

## Consultation Questions

### 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?

The transition to a wider range of sources of energy requires a fundamental review of infrastructure, storage and distribution and regulation. In addition, the one size fits all, or almost all, approach of delivering energy to Scottish homes and business should be challenged. The impact of the resizing of oil & gas as both a critical industry and a solution for revenue needs to be considered in its widest context – the collateral impact on the supply chain and associated livelihoods cannot be underestimated.

### Supply and Demand

2. What will energy demand in Scotland look like in 2030, 2040, and 2050?

There will be many educated answers to this question – I would look specifically at the end use of the energy and where it is to be provided and how that might change as well as the quantum of what is needed.

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

Distribution and delivery of energy across urban and rural settings today depends on existing and somewhat static or single purpose infrastructure. How might that infrastructure be repurposed to help deliver energy from a series of varied sources? A critical barrier could be the innate flexibility of new/emerging sources and how increasing amounts of flexibility can be achieved without punitive costs in terms of efficiency.

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?

The question of what minimum level of energy provision must be provided at the highest degree of security should be reviewed – it seems to me that not all end uses of energy should carry the same degree of risk – we should secure fundamental/Tier 1 energy needs against the most secure source – and accept a higher degree of risk for more optional energy end uses if needed. Clearly proximity is a key factor – the closer the original source the less geopolitical and natural risk it is likely to suffer from, although eg a long pipeline through friendly EU territories may be an acceptable security providing the source is also in friendly territories. Somewhat similar to water & the infamous hose pipe ban – if we had an 'energy ban', what would be turned off to provide energy for critical systems and how do we prepare society to make such a distinction?

### The Energy Mix

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

- Different source of renewable energy;

No doubt, varied sources of renewable energy will remain a critical component. I would be interested to consider more localised distribution systems being developed to address transportation costs and infrastructure constraints. No doubt storage technology will continue to develop but the most efficient and cost effective solution is to minimise storage and transport and maximise use as close to the point of generation as possible. There is the interesting concept of natural capital which is in fashion – from the perspective of regional richness in natural capital it does raise the question of the flow from mostly rural areas to urban areas and thought should be given to social balance should significant increases in renewable sources in rural areas occur.

- Offshore oil and gas;

no doubt will remain a key component of Scotlands energy mix as long as it remains economically viable for companies to invest in it. Energy extraction costs continually change as technology unlocks previously inaccessible sources. Long term stability in regulation, both fiscal and environmental, will be a key factor in companies making the decision to continue to invest in Scotlands North Sea. As the US shale gas revolution has indicated, other jurisdictions are able to fundamentally address their underlying profitability through scale, technology and innovation. Scotland must encourage the same.

- Unconventional oil and gas;

I do not believe the Unconventional oil & gas business will make a material impact on Scotland (or UK) in the years ahead. Apart from the high degree of uncertainty as to what the geology will deliver both in terms of the quality and quantity of any potential resource, the degree of social impact may render any meaningful development unachievable in the foreseeable future. Efforts and money should be focussed on more certain sources.

- Nuclear power;

I am a supporter of nuclear power as an effective and efficient means to guarantee safe and secure baseloads of energy for the foreseeable future.

- Energy storage;

this area is developing rapidly and I believe the focus should be on hub type storage systems that can secure supplies for more remote or isolated areas.

- Others

## 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?

Nuclear is one key way that the climate change impact per kW is minimised. Not an area of expertise for me but it seems the minimum amount of human intervention for the maximum kW should provide guidance for climate change impacts.

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?

I am not adequately cited on this to make a meaningful comment here. However targets should have realistic plans to back them up, to state the obvious.

### 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?

I am not adequately cited on this to make a meaningful comment here

### 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?

We should be able to stand as a global citizen without having to rely on stepping on others to run our day to day lives. Ideally, finding a way to be as independent as possible of imported energy without a significant environmental\social impact at home should be the goal.

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?

Transparency on how much is being used and where/when is an important factor – so meters should play a key role. A system of flexible payments and support tariffs so that those who get into trouble paying their bills can get an achievable way out – some good practice is emerging in some parts of the water sector (This is in part driven by the fact that the provision of water in the UK is a human right and so defaulters cannot be 'disconnected'). Ongoing push for plain English in the description of tariffs and changes supported by regulation and penalties for those who mislead customers. I do not support subsidies as a means to reduce charges – on the basis that someone has to pay either via a bill or taxation.

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:
1. **a)** Rural and remote communities
  2. **b)** Urban Communities

I do not have much information/knowledge on community schemes either rural/remote or urban however I support the concept that a community is likely to behave more responsibly and sustainably when it is more closely connected to understanding the costs and impacts of managing their own energy sources. I believe these schemes should be encouraged, incentivised and developed.

### Regulation and Governance

**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;

No comment

b) Internationally;

no comment

c) With existing energy generators, network operators and retailers?

Open discussion and dialogue and a genuine understanding of the drivers for each party in the chain. The investors in many companies are interested only in profit and while that may not sit well with many, they also represent many pension funds/schemes that a much wider cross section of the public may be impacted by. The responsibility of boards and governance structures in these companies should continue to be tasked with ensuring investments are well considered and responsibly executed – and the regulator should ensure that the pieces of the chain are efficiently connected.

### 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?

A multidisciplinary group should be tasked to collate and represent facts in a plain and transparent manner and articulate choices and challenge with risks and impacts to all parties. No single constituent can genuinely do this as none represents the molecule to kW journey that is taken in providing energy to all end users. Such a group should include academics and recognised authorities such as RS.

### Skills

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

Scotland should continue to focus on and indeed increase focus on STEM education at all levels. In particular, consideration could be given to supporting innovation in the energy sector to encourage SME energy research and development. In terms of skilled professionals, Scotland has a vibrant and skilled work force connected with the North Sea O&G industry – many of these skills are transferable. While salaries in other areas of energy development may not reach the richness of the O&G sector, the opportunities and challenges open to interested workers should be highlighted as an aspiration for young people and for older/mature workers to cross train. Keeping Scotland running should be an enterprise that people should be proud to be a part of.

### Meeting the Challenge

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

As above, innovation is a critical component of any vibrant society and an area where Scotland has a rich history, and this need not be restricted to energy. There are many schemes which could be adopted to provide tax incentives for investment in start up ventures with a specific industry focus –

such as energy storage for example – both for native Scottish businesses and to attract FDI from international parties into Scotland. Scotland must finalise a plan of attack, that is politically acceptable to all parties, and then support it. Any actions taken to enhance and secure Scotland's energy future is a long term endeavour and should not be exposed to political whims. It would be interesting to look at best practice globally to find which strands could be adapted for and adopted by Scotland and used as a platform to launch a 'powering ahead in Scotland'å future.