Firstly, I wish to state that the Call for Written Evidence was inadequately publicised and therefore only came to my notice a few days ago via a chance email. If the Committee genuinely wishes to engage wider contribution, a more effective method of communication to society is necessary. TV, Radio, Newspaper, and Website (both pro and anti various technologies) should be considered.

Secondly, restricting input to 6 pages, when re-typing the questions themselves takes a full page restricts the quality of submissions you receive. The resulting submissions will be either too high level to be meaningful, or will address only a few points. Again this subverts the effectiveness of the democratic engagement and undermines trust in the Scottish Government’s application of democratic principles.

**Targets**

1. **Are the 2020 renewables targets (for electricity and heat) achievable? If not, why not?**

   No, the UK’s targets pushed the boundaries, the Scottish targets were ridiculously stretched. We don’t have: the investment capital, the public support, the efficient and effective technological capability or the deployment capacity to meet the unrealistic targets set.

   I would refer to the Institute of Mechanical Engineers report¹ which notes “First Minister Alex Salmond announced that the Scottish Government had increased the overall percentage target for energy from renewable sources to 30% by 2020. In light of this report’s analysis, this aspirational target appears to represent an ambition that cannot be justified from an engineering perspective.” and “10.3% OF HOUSEHOLDS IN SCOTLAND ARE CLASSED AS BEING IN ‘EXTREME FUEL POVERTY’.”

   I would also refer to the “Sunday Politics Scotland” show (26/2/12) where the Scottish Fuel Poverty figure was quoted at 30%.

   Finally, reference to “Green Energy without the hot air”² provides useful information in this area.

2. **What contribution will achievement of the 2020 renewables targets make to meeting Scotland’s CO₂ emissions targets (a reduction of at least 42% by 2020 and an 80% reduction target for 2050) under the Climate Change (Scotland) Act 2009?**

   As the 2020 renewables targets are unattainable, this question makes no sense. However, the almost exclusive focus on subsidising onshore blade wind energy to the detriment of all other renewable options also jeopardises even the 2050 target.

3. **Will increase in demand from electric heat and transport be offset by efficiencies elsewhere?**

   How is the “increase in demand from electric heat and transport” statement supported? Is there any objective evidence that there will be an increased demand for electric heat and transport? Traditionally, electric heat has been both an inefficient and costly alternative. With the predicted substantial increases in electricity costs to support the poor decisions on investment in onshore wind, it is highly likely that fuel poverty will drive homes to reduce consumption and switch to alternative heating sources such as wood-burning stoves. There is no evidence that electric transport will become a viable alternative within the next generation of vehicles.

4. **Has the Scottish Government made any estimation of the overall costs of achieving the targets, and identified which parties will bear them?**

   The Scottish Government should answer this. However, it seems highly unlikely given that the economics of onshore wind demonstrate a negative cost benefit analysis and yet this appears to be their main focus for subsidised development. Whilst it is recognised that other alternatives (such as offshore deepwater turbines, biomass plants, solar slating, ground-pump heating etc) require significantly more initial investment, the lifecycle cost/benefit analysis places them significantly ahead of onshore wind turbines in the sustainability rankings.

   “The United Kingdom joined the renewable power band wagon and Verso Economics assessed the impact. They found that for every renewable job created in the UK, 3.7 jobs were lost elsewhere in the economy. In 2009/2010, the cost to electricity consumers in the UK was $1.75 billion and in Scotland, it was $159 million. The Verso study was different than its predecessors in that it used an input-output model to generate its results. Environmental groups had criticized earlier studies for using methodologies other than input-output models.”³
“According to Oxford University economist Dieter Helm, “Basically, governments have allowed the buildup of wind without thinking through the grid consequences. There are two responses: Stop wasting so much on the rapid development of wind and its questionable economics, or plough on regardless, in which case enormous grid investments are urgently needed.” Estimates are as high as $138 billion to upgrade the grid for onshore networks over the next 10 years.”

There is no evidence that consideration has been given to the adverse impact on our lucrative tourist economy, the increased demands on the health services or the societal impacts of poor policy and subsidy drivers.

Challenges

a) Technology

1. Is the technology to meet these targets available and affordable? If not, what needs to be done?

Effective, efficient and sustainable solutions are at prototype stage, with some more advanced than others. The more mature technologies are the least sustainable at present (e.g. blade style onshore wind turbines); more sustainable options (such as horizontal turbines, deepwater turbines and solar slates are at an earlier stage of maturity). Sufficiently mature solar panel technology, capable of generating Europe’s total electricity needs, could be installed on around 0.5% of the Sahara desert; however transportation of that generated electricity to consumers is the main barrier, along with competing national interests on ownership and profits.

2. Are electricity generating or heat producing technologies compatible with the need for security of energy supplies?

They could be if the focus was on the correct technologies. Examples would include ground-pump base-lining for all new builds to bring the property temperature to around 10 degrees thus reducing the heating requirement and minimising householders risk of damage through frozen pipes etc.

Add solar slate roofs to all new builds and the base-load electricity for “background running” of appliances and lighting is also covered. Excess electricity from each solar slated home could be re-routed back to the grid thus assisting in local grid balancing on a trickle basis.

By increasing the focus on wave turbines, knowledge and experience from the Oil Industry could be easily transferred to deepwater production, which is much less susceptible to the vagaries of weather, and therefore more reliable and “steady state” for production purposes.

It should also be possible to place water turbines into waste water/storm drains. This would provide a relatively steady generation, with the storm water off-setting solar on a rain versus sunshine basis. The turbine effect will affect the flow such to “clean the pipes” providing a secondary benefit.

Consideration should also be given to our fabulous rivers and streams. Why not encourage more “water mill” home-building? Extensively used by our ancestors, they are attractive rather than intrusive features, several can be sited along a single river or strong flowing stream thus “re-using” the same water for inline power generation. These homes could power into the grid in much the same way as the visually intrusive, noisy and fickle onshore wind turbines with a much lower risk to society in terms of impacts from catastrophic failure. The Scottish Government could even demonstrate some strategic thinking on this by building them as community homes (supported youth accommodation, sheltered/very sheltered/nursing home, homeless units, childrens’ homes etc) or as “affordable housing” to replace the housing stock that was privatised over a decade ago.

Finally, hydro power linked to onsite wind turbines could be considered. The hydro power would provide immediate energy on demand, with large turbines used to pump the water from the base reservoir back above the dam when the conditions were appropriate.

By linking the locality of generation and usage, it should be simpler to encourage reduced consumption; this is absolutely essential if we are to bring resource consumption of natural capital to sustainable levels.

3. Are our universities and research institutes fully geared up to the need for technological development, innovation and commercialisation?
No. The dearth of quality teachers at school level reduces the potential for high quality graduate intake.

The consistent “dumbing down” of our university education and reduced “pass rate” standard to around 35% has resulted in our graduates being far lower quality than many of their competitors from, for example, the Netherlands, the former USSR (too many universities to mention), and the Far East (Malaysia, China, Japan and Singapore are key examples).

There are insufficient links between our universities and blue chip companies with a strong record of research and development (e.g. IBM, Shell, Dyson, Virgin etc) that could be mutually beneficial.

b) Supply Chain and Infrastructure

1. Is the supply chain in Scotland in place to meet the targets?

Supply Chain of what? Currently there is no real manufacturing capacity in Scotland, and therefore we are reliant on import of technology. Again, the focus on onshore wind predominantly puts income to Denmark and Germany at present. Rather than competing on these, Scotland should focus on becoming a world leader on one of the technologies that is truly sustainable in the long term, thus building a strong future for the following generation.

2. What further improvements are needed to the grid infrastructure or heat supply networks both at a national and at local level?

The addition of significant onshore wind turbines in Aberdeenshire already appears to be demonstrably impacting the grid stability of the area. In the past 2 years, multiple short duration power-cuts have been evidenced, that require resetting of all electrical appliance clocks. This contrasts sharply with the previous 15 years or so since the old infrastructure was upgraded (before this we suffered multiple short-term outages that were blamed on wind in the power lines).

Grid infrastructure should be based on steady capacity; ideally generation and usage should be localised to minimise the requirement for high voltage power transmission. This can be best achieved through diversified generation (solar, water turbine, localised biomass and ground-pump heating).

There should be a requirement with every application to demonstrate a local consumption requirement for the proposed generation capacity that is being added and grid capacity to accept the proposed new capacity. There should be firm commitments of how much energy each additional generator must put into the grid profiled against the year. Deviations from the profile, excess or under production should result in penalties against the companies concerned. This would discourage some of the speculative applications such as we are currently witnessing with onshore blade wind turbines where payments are made regardless of production and compensation paid when the grid is overloaded. This should be retrospectively applied to existing turbines before any new capacity is added to ensure that grid overload is not an option.

3. Additionally are we confident that the necessary infrastructure can be developed and financed so that Scotland can export any excess electricity generated to the rest of the UK and/or the EU?

The first question should be whether Scotland intends to become a net exporter. Given that a substantial proportion of residents object to the current piecemeal industrialisation of our fabulous landscapes by onshore blade wind turbines, do we want to develop excess capacity for export, and have we demonstrated a market for this given the costs involved?

Denmark exports most of its wind generated energy, at a loss, to Sweden and Norway both of whom have the more versatile hydro power which can be switched on and off to cover the vagaries of Danish production. This allows them to take advantage of their neighbour’s mistake whilst having guaranteed local energy themselves. Does Scotland also want to be a “loser” like Denmark or a “winner” like Sweden/Norway?

Financing will only be feasible where there is a demonstrable commercial benefit. If the only method of demonstrating that benefit is subsidy then it should not be entertained by the Scottish Government. Why should society repeatedly finance the profits of private enterprise, whilst residents fall further into fuel poverty?
Submission from Sarah L Pumfrett, FCCA, CMIIA, SIRM

Many planning applications for onshore blade wind turbines play the emotive card that “local production reduces the necessity for high voltage power-lines bringing power in”. However, this question implies that those statements are misleading as there is an intention to still require these upgrades to export the locally generated power. If that’s the case then one premise on which those applications were made is proven to be false and reconsideration of their consent should be mandated.

4. What is the role for the Scottish Government here?

“Governance”! The Scottish Government has been elected to manage the risks to residents of Scotland. That means they need to:

- set Specific, Measurable, Attainable, Realistic and Time-bonded strategic objectives,
- identify the risks to the achievement of those objectives,
- set a risk appetite that is appropriate to the total cost of risk manifestation to society,
- put controls in place that manage the risk according to the risk appetite; with those controls balancing preventative, detective and corrective controls and consisting of manual, automated and computer dependent controls for robustness.
- monitor and evaluate progress towards the objectives, and periodically re-evaluate the risk and control environment for effectiveness and efficiency.

c) Planning and Consents

1. Is the Planning system adequately resourced and fit for purpose?

No.

One has only to look at Aberdeenshire Council’s burden to realise that the system is not fit for purpose. According to the CAWT website, there are in excess of 420 applications in process as at 26 February 2012. That is a ridiculous burden for the staff, when taken in the context that they also have to process applications for homes, housing schemes, garages, garden sheds and other “normal” planning applications!

A closer review of applications indicates that many could best be described as “speculative” being of poor quality, in no way aligned with the policies, guidance and best practices. Several are incomplete, inaccurate, unreliable, and in some instances misleading. One particularly bad example is APP/2011/3643, which showed no evidence of involvement by a “competent professional” in relation to the Environmental Impact Assessment (EIA), no “Chartered Landscape Architect” in relation to the Landscape and Visual Impact Assessment, and no qualified acoustician. The document contained statements such as “There will be no loss of amenity to properties surrounding the proposed turbines”, produced “predicted views” that erased existing operational turbines from the picture and omitted several EU protected species from the EIA documentation altogether. The application also claims that the operating times for “all activities carried out on site” would be Monday to Friday 8 am to 5 pm. Many of the conclusions were no more than unsubstantiated opinions of the developer that did not stand scrutiny and could not be objectively re-performed using the methodology described in the document. This, sadly, is not an isolated example of the poor quality data our Planning Officers have received for processing.

Rather than rejecting these speculative documents until developers meet the appropriate baseline standards, the Planning Officials are forced to process them.

There is also evidence in Aberdeenshire that Councillors are ignoring expert testimony and passing applications that should clearly be rejected if objectively processed. Examples include where the Ministry of Defence (MOD), and Civil Aviation Authorities/Air Traffic Control (NATS/NERL) have objected on the grounds of National safety and passenger aircraft safety. Other examples include their own Environmental Health Officers recommending rejection on the grounds of noise; a press report, following a Freedom of Information Act request, identified that 1/3 of operational turbines in Aberdeenshire were subject to noise complaints.

Concerns have been raised on public websites over the objectivity and independence of some of the Councillors voting on turbines. A recent review of the Register of Members Interests, indicates that some Members financial interests in turbines do not appear to have been disclosed.

There are also concerns about “behind closed doors” meetings between Councillors and Wind Turbine developers (such as the meeting scheduled for 27 February 2012) at which local residents plan to protest amongst other things, the lack of transparency and objectivity in the planning process.
2. How can national priorities be reconciled with local interests?

The role of our Government is to set strategic objectives; these need to be translated through tactical plans to operational activities in a cascade process.

At present, Councillors of Local Authorities have indicated that, in some instances, they feel that they must pass applications they know to be bad because they know they will be overruled by the Scottish Government Reporter, and rather than risking the additional costs and fines associated with that process they pass bad applications. This is unacceptable and fundamentally undermines democracy and effective governance. Whilst an appeals process is necessary, it should be transparent, independent, objective, affordable and operate with equity (objectors must also have the opportunity to appeal a bad planning decision).

The current piecemeal approach to industrialisation of our countryside not only unnecessarily overburdens Planning Officials, but also puts the burden of the cumulative impact assessment on the Council rather than the developers. Multiple individual developments should be encouraged to consolidate into larger formal schemes under a single development in order that all aspects can be simultaneously assessed. This would cover wildlife impact, visual and landscape assessments and cumulative impacts. It would also provide for the same turbine type across all developments rather than the current patchwork that is even more confusing and detrimental to the visual impact than their existence alone.

The current planning process encourages quantity over quality of representations. Generic “we like green energy” or “we dislike turbines” type objections are mere “clutter” in the planning process. I see even this consultation has elicited the standardised “we think green energy is good” type support letter. Controls should be implemented to ensure that only representations that are actually relevant and cover such things as whether the specific development is appropriate to the specific site. Terminology nonsense such as loss of “visual amenity” over “view” should be dropped; this excludes a substantial proportion of ordinary members of society, including the more vulnerable members of society and undermines effective community engagement. Consideration should be given to a standardised template for support and objections with the set categories on the planning system. A freeform entry field for each category could also be provided. This would facilitate electronic processing of a substantial part of the representations received, and could consolidate comments on a single subject to make it easier for Planning Officers to process (e.g. all concerns on noise could be generated as a consolidated document and processed once). Some individuals will prefer to write or email but this would reduce the base workload. Petitions and household submissions should be encouraged in preference to individual objections. This improves efficiency provided individuals are assured their contribution counts. Currently the “wrong driver” is in place resulting in excessive workload, additional processing and associated costs to the planning process.

d) Access to finance

1. Will sufficient funds be available to allow investment in both the installation and development of relevant technologies?

No. Too much investment is being put into onshore blade wind turbines. This undermines the availability of funds for other technologies, particularly given the unreliability of the chosen technology and the likely “money pit” situation that is likely to occur based on the sunk cost.

We have already seen failures of multiple turbine companies both in the UK and abroad; it is unclear how the decommissioning liabilities will be met for many of these. Given that the failures have occurred relatively early in the intended lifespan, it is highly likely that the failure rate will increase as the turbines age. With many developers using limited companies to run the turbines, consideration has to be given to how decommissioning costs will be met by society if the limited companies are liquidated when the profits turn to losses.

As the internationally recognised wildlife biologist and wind energy expert Jim Wiegand records “Not only is wind power proven to be ineffective in terms of both cost and energy production, but its devastating effects on soaring birds, bats, the environment and communities is increasingly being condemned”.

Large organisations are attempting to diversify from carbon technology to clean energy (e.g. BP & Shell). Public statements appear to indicate they have all but abandoned wind turbines in favour of alternative options. The Government should consider these indicators when considering sustainable development.
2. What can the Scottish Government do to influence this?

This should not be the role of the Scottish Government. Public/Private financing initiatives have repeatedly resulted in a bad deal for the public and extreme wealth for a few private individuals. Privatisation of profits and nationalisation of losses is neither sustainable nor ethical.

The Scottish Government should create an environment for innovation and allow competing technologies to demonstrate lifecycle benefits to the commercial market. The onus should be on the private market to diversify into clean energy by setting the right culture; commercial & consumer pressures should do the rest.

3. What will the impacts be on consumers and their bills?

Unacceptable at present. Predictions of 30% plus increases when households are already struggling with the economic crisis will result in extreme fuel poverty for many households.

e) Skills and workforce development

1. Will Scotland have sufficient home grown skills to attract inward investment?

This is dependent on technology selection and coordination of the universities and local businesses. At present, Scotland is not set up to attract innovation talent and investment.

2. Are current policies producing the desired move towards Science Technology Engineering & Maths subjects at schools and universities?

This is not yet demonstrated as successful. Also by “dumbing down” the university education, the graduates we do turn out cannot effectively compete with their international counterparts and this undermines the reputation of Scotland's universities.

3. Is the skills transfer from the oil and gas sector being realised?

No. The oil and gas sector is facing its own challenges in population demographics at present and with a buoyant market the high quality talent is engaged in a "brain drain" to other locations.

Looking at the position statements of companies such as BP and Shell indicates that their focus on renewable energy has moved from wind power to other energy options. Given the size of these companies and their research and development investments, there are likely to be excellent commercial reasons for this. It makes sense to allow such companies to lead the technology developments.

f) Energy market reform and the subsidy regime

1. Are the reforms of the energy markets and subsidy regimes at both UK and EU level sufficient to meet the challenge of the Scottish Government’s renewable targets?

No, the evidence is that the current subsidy regimes are driving the wrong behaviour with uncoordinated subsidy-chasing resulting in inappropriate and unpopular developments that are likely to result in long-term resentment and consequences for the politicians and society for generations to come.

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ii [www.withouthotair.com](http://www.withouthotair.com)


v [http://www.cawt.co.uk/index.php](http://www.cawt.co.uk/index.php)


vii Compare 2005 and 2009 position statements from Shell Group.