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Dear Dr Rands,

Further to the verbal evidence given to the Royal Society and the presentation material already submitted, Scottish and Southern Energy is pleased to respond to the Stakeholder Consultation Questions from the Energy Enquiry.

### **General (Questions 1 - 3)**

We believe it is important that Scotland secures its energy needs for the future in a balanced and sustainable manner. Scotland must support its energy needs through a healthy mix of sources in Scotland, the UK, Europe and beyond. Security of supply will require not only a sustainable physical resource, but also a stable and predictable political environment.

Equally it will be important to recognise that there is no single source of energy or technology for generation, storage and transport – a diverse mix will be required and is generally desirable to balance and manage future risk.

Scotland might reasonably aim to achieve > 50% self-sufficiency for its wider energy needs. For electricity a target of broad self-sufficiency appears appropriate.

From an economic perspective, it should be noted that since 1 April 2005 there is no longer a discrete Scottish market for electricity, and for some time now none for energy as a whole. Political responsibility for energy is reserved to Westminster, with some elements directed from Brussels. The UK government has no direct operational responsibility for energy and must create the regulatory and policy framework that encourages the markets to deliver what is required.

In an industry with long lead times for large capital projects there is a risk that political decisions are made too late to allow timely implementation. This is particularly true where, as well as the direct investment, additional investment in infrastructure – eg pipelines or transmission – is needed. There is equally a risk that government intervenes too often causing a loss of market confidence, adversely affecting the availability of funding.

If Scotland and the UK were to become increasingly dependent on imported energy this would require additional investment in storage facilities, in other reserve measures and a wider degree of diversity of supply options.

### Energy Supply (Questions 4 – 7)

The table below shows a summary of the various energy supply sources and of their evaluation in a number of categories:

Source	Electricity – scale of use	Heat – scale of use	Sustainability	(Current) Issues
Fossil Fuel				
Coal	L	S	No	Emissions
Oil	M,S	M,S	No	Emissions
Gas	L,M,S	M,S	No	Emissions
Biomass	L,M,S	M,S	Yes	Supply logistics + cost
Nuclear	L	-	?	Safety + waste
Solar	M,S	M,S	Yes	Cost
Wind (land)	L,M,S	-	Yes	Planning
Wind (sea)	L	-	Yes	Unproven + cost
Wave	L,M	-	Yes	Unproven + cost
Tidal	L	-	Yes	Unproven + cost

L = Large; M = medium (commercial and community scale); S = small (domestic)

Providing energy nationally means that, whatever the scale of production, very significant sums of capital must be deployed. For this to be possible and at the same time affordable, risks must be kept low and manageable. Therefore, the investment climate must be clear, predictable and long term.

There will always be some geographical separation between the generation, storage and consumption of energy and the investment in the associated transport and transmission infrastructure must also be recognised and supported. Currently the lack of grid capacity is becoming one of the key barriers to rapid deployment of renewable energy.

The introduction of new transmission charging arrangements has added another dimension to this – the “cost reflective” charges now mean that Scotland will be the first place that generation will shut down and the last place that new generation will be constructed. This is far more acute for conventional generation outwith the ROC mechanism and will have a significant impact on whether the market will deliver self-sufficiency in Scotland.

### Energy Demand (Questions 8 – 10)

The ready availability and affordability of energy is taken for granted by most users.

All business users depend on energy in one way or another, however there are a number of industries that use energy very intensively and they are the first that would be adversely affected by either a shortage of energy and/or a significant increase in the cost. Businesses operating in an international environment would also suffer if a price differential were to be created between Scotland and a country where competitors operate.

Other than obvious examples of energy users living in poverty, it is likely that few users see the current price of energy as a significant reason to voluntarily invest in a reduction in energy usage, whether this is through changing behaviour and consumption patterns or through physical investment in energy saving measures. It is often very difficult for energy suppliers who are committed to energy efficiency programmes to find customers prepared to take up the funding on offer to support schemes, eg Cavity Wall or Loft Insulation. As a result, electricity consumption is still rising by about 1.5% pa and is set to double by 2050.

In order to deliver the carbon emission savings targeted to come from the demand side - domestic and business users - it will be necessary to focus on absolute energy reduction rather than on energy efficiency ratios, if the current upward trend is to be slowed let alone reversed.

A contribution may be made through a shift in the emphasis from Energy Sales to Energy Services with the supplier investing capital in energy efficiency or reduction measures on behalf of the customer and recovering this through higher fixed payments over a period of time. The overall charges to the end user would remain the same, or more probably, reduce since the running costs would come down as a result of the investment. In any event, once the capital repayments were complete there would be a significant cost benefit to the customer.

The investment costs for energy reduction can be zero – a change in wasteful behaviour, eg stand-by function on electrical goods like televisions and computers, costs nothing. Other investment measures on the demand side are likely to be comparable or more expensive than centralised investment in energy supply.

### **Environmental and Social Issues (Questions 11 – 13)**

The challenge ahead in restructuring Scotland's energy needs towards 2050 will be to improve the balance between the environmental impacts of our current activities and those of the replacement measures. This will be difficult since often the comparison will be between very different impacts. These may be in terms of geography – one area suffering a local impact to offset impacts elsewhere; of scale – worldwide climate change versus local impact on landscape or wildlife; of time – long term versus short term effects.

Environmental improvement need not necessarily contradict economic growth. Indeed, the very large investment programme required to develop, deploy and operate renewable and sustainable energy has the potential to contribute to significant economic and employment growth.

Social benefits are not mutually exclusive either – economic growth as described above can go hand in hand with environmental improvement and social benefit. A look back in history to the long-term benefits brought to the Highlands of Scotland through the, then very controversial, programme of hydro-electricity development. Economic, environmental and social benefits continue to accrue over 50 years later.

The ready availability of uninterrupted power has allowed medical advances and supports medical systems that have fundamentally changed our health for the better – increased quality of life through available treatments and significantly increased longevity. This must be balanced against any adverse health impacts associated with energy development.

Yours sincerely

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Head of Sustainable Development