

## **RSE ENERGY INQUIRY RESPONSE TO CONSULTATION QUESTIONS ROGER CROFTS**

First, I would encourage the Inquiry to review the recommendations in the RSE's 2006 energy Inquiry report and publish its commentary and findings at least as an annex to the new report. Some beneficial changes have occurred but many of the issues we highlighted over decade ago remain relevant and not entirely resolved.

### **Energy Landscape 1 What are the most significant challenges to, and influences on, the energy landscape that any future energy strategy needs to take into account?**

- Influence of global and national climate change agreements and policies on changing the energy supply mix and on consumption patterns
- Continuing growth of demand for energy in industrialising countries with limited renewable energy sources and copious fossil energy sources
- Resistance to reduce the use of fossil sources of energy. This is especially relevant for consumer goods demands from the production of plastics and other materials derived from hydrocarbons
- Demand for affordable energy supplies to the less well-off members of society
- Increasing public resistance to energy infrastructure near where people live

### **Supply and Demand 2 What will energy demand in Scotland look like in 2030, 2040, and 2050?**

Very difficult to predict because of uncertain prices, impact of Brexit in the short to medium term and state of economic development globally and nationally. Need for modelling using robust and explicit assumptions

### **3 What are the biggest barriers faced to meeting the demand we will have for energy by 2030, 2040, and 2050?**

- Effect of climate change and particularly variable weather patterns on demand
- Geopolitical factors influencing security of supply from politically unstable regimes
- decarbonisation of energy to meet international climate changes will put greater pressure on development of renewable sources with potentially damaging other environmental effects
- whether the balance between the government as regulator and the industry as supplier will achieve a more stable situation than at present

### **4 Given the international nature of the energy market, how should acceptable quantities and origins of energy imports, and their associated energy security risks, be assessed?**

- Develop a clear statement of Scotland's energy import, e.g. akin to the strategic aim in the 2006 report: *a secure, competitive, socially equitable and low carbon supply of energy for Scotland*
- Implement clear criteria about environmental and social ethics operating in the potential supply countries that are acceptable to the importing country
- Agree long-term supply contracts with those countries which meet Scotland's aim and criteria to ensure a mix of sources and energy types

The Energy Mix 5 **What overall role should be played by various elements of the energy landscape, for example:**

- Different sources of renewable energy – secure a greater variety of sources of supply to overcome uncontrollable variation in supply from individual sources such as wind. Consider possibilities of geothermal energy. Invest more RD&D in offshore tidal energy as it is largely predictable and wave

energy. Provide incentives for developing greater use of waste from domestic, commercial and agricultural sources but will need to overcome public negativity about incineration processes

- Offshore oil and gas – gas will be needed for many years unless there is a fundamental shift in building heating and cooling. Also, hydrocarbons will continue to be needed as the basis for the petrochemical industry and for key products based on polymer technology
- Unconventional oil and gas – the Scottish Government decision to continue the moratorium in Scotland needs to be periodically re-examined especially with independent, robust and objective social survey of public attitudes. The case for a firm regulatory framework and their proper enforcement needs to be made to convince doubters of the validity of the technical case set out in the 6 reports recently published.
- Nuclear power – this is the most difficult source because of the ongoing failure to develop secure long-term storage of high level radio-active waste and the failure to break through from laboratory to full scale application of nuclear fusion. Nuclear is also not C neutral, despite what is claimed by the nuclear generating companies, given the substantial energy requirements for fabricating the reactor vessels and for constructing the buildings and containment equipment from concrete. The report's stance on nuclear will be a touchstone as to whether the report is credible or rubbish in certain circles, as I recall from the previous inquiry where we elided around this issue.
- Energy storage – battery storage is this is the new holy grail and with so much RD&D commercially around the world, especially by the motor industry, progress is being made all of the time. The more traditional route used in Scotland of hydro-electric pumped storage schemes at a significant scale is likely to meet with resistance from environmental and amenity groups
- Other – more RD&D needs to put into the scaling up of hydrogen as a fuel vector and to reduce the energy requirements in its production. More use of District Heating Schemes and Combined Heat and Power schemes in urban development is required through the Building Regulations as used for example in Baltic Sea countries.

#### **Climate Change and Renewable Energy 6 What action needs to be taken to ensure that Scotland fulfils its climate change obligations while also meeting demand; and what are the main obstacles to achieving this?**

To achieve the testing targets a combination of technological development to reduce the down time of existing sources, especially wind; development of storage of energy from renewable sources; reduction in demand by much more effort and incentives on energy efficiency measures in commercial, industrial and domestic premises which are user friendly (unlike the recently installed smart meters in domestic premises!); decarbonising heating and cooling of buildings, and of road and shipping transport; stop compensation to renewable energy suppliers when their power is not needed in the grid.

Obstacles will be the power of the oil and gas industry and the lip service they may pay to renewable technologies; consumer resistance to rising prices to pay for facilities with higher unit costs of energy generation; consumer resistance to implementing complex energy reduction methods domestically; failure of other nations to implement international agreements on climate change

#### **7 What are the factors and risks which may impact upon the Scottish Government meeting the targets it has proposed on sustainable and renewable energy?**

- Rising costs to the consumer and consumer resistance to pay; untoward effect on the disadvantaged groups in society; environmental and amenity groups and local communities resistance to more infrastructure near where they live or where they visit.

- Relative costs of developing energy from renewable sources in Scotland compared with importing energy from less sustainable sources.

**Environmental Impact 8 What are the environmental impacts of individual elements of a future energy mix, to what extent can these be mitigated, and how can any remaining waste products be dealt with?**

There are many environmental effects such as damage to protected species and habitats and to valued landscapes; loss of prime agricultural land, C loss due to development of renewable energy sources on C rich soils and substrates.

Mitigation is through more effective strategic locational planning using all of the information available on natural resources values and not restricting decision making to the statutory planning system. Also, consideration of biodiversity offsets where development is planned on high biodiversity areas, based on the best international experience rather than merely avoid the issue as at present.

Nuclear waste is the most difficult with no signs of a lasting solution. For other wastes improvements in incineration technology, which reduces the toxic fumes, is essential.

**Ethics, Social Issues and Impact on Communities 9 What account should be taken of the environmental and social impacts on those living elsewhere in the world, of the international energy supply chains on which we may choose to rely?**

This should be part of the methodology used in decision making given that Scotland has signed up to the UN Sustainable Development Goals. Environmental footprint analysis is tenable and can be used to weigh up Scotland's effects globally.

**10 What actions can be taken, and by whom, to ensure that energy is accessible to all at an affordable cost for those on low incomes; and that any changes in energy provisions and associated tariffs are understandable and acceptable?**

No comment as beyond my knowledge.

**11 What are the particular advantages enjoyed, and challenges faced, regarding energy; and what lessons can be learned on a national scale from community energy schemes undertaken by: a) Rural and remote communities b) Urban Communities Regulation and Governance**

Distributed energy generation is to be encouraged as it reduces the amount of infrastructure needed and can use local supply sources of energy materials which would be otherwise wasted, such as brush from forestry operations. Similarly, urban based schemes using waste materials can be developed. Locally owned companies with local people as controllers through the governance structure are beneficial provided that there is community capacity to run facilities and to manage the business.

**12 To ensure that energy is successfully sourced for, and delivered to, the people living in Scotland, how can different levels of government best cooperate: a) With one another; b) Internationally; c) With existing energy generators, network operators and retailers?**

No comment on this question.

**Informed Debate 13 How can we best encourage objective, evidence-informed debate around energy while also acknowledging the differing perspectives and priorities held by businesses, civil society and government?**

As we did in the previous energy inquiry, by setting up social media links and visiting locations around Scotland to gather evidence and opinion and by subjecting the emerging findings to stakeholders' commentary before finalising the report. It is particularly important to gain the perspectives of younger generations, as experience shows that they can have a quite different perspective.

**Skills 14 How can Scotland ensure that it retains, and develops, the necessary workforce of skilled professionals needed to meet its energy needs?**

No comments on this question.

**Meeting the Challenge 15 What issues arise regarding innovation for Scotland's energy future; how might this interact with an industrial strategy for Scotland?**

Ensure, especially post Brexit, that there is continuing support for the major energy R&D groups in Scottish universities, that there are innovation grants and other support available to private entrepreneurs, to develop demonstration facilities and up scaling of technologies at key locations around Scotland where there is skills and entrepreneurial capability such as Scapa Flow and Methil.

Roger Crofts

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