

COMMON WEAL POLICY



Energy Strategy Consultation: Common Weal Submission

Authored by:

Susan Brush holds a Masters degree in renewable energy engineering and is also a metallurgist and an environmental practitioner. She has worked in technical and environmental management roles in manufacturing industry in Scotland, and is an active member of the Energy Institute, and the Institute of Environmental Management and Assessment.

Iain Wright worked in the electricity industry spanned 35 years, working in Scotland and Ireland. From an initial role as a civil engineer maintaining hydroelectric assets for the state-owned North of Scotland Hydro-Electric Board, Iain had later roles in retail energy supply, wholesale electricity market design, generation economics and regulation, in the private sector.

Gordon Morgan is an independent campaigner and researcher who has led research on energy policy for Common Weal since 2014.

Introduction

Common Weal warmly welcomes publication of this draft energy strategy and its “Whole System View” that includes both short and longer term targets and visions.

We also welcome the Scottish Government’s commitment to honouring climate change targets, showing Scotland is indeed playing a leading and responsible role in the world.

We welcome the quality of public discussion generated by the consultation and we are pleased to take the opportunity to respond to it.

Common Weal fully supports the principles set out in this strategy and agrees with the policy objectives it contains. However we would like to see the intended “Whole System View” adopt a greater degree of integration between energy and industrial development, for example, the creation of demand by energy-intensive users closer to production in northern Scotland. Finding ways to achieve this would reduce the need for the further investment in costly transmission infrastructure that will further drive up the cost of grid connections.

Transformation of the energy system is essential if Scotland is to meet its environmental objectives, so this draft energy strategy is to be commended in addressing the need to look beyond renewable electricity production and towards decarbonisation of transport and heating.

In adopting an all-energy approach to strategy development, we believe the Scottish Government is following a path that is most likely to deliver the desired outcomes. In particular, we support an approach that avoids mandating a particular technology mix for energy production, as the strategy has a significant dependency on solutions that are not yet proven at scale. However this was also true of wind generation 15 or 20 years ago and there is no reason to suppose that new energy technologies

will not similarly benefit from a supportive energy policy environment.

Common Weal is concerned that the UK Government has placed obstacles in the path of the Scottish Government achieving its carbon free objectives. These range from:

- The privatisation of the energy market in the 1980s which resulted for a long time in a lack of investment in grid infrastructure;
- The fact that Energy Policy is a reserved power under the devolution settlement;
- The short-sighted changes in energy policy and subsidies;
- The ban on on-shore wind development in England;
- The decision to proceed with the ludicrously expensive Hinkley Point C and other nuclear reactors;
- The lack of flexibility in the charging regime for grid connections which inhibit new Scottish generation in favour of the South of England.

Common Weal believes that these and more of the potential conflicts with the UK Government should be delineated in the strategy so as to make the case for full devolution of energy policy and or Scottish Independence. Indeed we have concerns that unless this is addressed, the ambitious goals set out cannot be achieved.

Nevertheless, Common Weal welcomes the priorities set out in the paper in particular the desire to transform the energy system to one based on carbon free energy and to encourage research and deployment of new sources of energy.

We strongly support the establishment of a Scottish Energy Company which can support local energy cooperatives and smaller public energy companies and provide a level playing field for energy pricing and investment. This should be backed by Energy Bonds and a public investment bank. Indeed if the model for the public energy company was the Danish Energy Agency, which administers energy and supply in Denmark, many of the problems associated with a privatised energy market could be addressed.

Energy is essential for social existence and Scotland is fortunate to have abundant natural resources of wind, wave, tidal, solar, hydro and geothermal to produce this carbon free energy. The challenge is to make it available to all whilst ensuring jobs, social inclusion and democratic control.

Q1 What are your views on the priorities presented in this chapter for energy supply over the coming decades? In answering, please consider whether the priorities are the right ones for delivering our vision.

Common Weal wishes to make the following points as regards the priorities listed before addressing other priorities of a more general nature.

Common Weal:

- Recognises the huge economic contribution North Sea Oil and Gas have made to the Scottish economy;
- Urges the Scottish Government to add a “just and fair transition” of jobs to the low carbon economy as a priority, and to seek alternative sectors using the skills base and domestic supply chains we have. Alternative sectors are likely to include offshore renewable generation and on-land infrastructure (e.g. district heating, for which we currently import the pipework) as well as decommissioning mature oil wells;
- Has concerns regards the primacy given to the development and commercialisation of CCS, and has questions regards its technical feasibility and cost effectiveness and the implication that fossil fuel plants could be retained longer than necessary. Nevertheless we welcome the EU funding of the Acorn project to test the feasibility of CCS at Peterhead;

- Support, in principle, exploration of new non-fossil fuel energy sources, provided they come with safeguards of environmental protection, take cognisance of public opinion, especially of communities affected (both local and communities of interest), and a fair settlement is agreed with local communities.
- Has a specific concern about unconventional oil and gas which includes not only environmental matters and strong public opposition, but the licensing arrangements: that licenses are currently sold by Crown Estates, with no input at a local or Scottish level other than within the Planning process.
- Strongly supports exploration of alternative energy carriers, such as hydrogen;
- Supports the priority of increasing renewable generation;
- Views that the fifth priority, “increasing the flexibility, efficiency and resilience of a future energy system”, as fundamentally essential to underpin whatever future energy system we will have. This matter is complex and merits far greater discussion and we have addressed it at greater length below;
- Sees Scotland as a potential net energy exporter, but would prioritise meeting Scotland’s own energy and economic needs over large-scale exports.

Common Weal wishes to make the following observations about more general priorities.

Integration of Industrial Strategy

The consultation recognises the importance of ensuring security of supply and this would be our overriding priority in the process of delivering the level of transformational change to Scotland’s energy system that this consultation envisages. However, we believe that the value of such an ambitious strategy would be enhanced by a greater emphasis on how a comprehensive energy policy can be used to support wider economic objectives.

Common Weal’s vision for future would include locating energy-intensive industries that can utilise energy with variable output, close to generation sites; allowing supply by direct line from the generator, avoiding the need for a gridconnection, or for a carrier fuel.

So we believe that exploitation of energy resources, of all kinds, should be managed in the context of an industrial policy that seeks to develop energy-intensive industries, such as ammonia/hydrogen production, in a way that avoids incurring Transmission Charges wherever possible. Currently these frequently make the difference between a proposed scheme being viable and not.

This industrialisation strategy is one that has been pursued by Iceland; developing aluminium production and renewable energy resources in tandem.

While there are significant differences between a dispatchable, geothermal/hydro-based system and the variable output/distributed generation system in Scotland/GB, the overarching principal of exploiting resource availability to leverage economic development should be the same. Whilst heat generation and storage can take up some of load as per Iceland, the only differences being the likely need for a carrier fuel/ substantive storage in Scotland, to redistribute energy over time.

Affordability

We believe that public investment through a publicly owned energy company is the best way to ensure a fair distribution of future energy costs between taxpayers and consumers of energy.

We believe that the final energy strategy should also address the following questions in order to maximise its value:

a) What is the best way in which value can be added to renewable electricity produced in Scotland?

Is it by selling the electricity to England, or is it by using the power from local renewables to create more valuable products and highly skilled jobs.

We would see Scotland as a net energy exporter, but would prioritise meeting Scotland's own energy and economic needs over large-scale exports.

This issue is only fully addressable in the context of devolution of energy policy or independence.

b) Is a renewable energy based economy compatible with promises of cheap energy for consumers, once the capacity duplication required to provide backup capacity, additional storage and increased system flexibility are taken into account?

What are the fundamental economics underpinning further renewable generation investment and are these compatible with securing capacity to deliver a long-term, reliable supply of clean energy in a competitive generation market environment that is (and must have) permanent over-capacity in order to ensure security of supply?

Common Weal recognises that since privatisation, most investment has gone to maintain an older centralised energy model. This makes the economics of transition to a new energy system in Scotland based on renewable energy, exceptionally difficult whilst an energy market is used to incentivise investment and energy policy is reserved to Westminster.

All energy costs are ultimately paid by the end user, either through charges or wider taxation, so as more energy capacity is added to the system (whether as generation or storage), the greater the cost burden that will be imposed on end users to support the overall investment. By its nature, any power system must have overcapacity to provide reserves to meet plant outages and seasonal variation in demand. The addition of further renewable generation exacerbates this situation. We would assume a 25% overcapacity of winter peak demand needs to be built in through additional energy storage and standby plant.

We recognise that renewable energy costs and battery storage costs are falling and will continue to fall, however, the base price of electricity may rise in the short term to meet the transition costs.

This will be made more likely if the UK Government continues to invest in new nuclear power stations at a significantly above market price guaranteed price. New offshore and onshore wind and solar can supply power at a cheaper cost than has been promised for Hinkley Point C e.g. the Danish offshore wind contracts signed in 2016. The problem is it supplies the South of England and connection charges in Scotland act as a disincentive under current National Grid tariffs as directed by UK Government policy.

The final energy strategy must address this cost issue. The strategy must assess energy efficiency and the economic impact of the strategy, taking a holistic view of job creation and industrial strategy. A publicly owned Energy Company could lower the overall cost over a longer period.

In addressing the cost issue, it would be of great benefit to final users if the regulatory price control framework for networks did not allow for inflation-related indexation of regulatory asset values. Unlike normal commercial assets which are devalued over say 25 years, the real value of network assets is maintained by the inflation link used in determination of allowed revenue. Remedying this would over time reduce the value of historic grid assets which may be seen as less necessary in a "smart grid", and provide a more secure route for new longer term investments.

c) What are the objectives for onshore wind?

Is it intended to maximise utilisation of the resource, or to achieve a balance between development and Scottish/UK needs? We would argue that a maximising utilisation linked to industrial development and jobs will provide the lowest cost solution for Scottish economic development, however, this policy may be hampered by the current UK Government control of energy policy.

A related question is, should there be unlimited investment in transmission infrastructure to support export of whatever power can be produced, as is shown in the Climate Change Plan from 2027 onwards, or should this be capped and the investment redirected to other uses, such as storage, developing hydrogen infrastructure or reducing emissions from other sectors, such as agriculture?

d) What is required to ensure there is an effective governance regime in place to support the rollout and operation of new technologies?

It is important that this should not just be an adaptation of existing regulations, designed for another purpose, as these might inhibit implementation of new energy arrangements. For example, Japan is reported still to treat hydrogen as a dangerous gas, with the result that hydrogen production installations are much more expensive there than in other countries with a more appropriate regulatory framework.

The issue of managing interlinked devolved and reserved areas of responsibility should be properly explored, to highlight areas of potentially conflicting objectives and dependencies. Such areas represent risks to delivery of the strategy and should be addressed through a risk management process.

For example, the consultation proposes that the Scottish Government will continue engagement with Ofgem on the issue of transmission charging.

However, given the Regulator's understanding of its legal obligations in terms of minimising costs to customers as a whole, it seems unlikely that the charging regime will be changed in line with the Scottish Government's aspirations any time soon.

Once again the lack of control over energy policy seems doomed to frustrate exploitation of our natural resources.

e) Will the Scottish Government publish the results of trials involving hydrogen electrolysis for energy storage and injection into the natural gas system, so that learning and experience is disseminated to the widest extent and can potentially inform innovation in other projects?

This is particularly important before major decisions are made as regards the overall role of hydrogen in future energy supply. In particular the cost of this specific idea should be closely examined as the value of hydrogen in transport applications will be a multiple of what it becomes worth for heat when burned in a natural gas mix.

f) While setting challenging goals for the national energy strategy, what clear, intermediate milestones will be put in place to demonstrate a credible delivery path?

Without these it will not be possible to measure progress and take corrective action when required. All systems require a feedback mechanism to provide effective control and this is particularly important when transformational change is to be delivered within such a challenging time frame.

Success will depend on delivery and not rhetoric, so the final strategy must include an assessment of the nation's current skill sets, academic research programmes and technology demonstration projects, so that unnecessary duplication of effort can be avoided, gaps in research filled and relevant training programmes established.

g) What market mechanisms will be required to facilitate investment and are these compatible with UK policy?

Investors including Local Authorities and the National Investment Bank will not risk their wealth unless they can see a clear path for them to obtain a return. This means some form of price guarantees will be required to underwrite the cost of new generation capacity.

Even with the capacity mechanism, it is unclear that new capacity can recover its costs without some form

of price guarantee mechanism. If there is a requirement for public funds, to secure supply, this should be recognised at the outset. The electricity market reforms introduced under the last Tory/LibDem government have singularly failed and the first auction for capacity only attracted diesel generation.

Whatever the answer, having appropriate commercial arrangements in place will be key to ensuring that technology research advances can actually be rolled out commercially. The simpler these arrangements are, the better – at least in the early stages of the market. Overall the problem is electricity is not suited to a market led solution, at least as defined by the UK Government, and we must endeavour to change this through a public energy company able to intervene to deal with market failure.

h) We would urge the Government to publish the assumptions behind the TIMES model and make the model open to analysis.

This has been promised, however, the lack of it and in particular the many versions of the model none of which were backward compatible for comparison purposes makes all assumptions open to question.

We are particularly concerned as to whether the 2% overall GDP investment was built in or whether merely a fortuitous outcome.

We would also note that the existing UK framework of energy regulation and a UK energy market are built in to the model. We would like to see an alternative model based on the future scenarios, of devolution of energy policy or independence.

i) The assumptions as regards the actions of 3rd parties, should be documented explicitly.

Dependence on market mechanisms, as per point g), is one example of a dependency on the support/ actions of third parties, such as Ofgem or the UK government, over whom the Scottish Government has no jurisdiction.

The strategy should more explicitly address policy areas in which there may be conflict with the UK Government, for example where significant funding is required for projects that depend on a supportive regulatory/commercial environment. Moreover the precise responsibilities for decision making in each category should be set out so that the responsible body e.g. UK government, Ofgem or Scottish Government can be held to account.

The effect of having full devolution of Energy policy or Scottish Independence should be modelled for comparison, to assess these matters.

A commercial framework for projects that involves any form of administered pricing will be seen as a subsidy and may conflict with UK Government levy control management objectives or EU state aid rules, so establishing a viable framework for investment should be a priority.

If delivery of the Scottish energy strategy becomes dependent on such hoped-for changes, it is likely to fail – or at least be significantly delayed. Seeking energy solutions, with the minimum of grid interaction, would be a reasonable approach to mitigation of some regulatory risks but, given the ambitious scale and challenging timescale for delivery of the proposed strategic goals, an explicit strategy for management of the full range of dependency risks is essential.

It is clear that the current division of authority with energy policy a reserved power managed at UK level and planning within the province of the Scottish Government places constraints on what and how fast change and innovation in energy policy can occur.

Common Weal believes that full devolution of energy policy or independence is essential to achieve the fastest possible decarbonisation of Scotland's economy.

Q2. What are your views on the actions for Scottish Government set out in this

chapter regarding energy supply? In answering, please consider whether the actions are both necessary and sufficient for delivering our vision.

Common Weal strongly welcomes the wide range of actions suggested by the Scottish Government, to address the key priorities set out earlier. We have some specific points.

The draft strategy is based on consideration of a number of separate themes. We would have liked to see a greater emphasis on a holistic approach to energy provision.

We recognise that sustainable development and a “circular economy” must be part of a low energy carbon free future and we would expect targets to be set for how this can be achieved.

In terms of industrial policy, should transmission demand charges be disaggregated for certain users across the rural north of Scotland, to reflect avoided investment cost, as part of the proposed charging review? This is probably more deliverable than a reduction in transmission charges and could reduce energy costs for demand users in remote areas, thereby supporting economic development.

In relation to fuel poverty, for example, we would have expected to see some exploration of the component costs of delivered energy (generation, wires costs and supply) and a call for an end to the form of regulation that offers inflation linked returns to the owners of monopoly networks.

A key aspect of fuel poverty is the fact that wages are overall too low and the real effect of this is measured in aggregate rather than making clear the distinctions between rural, island and urban communities and indeed individual households which have different costs of living . This is a social welfare issue, rather than an issue with energy pricing, however we believe that industrial development based on renewable energy (including generation operation and maintenance) offers the prospect of better quality jobs and the higher pay levels that can significantly reduce fuel poverty. Industrial policy should therefore be seen as a component of this energy strategy.

The consultation addresses the issues of enhancing system flexibility and the need for energy storage.

Common Weal fully supports the expansion of hydro schemes and pumped storage capacity as technologies that meet many of the requirements for a stable power system, but National Grid will ultimately determine what can be connected to the system and in what proportions or combinations. As a key stakeholder, National Grid must therefore be fully involved in development of the final energy strategy, so that its implementation is not undermined by late recognition of the need for complex system studies, or power system equipment enhancements.

The consultation indicates that the Scottish Government is exploring whether to expand the “sleeve arrangement” for renewable energy supply to public bodies.

Common Weal believes that this is an unnecessarily limited vision for facilitating energy supply generally and community-owned generation in particular.

Common Weal believes that the Government should establish a properly scoped, licensed energy company.

This could enter into PPAs with community and other generators and supply energy to any type of customer. This approach would allow greater intervention into aspects of energy policy that may not be commercially attractive to private businesses.

Another benefit of a publicly-owned energy business that charged prices to customers based on a not for profit model, would be that it could provide greater transparency on the value for money offered by existing suppliers.

Common Weal supports the development of a Scottish heat map to allow sources of heat to be identified for use in district heating or local enterprises. All local authorities should be encouraged to engage with their communities to assist with this process and work out their own road map to decarbonising heat.

More resources should be put into developing the heat map and developing schemes to utilise this in district heating and local authority premises.

All renewable energy and fuel sources must be truly sustainable. We welcome, for example, the carbon calculator for wind farms, with a presumption against citing such generation in deep peat. We would however caution that the results of the Carbon Calculator as regards the carbon content of electricity varies continuously by day and season.

This requirement also applies to biomass and biofuels, which must be from sources which are truly low carbon over the whole life cycle (including transport), ideally be locally-sourced, and ones which do not damage important ecosystems, displace food crops, or have other unacceptable environmental or social impacts, here or overseas.

There should be a presumption against importing biomass and biofuels, unless they are demonstrated (e.g. by appropriate certification such as the Scottish Working Woods label) to be fully sustainable on carbon, energy and ecological grounds, and also that equivalent CO₂ equivalent would be removed from the atmosphere by new biomass growth within a timescale which fits within agreed carbon budgets.

Q3. What are your views on the proposed target to supply the equivalent of 50% of all Scotland's energy consumption from renewable sources by 2030? In answering, please consider the ambition and feasibility of such a target.

President Kennedy said in 1962: "We choose to go to the Moon ... and ... the other things, not because they are easy, but because they are hard."

Common Weal therefore supports the proposed target of a 50% renewable energy share by 2030.

However we do not believe this is achievable unless significant inroads are also made into decarbonising heating and transport.

To do this, we agree that hydrogen could play a significant role as an intermediate level storage device, for transport and conceivably as an energy carrier, if the technology used in its production can be made economically feasible at a sufficiently large scale.

However, it is instructive to consider the progress made in wind turbine technology over the last two decades in generation capacity, reliability and cost when considering the feasibility of hydrogen making a major contribution to decarbonisation by 2030. It would be reasonable to expect electrolysis, particularly small scale electrolysis, to make similar progress from its current stage of development.

Achievability of the 50% target will also depend on the extent to which fixed cost renewable energy is used to develop industry and thereby increase demand from current levels.

In many ways things will not change with the addition of even more renewable capacity to the system. The laws of physics do not change, so the fundamental technical requirements of a secure energy system remain flexibility, inertia and storage.

Increased connection of renewable generation will drive further, expensive investment in the grid network and it is reasonable to challenge the view that all power must be exported to the south. Although the cost of transmission in each kWh of delivered electricity is small, the quantum of investment these revenues support is enormous - paragraph 133 of the consultation states that at least £7bn of proposed transmission will be invested between 2013 and 2021.

While grid scale batteries are likely to be part of the solution, in terms of startup time, flexibility of operation, materiality of storage capacity and operational life, we believe that investment in new, large scale pumped storage schemes is essential. However this technology, though proven, is expensive, with its costs dependent on the unique characteristics of each site.

As we move to a more decentralised grid, smaller scale energy storage will become an essential part of the network. Much research is ongoing in this area and we should not rule any technologies out.

The Scottish Government's discussions with Ofgem on regulation of transmission and operation, should include arrangements that ensure an appropriate, long term ancillary services revenue stream is available to support these new schemes. Such arrangements must recognise the very long asset lives of these assets, otherwise the necessary private investment will not be forthcoming.

Public procurement of pumped storage should not be ruled out, if necessary to deliver the strategy. This approach has previously been used very successfully in Scotland.

The absence of storage as a defined part of the electricity system can lead to providers of storage being classed as both generators and demand centres, and their facing double-charging for network connections. This situation is clearly perverse, as storage stabilises the electricity system, and should be given a preferential rather than a penalising charging regime. A UK Government cross party working group has recognised this need, but this issue has yet to be rectified. A more appropriate charging system, to address this regulatory barrier to storage implementation, is clearly a priority.

Prior to conversion of the GB gas network to natural gas, the composition of the town gas supplied included a significant proportion of hydrogen. We therefore support the work currently underway with SGN on hydrogen injection to the gas grid as a means of decarbonising heating. By selling hydrogen as a product, rather than selling electricity, renewable developers could potentially avoid exposure to arbitrary changes in pricing regimes and obtain a more stable revenue stream. There is also the possibility of converting rural LPG and oil users to hydrogen-based heating. This might also address the issue of island renewable projects being constrained by export capacity as has been seen in Orkney.

The UK Government has previously derailed plans to trial CCS at Peterhead. If Scotland's decarbonised energy mix is to include the use of fossil fuels for generation, it is essential that a reliable CCS solution is available and implemented. On this assumption, we therefore support CCS as an essential component in delivery of a low carbon system. We therefore congratulate the Acorn project on its award of an EU grant for a feasibility study.

However the issue of economics must also be addressed in relation to this technology. Apart from the capital cost of the plant itself, there is a significant energy efficiency penalty involved in capturing and sequestering carbon from the generation process and it is unclear how this cost can be recovered under current market arrangements.

The bulk of energy demand is, of course, in the urban population centres and it is in these centres of demand that the provision of heat via district heating schemes is most viable.

The main issue, in terms of the energy decarbonisation strategy, is to ensure that heat can be provided at a reasonable cost, which probably means that it should be a by-product of another process.

For this reason, we believe that systems based on combined heat and power are the most appropriate for delivering lower-carbon heating. Ideally these plants would run on renewable-source gas. However retrofitting district heating to existing properties would be slow and expensive and for this reason we believe that mandating district heating in housing developments of over 50 units and all new commercial properties and refurbishments, above a certain threshold floor area should be considered.

The reduction of wasteful demand will probably be a necessary and economically sensible part of achieving the strategy e.g. reduced heat demand by better buildings, which requires better building regulations.

Although the combustion of fossil fuels and release of methane are significant contributors to global warming, it would be unrealistic to abandon the exploitation of Scotland's hydrocarbon reserves in the medium term. The energy strategy for oil should therefore focus on non-burning end uses, until CCS is proven.

Q4. What are your views on the development of an appropriate target to encourage the full range of low and zero carbon energy technologies?

To an extent target percentages are arbitrary. But they are necessary to set an appropriate level of challenge and encourage innovative thinking.

We therefore consider that the proposed targets are appropriate, because they are challenging. The actual technologies that will deliver these targets should be left as flexible as possible, to avoid discouraging potentially useful developments.

The right environment needs to be created to encourage innovation in the development and application of both old and new technologies. This requires a stable commercial framework, within which investors can obtain a transparent view of future revenue streams. It also requires clarity on the regulatory framework within which it must operate. Exploration of options to support the decarbonisation objectives should be part of the strategy from the outset.

Once again we question the decision to proceed with Hinkley Point C and further nuclear power stations which potentially lock in consumers and taxpayers into old technology for 40 years. It is clear that in Scotland, given devolution of energy policy or independence, we can develop more appropriate new renewable technologies using our abundant resources.

Nevertheless, Common Weal believes that targets must be set for each energy component and monitored annually to ensure progress is being made. The modelling framework TIMES must be handed over to researchers and industry bodies so that new potentially disruptive technologies, such as solar or new storage technologies or new geothermal techniques, which could lower energy prices can be incorporated and seed capital channelled to promising areas.

Q5. What ideas do you have about how the onshore wind industry can achieve the viable commercial development of onshore wind in Scotland without subsidy?

Renewable generators have a short run marginal cost (srmc) close to zero and have priority dispatch under European rules. This means that they displace conventional generators and undermine the generation market price.

The higher the output of renewables, the more revenue-inadequate the system becomes and the more important the availability of a price guarantee arrangement becomes. This is true even if the capital cost of wind generation is fully competitive with that of conventional plant.

Common Weal therefore does not believe that any form of generation is viable in the current, highly contestable electricity market, without some form of floor price guarantee that at least equates to the short run marginal cost of a conventional generator.

If the GB generation market price does not support the minimum conventional capacity required to ensure security of supply, it also fails to deliver a sufficiently large pot of money to remunerate the level of duplicated capacity found in a renewables-based system with conventional backup.

This gloomy capacity assessment is confirmed by the capacity outlook in National Grid's Winter Outlook report for 2016/17; "Based on this analysis, we expect the electricity margin to be tight but manageable this winter."

Scotland's energy strategy must address the fundamental issue of revenue adequacy, rather than just assuming that private investment will be forthcoming.

A Scottish Energy Company could address the situation of rural and island communities which have wind available to supply and store energy in combination with district heating and in effect disconnect themselves from the main grid. The payback on the investment would need to be over a long time and some modification of Ofgem rules might be necessary. It would be much better if energy policy was devolved so

Scotland could set its own policy.

It is important that the results from hydrogen producing electrolysis demonstration projects should be rolled out to full scale at the earliest possible stage, but this will not happen unless there is investment in developing an appropriate regulatory framework and facilitating arrangements that remunerate producers. There is considerable potential for this technology, particularly on island locations, where heating fuels such as oil and LNG are expensive and the lack of grid capacity has been a constraint on new renewable energy projects.

Construction of hydrogen producing electrolysis plants would facilitate exploitation of under-utilised renewable resources particularly wind and support development of rural economies through expanded opportunities for quality employment and increased local authority funding from non-domestic rates.

The cost of grid connections and ongoing transmission entry capacity (TEC) charges are often cited as a major obstacle faced by renewable generation developers, so any strategy that would avoid them would improve the economics of onshore wind in the far north of Scotland.

Although the charging methodology has recently been refined, it retains the basic principle of cost reflectivity and locational charges for generators, based on the transmission constraint zones within which they connect (NB Transmission charges for demand customers do not reflect this level of system charging detail).

Promotion of infrastructure that would support on-site consumption of renewable generation (e.g. batteries or hydrogen producing electrolyzers) would provide energy storage, however the latter technology could focus on the provision of heating fuel while simultaneously reducing the requirement for expensive connection charges and dependency on the electricity price to define the plant's revenue. Avoided or reduced grid connection charges could contribute to the cost of an electrolysis plant and thereby provide a transportable fuel with minimum included networks costs and a market price not necessarily correlated with electricity.

It should be stressed that the economics of using hydrogen for supplying an alternative to gas over the main gas grid have not yet been demonstrated. However, in a situation of lack of export connections and of oversupply then the addition of hydrogen to the grid remains an alternative use for otherwise redundant energy which can be used to reduce fossil fuel content at a lower cost than switching the wind turbines off. A base floor price would be the price paid for disconnection and additional revenue could be achieved from selling gas substitution.

Production of ammonia for fertiliser is a major global industry, supplying around 170 million metric tonnes annually. Production is currently a significant CO₂ emitter, due to use of methane and LNG as feedstock in production of the hydrogen. As stated elsewhere, we believe that the Government's energy strategy should be explicitly linked to its industrial policy; seeking to develop a renewables-based chemical industry offering long term stable fuel prices.

Iceland has followed this path to exploit its renewable generation potential beyond the needs of local demand and there is no reason why Scotland should not do the same. In this scenario, a windfarm's energy revenue would be related to the cost of the chemical produced.

This alternative end market approach is not necessarily straightforward or technically/economically viable at present, but this energy strategy must provide a vision towards which we can work to deliver a comprehensive answer to areas of energy supply that are hard to address. It is important to think outside of the "build more wires and infrastructure" box and consider the feasibility/value of alternative investment choices having the potential to improve both the efficiency of capital allocation and the economics of onshore wind generation.

Unless Ofgem can be persuaded to drop locational signals, based on incremental connection cost, from its criteria for establishing the efficient allocation of grid investment capital, it is unlikely that National Grid's charging statement will ever reflect anything other than incremental investment costs.

For these reasons we believe that the Scottish Government's attempts to change this fundamental pillar of cost-reflectivity in the transmission charging regime will prove fruitless in the medium term and efforts should instead focus on changing charges in a manner that aligns with this basic principle.

If Scotland's energy strategy is to deliver opportunities for encouraging energy intensive industries to locate in economically-challenged areas, the grid charging regime for demand should be allowed to vary by transmission zone, at least for some customers. However, this would also require demand charges to be allowed to vary between customers in the same Distribution Area.

The Government should therefore seek to persuade Ofgem to implement Transmission charging for certain categories of demand energy users, to reflect the avoided cost of network expansion that would otherwise be required to support additional generation exports.

As this proposal illustrates, Scotland's energy strategy should be set within the wider context of harnessing the country's economic potential and seek to adapt itself to the basic economic realities of cost-reflective pricing for use of monopoly assets.

Common Weal recognises that meeting the 50% target will require construction of many more renewable energy sites, and it is likely that the consenting process will need to speed up to allow sufficient projects to be realised by 2030. Long and uncertain timescales to achieve a Planning determination do not help the business case for new onshore wind, or any other type of development. This may be particularly important for pilot installations which will need to test the potential of novel technologies, prior to their roll out at scale.

Thus, we would cautiously support simplification of the consents process for renewables, to give prospective developers some idea of likely timescales for determinations, particularly in areas where technologies are mature and impacts well-understood, provided there remains full opportunity for the public and other interested parties to participate in the process, and full scrutiny of all applications on environmental and social impact grounds will not be compromised.

We are particularly concerned that the UK Government's commitment to nuclear power and a centralised strategy for energy supply will obstruct the granting of licenses for major Scottish energy projects.

A requirement for spatial planning for renewable energy (and other energy types) would be consistent with recommendations that local authorities should use heat mapping to inform planning for district heating (discussed in chapter 5 of the draft strategy). It would ensure that planning for Scotland's energy future happens in both the rural and urban contexts.

In summary, Common Weal believes that the current market design is unlikely ever to allow renewable generators to operate without an apparent subsidy, unless they can access a market price that is not based on the market price for electricity. But this is because electricity prices are too low, rather than wind costs being excessive.

The electricity market price is also too low for conventional generators, leading to concerns over security of supply and the recent introduction of a separate capacity remuneration mechanism in GB. In the short term, this seeks to encourage fossil fuel generation that might otherwise close, to remain available to the system.

All of this means devolution of energy policy is essential to meet Scotland's carbon free energy targets.

Q6. What are your views on the potential future of Scotland's decommissioned thermal generation sites?

In considering potential future uses for the sites of Scotland's decommissioned thermal power stations, it should be borne in mind that there were good technical reasons for the original choice of the sites, whether it was proximity to coal supplies, plentiful availability of cooling water, or location on the grid at a point that allowed the System Operator to manage power swings on the system.

As the power system is now being operated very differently from the situation when these sites were originally chosen, there is a possibility that large power injections may become needed in these locations at

some future date, to ensure safe, secure and stable operation of the wider system. It would therefore be unwise to dispose of these sites until the technical environment delivered by this new energy strategy become apparent.

Q7. What ideas do you have about the role of hydrogen in Scotland's energy mix and the development of hydrogen production in Scotland?

This aim is probably the most important component of the proposed Scottish Energy Strategy, as it addresses generation, energy storage, heating and transport. Not all of these end uses are required to be in place for the strategy to succeed.

However, it should not be assumed that all uses of hydrogen are of equal value in replacing fossil fuels. Substitution of diesel is much more valuable in terms of both air pollution and cost than say its use in supplying heat or electricity from storage.

Thus Common Weal suggest that the test programmes for fuel cell hybrid hydrogen/electric vehicles be extended beyond public transport for Fife and Aberdeen councils, to all council vehicles where access to certificated green energy can be secured. This would provide a base infrastructure for hydrogen fuelling across the country.

In line with our desire to disseminate the industrial benefits, the potential for hydrogen buses, other motor vehicles, ferries and other naval vehicles should be explored with suitable manufacturers so that fuel cell technologies become an integral part of Scotland's manufacturing base.

The consultation rightly highlights the value of hydrogen as an energy carrier, that can support the move to a carbon-free future energy system and we believe in the strategic development of hydrogen as a key to unlocking the potential of renewable energy production in Scotland and facilitating delivery of low carbon solutions to heating and transport.

Although biofuels and hydrogen produced from methane have low carbon emissions at the point of use, we have reservations about the environmental sustainability of their production. However, we fully support the objective of producing fully renewable hydrogen through electrolysis.

It must be recognised that the viability of this technology is largely unproven at grid scale and we believe the energy strategy should set out development milestones that must be met if hydrogen is to deliver the energy benefit this consultation envisages.

Existing electric heating is expensive and inflexible, (although heat pumps can in theory triple the heat in to heat out ratio) while battery electric transport is unsuitable for uninterrupted, long distance travel, without lengthy charging sessions on the way (although electric vehicles ranges are increasing and recharge times are falling).

Direct use of electricity for battery EVs includes payment for use of the transmission and distribution systems (approx 30% of delivered cost) and losses of over 10% between power station and socket, so it is possible that hydrogen-based transport particularly for larger vehicles and trucks could be cheaper to operate than electricity-based systems, when hydrogen is produced in bulk or even at local fuel stations.

We suggest that the trial programme of directly adding hydrogen to the gas grid using hydrogen produced from "excess wind" through electrolysis be completed as soon as possible to explore the costs and benefits relative to constraining renewable generation output. ITM, the company providing hydrogen production infrastructure for the Orkney electrolysis project, has been providing this equipment in Germany since 2014, so there is a developing operational experience of the technology that will surely lead to improvements in it. Even across Europe there is considerable difference in standards, including allowable proportion of hydrogen in gas national gas networks, and some practitioners consider safety standards in the UK too restrictive.

There is also to date no agreed definition of "green hydrogen" (from renewables) and "brown hydrogen" (from fossil fuels). Advances in standards are needed in this regard.

We are less convinced about the cost benefits of using hydrogen as a direct substitute for natural gas across the grid, rather than in these “constraint” situations, or as an additive to natural gas as has been suggested in the White Paper. The assumptions that Hydrogen is suitable for grid use appear to rest on the “H21Leeds City Gate” report which in its Executive Summary suggests that Hydrogen can economically be added as a substitute. However, this report lists the cost of Hydrogen as 9.3p per KWH as opposed to a typical price for gas of 4.2p per KWH. We believe heat can be provided much cheaper through other means, particularly through district heating using combined heat and power.

An unfair criticism of wind generation is that it only works for a third of the time. While this thinking is simplistic, it is true that output depends on wind availability and this does not necessarily correlate with demand. Wind generation also has the further drawback of being non-synchronous and does not therefore contribute to system stability through provision of inertia.

Increased use of tidal, wave and solar energy could in concert increase system stability but storage will become an increasingly important part of energy system management. As stated earlier, use of hydrogen as an energy carrier would allow wind energy or other renewable energies to be stored and used in synchronous generators that are dispatchable to meet demand; an alternative/complement to pumped storage.

Whilst the only combined gas plant suitable for this at present is Peterhead, depending on the mix of other storage, particularly hydro and pumped hydro, other sites may be required to meet total energy demand from variable renewable sources.

We suggest that suitable sites for hydrogen storage linked to new or existing combined gas turbine plants be identified and an evaluation of the projected need for such backup plant to cope with future maximum wind variability be carried out.

As some time will take place before this is required, we suggest that the alternative of more locally based smaller storage sites, linked to local power production and a decentralised smart grid, be explored.

Of course none of this will happen without a robust commercial framework, into which technologies can be integrated once their development cycle is completed. Investment requires visibility of earnings and a transparent (and revenue adequate) mechanism for price formation.

We support the argument that the final energy strategy should remain flexible, as any other approach will involve picking winners based on forecasts and forecasts are often wrong.

Common Weal believes that the Scottish Government is correct to pursue the use of hydrogen as a key plank of its energy decarbonisation policy, but the viability of this strategy must be proven within a very few years if the overall policy is to deliver this aim.

In the wider context, where demonstration projects show the viability of any new technology, there must at least be rollout plans, market arrangements and regulatory framework available (at least in draft) to ensure lack of a sustainable, commercial framework does not impede wider adoption.

The policy must also encourage the development of Scottish equipment and service supply chains wherever possible, to ensure that maximum economic value is captured for the wider economy.

In addition to resource utilisation, energy reliability, environmental benefits and potential to support a degree of industrial development, renewable hydrogen can be delivered at constant prices irrespective of wider fossil energy market price movements.

Q8. What are your views on the priorities presented in Chapter 4 for transforming energy use over the coming decades? In answering, please consider whether the priorities are the right ones for delivering our vision.

Common Weal agrees with the 2050 vision priorities.

Q9. What are your views on the actions for Scottish Government set out in Chapter 4 regarding transforming energy use? In answering, please consider whether the actions are both necessary and sufficient for delivering our vision.

Common Weal agrees with improving energy efficiency, however, this may not result in an equivalent reduced demand for energy. In particular reducing energy use as a result of fuel poverty or deindustrialisation would be contrary to our vision of a fair healthy and prosperous Scotland.

Similarly energy from renewable sources should not be equated to energy from fossil fuels. We agree that improved efficiency in manufacturing and industrial sectors for the same output would reduce energy use, however, if we can produce efficient products which sell internationally we would expect energy consumption to increase.

The focus in SEEP particularly on improving insulation for existing buildings and ensuring new buildings are operationally carbon neutral is to be welcomed, however, we question the assumption that reducing demand through energy efficiency will in of itself tackle fuel poverty effectively. We point to the work of the Speird Project which highlights the differing nature of fuel poverty in rural, urban and Island Scotland. As they point out fuel poverty is largely a welfare issue, we therefore question whether as is suggested in the white paper adopting the measures will “release savings in the public sector”.

We support a programme of major refurbishment to the existing building stock with a view to reducing energy consumption through improved insulation, better heating / cooling / lighting systems, heat recovery where practical, and improved control systems. Measures to help residents better understand how to operate heating controls and so on are, we believe, necessary. Commercial and public users of energy should ensure staff operating energy management systems have sufficient training to do so in the most effective and efficient way.

New buildings, both domestic and non-domestic, should be built to the highest standards, and be designed for comfort with minimal energy use.

We suggest serious consideration of introducing checks on new and refurbished buildings, to check they actually perform as stated, and that problems such as dampness and poor indoor air quality have not been inadvertently introduced.

The other goals of SEEP of creating jobs, services and technologies for energy efficiency and upgrading the housing and public building stock and improving health from warmer homes are achievable goals with which we agree.

We also agree with the three phases of the SEEP programme and recognise the need to evaluate the pilot schemes before setting out the full policy objectives and welcome the proposed further consultation on SEEP’s design.

Common Weal argues that the private rented sector has for too long been largely unregulated and ill serves the citizens of Scotland. We welcome the consultation on energy standards for the private rented sector, which may address some of the issues associated with rogue landlords, however, wider regulatory issues should also be addressed. Local authorities must be given powers and finance to adequately police sub-standard lets, tax vacant properties, use enforcement orders to bring properties up to the standard and use compulsory purchase orders where landlords do not comply. A new fair rent scheme should be introduced, which should be open to all to apply for with their tenancy guaranteed against eviction for using it. This should reduce the rent for sub-standard housing in situations where no social housing is available.

We support the development of new heat networks, particularly using locally produced hydrogen for fuel, geothermal energy or solar. District heating schemes must become the norm for new housing.

In principle we support the new generation of smart meters, as a tool to inform customers about

consumption and overall energy costs. However we question the roll out at great expense of the existing systems which cannot be used to influence costs effectively and are in effect 2nd rate technology. Moreover the cost of this would be better spent informing customers about energy efficiency measures aimed at identifying households in fuel poverty and combating its effect.

When more appropriate modern devices are available, which would allow consumers of energy to monitor their devices in real time and modify their behaviour to take account of possible time-of-day electricity charges, as in the “smart home” and “internet of things” durables being realised by tech giants, an effective program could be launched.

Common Weal has long argued for local energy companies to be established and welcomes the Government commitment to support these along with the other non-traditional business models for energy retail markets. Whilst we would hesitate to suggest one model, we do believe that not-for-profit organisations, whether councils or housing associations, are best placed to develop appropriate energy supplies for existing stock and for new build.

We would welcome consultations on ensuring the most appropriate building regulations to meet and exceed the EU standards for public buildings including council owned houses by December 2018 and all buildings by 2020.

Given the role of concrete in carbon emissions, we consider that widespread prefabrication using non concrete materials must be the way towards a zero carbon build environment.

We would welcome a mixture of solutions so as to ensure balanced urban and rural plans integrated with existing stock.

Whilst the falling cost of batteries means that electric cars will be increasingly used, we question whether smart charging can readily overcome the increased strain these will place on the grid. Local stored power may be required to be more widespread than anticipated. Furthermore, a bifurcation between purely electric and hydrogen vehicles may emerge with hydrogen fuel cells more suitable for buses and HGVs.

We also note that the US National Highway Traffic Safety Administration has made V2V (vehicle-to-vehicle) communications mandatory in all new cars within two model years. This makes autonomous vehicles likely to be introduced and become widespread within 10 years.

Overall these developments mean that severe disruption to the transport models may emerge before 2030 and the Energy strategy should encourage research and development of Scottish software, engineering and vehicle companies able to exploit this disruption to our economic advantage.

Common Weal supports the proposed actions in relation to vehicles and in regard to energy efficiency. We also support proposed actions regarding modal shifts in transport, and we would support investment in rail, to ensure it remains a viable as well as a much lower-carbon alternative to road, and possibly air, for the routes it services. We also support the taking of the railways back into public ownership.

Once again, however, we need to point out that targets are being set over matters such as transport standards over which the Scottish Government has limited control or indeed influence.

Q10. What ideas do you have about what energy efficiency target we should set for Scotland, and how it should be measured? In answering, please consider the EU ambition to implement an energy efficiency target of 30% by 2030 across the EU.

Common Weal believes that Scotland, as a modern, developed nation, should, as a bare minimum, comply with the EU energy efficiency target stated above. We fully support the introduction of minimum energy efficiency standards for the privately rented sector, and other buildings and believe the targets scrapped under the ‘Sullivan 2’ review should be reinstated as should the Code of Sustainable Homes emissions performance targets. We question whether the Government would not be better setting a minimum EPC

standard.

Q11. What are your views on the priorities presented in Chapter 5 for developing smart, local energy systems over the coming decades? In answering, please consider whether the priorities are the right ones for delivering our vision.

Common Weal supports the development of locally controlled and managed energy systems supportive of local communities and needs and sees the 2050 vision as supportive of that.

Q12. What are your views on the actions for Scottish Government set out in Chapter 5 regarding smart, local energy systems? In answering, please consider whether the actions are both necessary and sufficient for delivering our vision.

Common Weal acknowledges the work done over the last decade in developing community energy schemes and agrees that the opportunity exists for community stakes in larger commercial schemes. We would aim for a minimum target of 50% public or community ownership in schemes above a certain size.

We believe this can be done through planning law to ensure that the public interest in future developments is ensured.

As stated earlier we agree that innovation in energy tariffs will be necessary for consumers of locally generated energy both for end users and for commercial enterprises and that a partnership approach between communities and the public and private sector is the correct one. We hope that the charging regime set by Ofgem and National Grid can be adapted to allow such local variation.

We support the initiatives to demonstrate that towns and villages can become operationally carbon free and essentially off grid.

We believe the existing initiatives and actions are adequate in the short term but that the results will need to be assessed and revised regularly.

Q13. What are your views on the idea of a Government-owned energy company to support the development of local energy? In answering, please consider how a Government-owned company could address specific market failure or add value.

Common Weal has long supported the establishment of Scottish Publicly Owned Energy Companies (see 'Repossessing the Future: A Common Weal Strategy for Community and Democratic Ownership of Scotland's Energy Resources').

This paper set out proposals for establishing a Scottish Energy Agency, a body charged with overseeing the sector and setting key objectives and targets. This body would supervise and set policy for a Scottish Renewable Energy Network (SREN). SREN would provide the main impetus for achieving a shift towards renewable energy and would be composed of local energy companies (LECs) established under local authority and community control throughout Scotland.

The proposal in the Scottish Energy Strategy for a single Government owned energy company, could facilitate the move towards establishing local energy companies such as Aberdeen Heat and Power and could provide an overall strategy to ensure the community schemes could also flourish.

Clearly a publicly owned not-for-profit company could establish itself through the aegis of Scottish Local Authorities with support from the Scottish Government and Housing Associations. All of the roles listed in the consultation are achievable directly through the company or through specialist divisions. We therefore welcome the proposal.

We are particularly taken with moving towards a Danish style energy agency with regulatory control as part

of the Ministry for Energy. This should be a goal if energy policy is devolved or independence achieved.

Our concern is on the relationship between the Scottish Energy Company and other market energy suppliers particularly Scottish Power and SSE which control the grid. To be effective, the Scottish Energy Company must control the energy supplied under new schemes be they district heating, wind turbine, geothermal energy or hydrogen generation. To a degree this puts it as a parallel operator to the grid suppliers albeit over more localised areas. A concordat between the grid owners and the public energy company would be necessary based on a commercial relationship.

In the event of a failure to invest or maintain the grid by the current grid owners, the Scottish Government could in extremis, buy out the grid at a discounted negotiated price and operate it through the Scottish Energy Company.

Q14. What are your views on the idea of a Scottish Renewable Energy Bond to allow savers to invest in and support Scotland's renewable energy sector? In answering, please consider the possible roles of both the public and private sectors in such an arrangement.

Common Weal has argued for the establishment of a National Investment Bank to invest in Scotland's future (see 'Building Scotland's future now: A new approach to financing public investment' and 'Blueprint for a Scottish National Investment Bank').

Both of these papers envisaged a portion of the Scottish Government's capital spend going to fund the establishment of a bank which would work with Local Authorities to foster investment in their areas. The main source of ongoing funding would be from investment in Bonds sold to pension funds and directly to the public.

Clearly separate divisions of the bank could invest in general industrial innovation and other divisions could fund the Scottish Energy Company's investments, however, having a single channel for bonds would generate administrative savings. This would be more so after independence.

We are open to place restrictions on the trading of local energy bonds so that a community energy scheme remains in the long term ownership and control of the community.

Q15. What ideas do you have about how Scottish Government, the private sector and the public sector can maximise the benefits of working in partnership to deliver the vision for energy in Scotland?

The Scottish Government and Local Authorities are engaged in successful partnership working with other public sector and private sector organisations.

We believe that it is essential to maintain flexibility in the formation of partnerships to meet the local needs.

It is important that local communities are fully engaged in the design and development of projects, rather than becoming passive recipients of renewable projects. This will actively enhance the effectiveness of renewable projects and develop public consciousness as regards a carbon free Scotland. It will also keep the greatest level of investment returns within local economies and positively reinforce local economic development.

The Scottish Government's role here should be to ensure all projects have independent monitoring and evaluation designed into them from the outset, and to facilitate the exchange of knowledge between projects. This however, should be done with professional organisations engaged in providing technical oversight and scrutiny.

In the event of devolution of energy policy which we deem essential, we would recommend the

establishment of a fully-fledged regulatory agency, to take over the role of Ofgem in Scotland and to develop changes to the existing regulatory regime to provide greater alignment with Scotland's specific needs.

Q16. What ideas do you have about how delivery of the Energy Strategy should be monitored?

Common Weal welcomes the draft strategy's recognition that appropriate monitoring and measurement is important, and we believe a range of measures are needed. Many of the measures in place already are useful: such as the percentage of energy and electricity equivalent from renewable sources.

Additional measure could include:

Demand side:

- annual quantity of unabated fossil fuel used in each sector and in total Building stock:
- % of dwellings and non-domestic buildings in different EPC ratings; % refurbished since an appropriate date e.g. 2017
- total domestic and non-domestic heat demand
- total domestic and non-domestic electrical demand for lights and appliances
- number and % of homes in fuel poverty and % of stock measured transport
- annual passenger miles by road, rail, air, active transport
- vehicle fleet – different vehicle types
- transport emissions and energy consumption associated with imports of goods from overseas, and exports from Scotland
- goods and services: road, rail, sea and air miles in Scotland

Industrial energy demand:

- a range of measures needed, including energy intensity (energy per unit output); total consumption of fossil fuels, renewable heat, electricity
- additional new heat recovery since an appropriate date, say, 2017, and whether used "in-house" or to supply a neighbouring business or other heat demand.
- Embedded energy / emissions in goods imported into Scotland

Energy generation side:

- Total annual renewable generation
- Total electricity exports and imports
- total annual curtailment of renewable energy
- capacity of despatchable and non-despatchable renewable electricity generation
- quantity of storage installed: heat and electrical, at all scales from domestic to grid-scale
- quantity of electricity sold from small renewables in a smart system

Land use:

- Estimates of absolute quantity, and change (positive or negative) of any land-based CO₂eq emissions or absorption, affected by energy e.g. new forestry / short-rotation coppice for biomass, or energy installations. (While it is expected there will be a great overall benefit in renewable energy projects in terms of CO₂eq emissions, energy generation and security, it is important to be transparent, and include any costs as well as benefits terms of emissions.) Method of estimation (e.g. modelling, measurement etc.) should be clearly stated.

Q17. What are your views on the proposed approach to deepening public engagement set out in chapter 6.

Common Weal welcomes the approaches suggested in the draft strategy. We agree that engagement

of local communities is essential in matters which affect them; we also remind the Scottish Government of the importance of informing and seeking views from communities of interest, as well as geographic communities.

We also must be conscious of the complexity of ensuring public engagement and the role of sections of the media and vested interests in spreading “false facts” about climate change and government actions.

Common Weal would welcome the opportunity to be involved with an engagement plan which will be part of the final energy strategy.

ENDS