a failure to deliver the Beauly to Denny line create a dependency on new nuclear capacity. We see no need for further nuclear capacity to be developed to meet our 2020 energy requirements, if these measures are implemented.

The proposals identified above for upgrading transmission lines, are taking place without adequate strategic context. Planning policy context for approval of transmission lines is missing, with no clear published policy background. National Planning Policy Guideline 6 Renewable Energy provides the planning context for power generation. NPPG 6 explicitly states that the policy guidance set out in the document is "applicable to the authorisation of electricity generation schemes under Section 36 of the Electricity Act 1989", i.e. large power generators, of greater than 50MW capacity.

The authorisation of overhead power lines, applied for under Section 37 of the same Act are not included in this published policy guidance. Given that the reason for the transmission line upgrade is specifically for renewable energy developments, then it becomes a matter of urgency to formulate and discuss a policy context for determining Section 37 powerline proposals. In addition, decisions on the desirability and feasibility of subsea cable connections direct from offshore marine installations to existing high-voltage capacity lines near to centres of demand lie outwith the jurisdiction of the planning system.

Ofgem, when considering their "economical, efficient and co-ordinated" approach to transmission line development do not take planning policy context into account. Energy policy is a policy area reserved by Westminster, but the Scottish Executive have the responsibility to plan for renewables in Scotland. This includes the contribution that microgeneration can bring to reducing demand on the grid.

Conclusions

Given the generating capacity for renewables that is claimed is available, coupled with demand reduction initiatives and cleaner conventional technologies, it is possible to meet our energy needs without going down the road to more nuclear generation.

It is imperative that we drive down CO_2 emissions, but it is questionable that it will be achieved by expanding the electricity grid and increasing its capacity, without it being part of a co-ordinated plan that includes demand reduction. The Scottish Executive needs to examine how to generate, transmit and distribute renewable energy in a sustainable fashion. This may be conducted through Strategic Environmental Assessment or through a Planning Inquiry Commission, but either way examination of the options should be conducted in public.

However it is conducted it would appear that a major transmission upgrade in Scotland is premature, and would be taking place without a clear policy context as to how such upgrading should be developed in order to accommodate the renewable energy developments that would be most effective in reducing greenhouse gas emission.

This briefing was prepared by a LINK working group consisting of the following member organisations:

Friends of the Earth Scotland
John Muir Trust
The National Trust for Scotland
Mountaineering Council of Scotland
Ramblers Association Scotland
*Rural*Scotland
RSPB Scotland
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