Stop Climate Chaos Scotland

Response to Scottish Energy Strategy: The Future of Energy in Scotland

May 2017

Introduction

Stop Climate Chaos Scotland (SCCS) is a civil society coalition campaigning for action on climate change. Members include environment and international development organisations, student unions and trade unions, community groups and faith groups. We believe that the Scottish Government should take bold action to tackle climate change here at home and play its part in supporting climate justice around the world. We provided evidence on the draft Climate Change Plan and we are grateful for the opportunity to respond to this accompanying draft Energy Strategy.

Summary

There is much to welcome in this draft Energy Strategy. In particular, we welcome the following areas;

- We strongly welcome the Strategy's support for renewable energy and the proposed target for the equivalent of 50% of Scotland's energy needs across heat, transport and electricity to be met from renewables by 2030.

- SCCS supports the idea of a Government-Owned Energy Company and of a Renewable Energy Bond and we look forward to hearing more about the ways in which the plans set out in this strategy will be financed.

- We welcome the support for community and shared ownership and for smart, local energy networks and local heat. This draft Strategy begins to address important questions around energy storage and we welcome the level of ambition shown by the Scottish Government.

- SCCS stands against fracking and other forms of unconventional oil and gas extraction. We are therefore heartened to see the Strategy make clear that the Scottish Government has no plans for the development of underground coal gasification, although we would welcome a similar stance against all forms of unconventional oil and gas.

- We welcome the ambitions for a transition to a low carbon economy and we support the Scottish Government's recognition of the need to address questions around jobs and skills in the oil and gas industry and in renewables. However, we recommend the creation of a Just Transition Commission that includes union, community and environmental representatives to oversee the transformation to a low-carbon

economy. [1]

- SCCS is broadly supportive of the plans set out in this draft Strategy for large-scale energy efficiency programmes to cut energy demand and address both fuel poverty and climate change.

However, we have concerns in a number of areas and there are several changes which we wish to see. These are set out in detail throughout our response. In particular, we wish to see changes in the following areas;

- We are concerned that the prominence of oil and gas in this Strategy undermines the Scottish Government's ability to meet its own climate change targets and makes it difficult, if not impossible, to live up to the requirements of the Paris Climate Agreement. We would urge the Scottish Government to recognise the need to manage the transition to a low carbon economy much more quickly in order to tackle climate change and to give confidence and clarity to both the oil and gas sector and the renewable energy industry,

- SCCS is concerned that the draft Energy Strategy is overly reliant on Carbon Capture and Storage. With a UK Government which has shown little sign of supporting the development of this technology towards commercial viability, it is vital that the Scottish Government prioritises other low carbon technologies in its preferred pathway to hedge against CCS not developing in the way in which the current draft Strategy expects.

- We are disappointed at the low level of ambition and credibility in relation to transport in this draft Strategy. The Strategy builds in an expected increase in transport demand without setting out any clear plans to reduce that demand. This requires an urgent reappraisal if the final Energy Strategy is to be credible on transport.

- SCCS is of the view that the speed and scale of action on energy efficiency in both domestic and non-domestic buildings in Scotland must be significantly increased in the immediate future if fuel poverty and climate targets are to be met. We advocate a target of getting the vast majority of homes in Scotland to an EPC rating of C by 2025.

- We would urge the Scottish Government to give consideration to the ways in which this Strategy could be better aligned with planning policy and the National Planning Framework. Better connections between these areas of Government would lend more credibility to this Strategy.

[1] http://www.foe-scotland.org.uk/sites/www.foe-scotland.org.uk/files/Just%20Transition%20Partnership%20joint%20evidence%20on%20Climate%20Plan,%20Feb%202017.pdf

Stop Climate Chaos Scotland's vision for energy in 2050
In analysing the Scottish Government's draft Energy Strategy, SCCS compared the Strategy with our vision for Scotland's energy in 2050.

Powerhouse Scotland – generation & supply

- Scotland has a world leading low carbon economy, producing energy from renewable sources to meet well managed demand at home and abroad.
- Having met at least 50% of our energy needs from renewables by 2030, Scotland is powering towards 100% energy from renewables
- A significant proportion of energy generation, storage and supply is owned, shared or managed by communities and the public sector

Heating Scotland's homes

- A massive infrastructure investment programme ensured all homes reached an EPC rating of C by 2025. Investments have made older housing energy efficient and fit for the future, meaning that fuel poverty has been eliminated
- Local heat networks and small scale renewable energy are commonplace

Connected Scotland

- Safe, well maintained and integrated walkways and cycle paths help people get around in a way which benefits their health as well as the world around them.
- Integrated and low cost zero emissions public transport like electric buses, light rail and trams, electrified railways and publicly owned low emission ferries keep Scotland connected and ensure no one is left behind.
- Petrol and diesel cars are a thing of the past, ensuring air pollution from road traffic no longer harms our health. Electric cars are affordable and supported by a world-class charging infrastructure.
- Freight carries essential goods and materials across the country via rail while distribution hubs connect rail freight to zero emissions vehicles and cycle couriers.

The Scottish Government's vision
"A strong low carbon economy – sharing the benefits across our communities, reducing social inequalities, and creating a vibrant climate for innovation, investment and high value jobs. A modern, integrated, clean energy system, delivering reliable energy supplies at an affordable price in a market that treats all consumers fairly."

Such a vision requires;

- the continued, sustainable and inclusive **growth** of Scotland's economy;
- **secure, reliable supplies** of energy when they are required;
- achieving better outcomes for consumers of energy with more **affordable** energy requirements; and
- long-term, sustained **decarbonisation** – as set out by Scotland's 2050 climate change targets

The Scottish Government's vision contains three guiding themes; a whole system view; a stable, managed energy transition; and a smarter model of local energy provision.

SCCS views on the Scottish Government's vision

We welcome the Scottish Government's vision for a secure, decarbonised energy sector capable of contributing to sustainable economy and providing affordable energy for consumers. In particular, we welcome the support for planning the transition and delivering the growth of local energy provision including heat networks, as well as the Scottish Government's support for shared ownership and innovation.

SCCS fully supports the Scottish Government's proposal for a new 2030 'all-energy' target for the equivalent of 50% of Scotland's heat, transport and electricity consumption to be supplied from renewable sources.

We welcome the commitment to "working in harmony with the natural environment" (section 19, p.11). We urge the Scottish Government to ensure that this commitment informs the rest of the Energy Strategy.

Overall, the vision represents a positive step forward for the Scottish Government and an improvement on previous statements and plans.

However, we are concerned that the prominence of oil and gas and the reliance on Carbon Capture and Storage in the vision undermines the Scottish Government's ability to meet its own climate change targets and makes it difficult, if not impossible, to live up to the requirements of the Paris Climate Agreement.

The Government's vision for creating a stable, managed transition relies heavily on maintaining "a strong oil and gas sector"[2]. Whilst the vision also recognises the need for a transition to "a largely decarbonised energy system", mounting evidence demonstrates that Scotland must move away from oil and gas at a much faster pace than that which is proposed in this strategy. International research suggests that 84% of the fossil fuels which have already been explored must stay in the ground in order to meet global climate targets[3].

As it is currently written, the strategy risks undermining the Scottish Government's stated aim of meeting its obligations from the Paris Climate Agreement to hold the increase in the global average temperature to well below 2° C above pre- industrial levels and to pursue efforts to limit the temperature increase to 1.5°. By stating clearly an intent to transition rapidly away from oil and gas to renewable energy, the Scottish Government could still provide the certainty and confidence to industry and investors whilst taking the necessary steps to meet its responsibilities under the Paris Agreement; and give confidence to workforces and communities currently dependent on fossil fuels that there will be reliable, high quality employment in a productive low-carbon economy. All assistance given to any industrial sector should enable this Just Transition.

[2] Scottish Government, Scottish Energy Strategy: The Future of Energy in Scotland, paragraph 20, page 11.
[3] http://leave-it-in-the-ground.org/wp-content/uploads/2016/11/Exploration-and-Climate-LINGO.pdf

SCCS recommends the creation of a Just Transition Commission that includes union, community and environmental representatives to oversee and take forward the transformation to a low-carbon economy.

The vision is reliant on Carbon Capture and Storage (CCS) to support "the cost-effective decarbonisation of heat, power and industry". However, this technology lacks the necessary support from the UK Government to make it commercially viable. Building in such a reliance on CCS in the vision of the energy strategy undermines the credibility of the whole strategy.

The vision also raises the possibility of new thermal electricity generation. SCCS does not believe that there is a need for new thermal generation in Scotland. The Energy of Scotland report[4] shows that reliable electricity generation is achievable with enhanced flexibility, demand management and grid upgrades. However, we recognise that it is crucial to maintain the resilience of the electricity system as we decarbonise

[4] Ricardo Energy & Environment for WWF Scotland, Friends of the Earth Scotland and RSPB, *The Energy of Scotland*, (2016) available at http://assets.wwf.org.uk/downloads/ricardo_energy_report_web.pdf#page=5

Consultation questions

Question 1

What are your views on the priorities presented in Chapter 3 for energy supply over the coming decades? In answering, please consider whether the priorities are the right ones for delivering our vision.

Chapter 3 sets out five priorities for achieving the vision set out in Chapter 2. These are:

1) continuing to support the recovery of North Sea oil and gas as a highly regulated source of hydrocarbon fuels;
2) supporting the demonstration and commercialisation of Carbon Capture and Storage and CO_2 Utilisation;
3) exploring the role of new energy sources in Scotland's energy system;
4) increasing renewable energy generation; and
5) increasing the flexibility, efficiency, and resilience of the energy system as a whole.

Overview

SCCS welcomes the priorities to increase renewable energy generation and increase the flexibility, efficiency and resilience of the energy system as a whole. We strongly support the Scottish Government's goal to ensure that the equivalent of 50% of all Scotland's heat, transport and electricity demand is met from renewable sources by 2030.

We support the prioritisation of demand management and would welcome further detail on how the Scottish Government will achieve this, particularly in the transport sector. This is particularly important given the disparity between demand growth projections, with around 8% demand growth expected in buildings and 27% vehicle km growth projected, despite vehicle km actually falling by 5% between 2004 and 2014.

SCCS welcomes the focus on transmission and distribution networks and supports the prioritisation of smart grids and local energy networks.

However, the areas of the vision with which we have concerns are also the areas given highest priority in Chapter 3. The emphasis on continued exploration of North Sea oil and gas, even as late as 2050, is incompatible with achieving emissions reductions targets. Such a focus also puts at risk Scotland's ability to play our part internationally in keeping global temperature rises below 2ºC and pursuing efforts to limit the temperature increase to 1.5° and undermines the Scottish Government's credibility in working for climate justice around the world.

We strongly urge the Scottish Government to deprioritise oil and gas exploration within Scotland's energy system in order to provide certainty for the oil and gas industry and to avoid giving the industry false hope. Similarly, prioritising the as-yet unproven Carbon Capture and Storage and placing such a high emphasis on the potential use of hydrogen give cause for concern.

Finally, while inclusion of references to planning are welcome, including land use and marine planning, we had hoped to see greater integration of Scottish Government strategy

between planning and energy. For example, by better integrating the goals of planning and energy strategy, Scotland-wide policy could ensure that new developments are only built where there is existing public transit provision or ensure that low carbon energy connections and EV charging provision are considered in where to site new developments.

Priority one - *Continuing to support the recovery of North Sea oil and gas as a highly regulated source of hydrocarbon fuels*

SCCS welcomes the commitment to using the existing skills of the oil and gas industry to support new technology and decommissioning. However, we are concerned that this first priority suggests a binary choice between either continuing to support the North Sea oil and gas industry into at least 2050, or to import hydrocarbon fuels from other countries, possibly at a greater carbon intensity. This simplified choice, as it is presented in priority one, leaves little room for giving primacy to a genuine transition to a zero carbon Scotland by 2050.

Instead of pursuing hydrocarbon extraction, the Scottish Government should be prioritising their welcome commitment to becoming a world leader in decommissioning. By investing in decommissioning now, instead of focusing on further exploration and extraction of fossil fuels, the Scottish Government can lay the ground work for new opportunities in offshore wind and marine renewables.

The collapse of the Scottish coal industry demonstrates the severe effects on communities and the environment of not planning for the decline of an industry. By committing to a just transition and by refocusing the oil and gas industry on decommissioning, Scotland can show the world that it is not only possible but hugely beneficial to move from a high carbon economy to a renewable economy.

Furthermore, it is clear that a continued focus on extracting oil and gas into the middle of the century and possibly beyond severely undermines the Scottish Government's ability to meet its climate change targets and internationally agreed emissions reduction goals.

Research by University College London published in Nature journal[5] shows that globally, a third of oil reserves, half of gas reserves and over 80 per cent of current coal reserves must remain unused in order to limit global temperature rises to 2 °C. More recently, research from the Leave it in the Ground Initiative states that "[t]he carbon budget for burning fossil fuels that results from the Paris Agreement and its specific temperature target [of 1.5ºC] allows for 16% of current proven fossil fuel reserves (equivalent to 473 Gigatons of CO2 emissions) to be burnt. 84% (equivalent to 2427 Gigatons of CO2) must stay in the ground."[6]

[5] McGlade, C. and Ekins, P., The geographical distribution of fossil fuels unused when limiting global warming to 2 °C, (January 2015), Nature (517)

[6] Kühne, K., *The global Carbon Budget after the Paris Agreement* (2016) Leave it in the Ground Initiative (LINGO)

In addition, the UK Committee on Climate Change's report from March 2017 *Advice on the new Scottish Climate Change Bill* shows that in order to limit global temperature rises to 1.5ºC, Scotland must reduce its net emissions to zero by 2045-2050.[7]

Therefore the prioritisation of the continued exploration and extraction of hydrocarbons from the North Sea is incompatible with the Scottish Government's current emissions targets, with the Paris Climate Agreement and with the proposed new Climate Change Bill.

Priority two - *Supporting the demonstration and commercialisation of Carbon Capture and Storage and CO_2 Utilisation*

SCCS remains concerned about the Scottish Government's over reliance on Carbon Capture and Storage (CCS) to support the decarbonisation of heat, power and industry. As we stated in our evidence to the Scottish Parliamentary scrutiny of the draft Climate Change Plan, this technology lacks the necessary support from the UK Government to make it commercially viable. The UK Government has made clear in their *Updated Energy and Emissions Projections 2016*[8] that it does not predict that CCS will form part of its energy mix "in any significant capacity" until at least 2035.

Building in such a reliance on CCS in the energy strategy undermines its credibility and calls into question how realistic the proposed timescales for decarbonisation may be.

While the energy strategy document is correct to say that the Committee on Climate Change suggested that CCS *could* contribute around a fifth of Scottish generation in its 2030 scenario, the Committee advocated avoiding *reliance* on the technology and instead suggested that renewable generation could provide the same amount of electricity. The focus on CCS is a big risk if CCS does not become commercially viable, within a timeframe which allows emissions targets to be met and this remains a concern for SCCS.

In addition, we have concerns about the proposed use of CCS for biomass in electricity generation, given that the Scottish Government's *Electricity Generation Policy Statement*[9] sets out a preference for the use of bioenergy for small scale heat or combined heat and power. The proposed expansion of the use of bioenergy into electricity could have serious consequences for land use. For example, prioritising the use of land for bioenergy production could result in a lower level of tree planting at a time when the Scottish Government's annual tree planting targets are already being missed. Reforestation is one action set out in the draft Climate Change Plan with a stated aim of absorbing CO2. Therefore any decisions around the use of bioenergy for electricity generation in

[7] UK Committee on Climate Change, *Advice on the new Scottish Climate Change Bill* (March 2017), available at https://www.theccc.org.uk/wp-content/uploads/2017/03/Advice-to-Scottish-Government-on-Scottish-Climate-Change-Bill-Committee-on-Climate-Change-March-2017.pdf

[8] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/599539/Updated_energy_and_emissions_projections_2016.pdf

[9] Electricity Generation Policy Statement (2012) p21: http://www.gov.scot/Resource/0042/00427293.pdf

conjunction with the use of CCS must take full account of the broader implications for land use, biodiversity and emissions targets.

Priority three - *Exploring the role of new energy sources in Scotland's energy system*

SCCS strongly welcomes the Scottish Government's commitment to rule out the use of Underground Coal Gasification. We also welcome the moratorium on hydraulic fracturing ("fracking") and other forms of unconventional gas extraction although we would prefer to see these technologies ruled out completely.

As stated above, SCCS is concerned about the prioritisation of the use of hydrocarbons for decades to come. Sections 75-91 of the consultation document make clear that the "new energy sources" referred to in priority three include Liquid Natural Gas, Compressed Natural Gas and Liquid Petroleum Gas as well as hydrogen, which is likely to come from fossil fuels. Such prioritisation puts at risk Scotland's ability to meet national and international emissions reduction targets.

On exploring the use of hydrogen as a new energy source, SCCS is of the view that there may be some merit in exploring its use as a replacement for natural gas within the existing gas grid. There may also be a role for inter-seasonal heat storage and, potentially, for decarbonising some parts of the transport sector.

However, we urge the Scottish Government to ensure that any such exploration of the role of hydrogen does not displace, delay or detract from the use of proven low carbon technologies, particularly in the short term. It is unlikely that any use for hydrogen in decarbonisation would happen quickly. Therefore, prioritising hydrogen above technologies such as heat pumps and district heating risks missing opportunities to decarbonise now and to provide certainty to Scottish low carbon energy businesses.

Finally, SCCS is concerned that hydrogen produced from fossil fuels is inconsistent with the proposed 50% renewable energy target. The *Energy of Scotland* report by WWF Scotland, Friends of the Earth Scotland and RSPB Scotland sets out an alternative pathway for delivering 50% renewable energy based on existing technologies.

Priority four - *Increasing renewable energy generation*

We strongly welcome priority four and the commitment to increasing renewable energy generation. Scotland is well placed to become a world centre of renewable technology and clean energy and it is encouraging to see such a strong commitment from the Scottish Government to realise the benefits of a zero carbon future.

Analysis by Ricardo Energy & Environment for WWF Scotland, Friends of the Earth Scotland and RSPB shows that expanding Scotland's use of renewable energy from 13% today to 50% by 2030 is a cost-effective route to meeting climate targets and that it will produce multiple co-benefits. In addition, the research demonstrates that an extra 7-8 GW of new wind

capacity needs to be built (either on or off shore) to replace the output of retiring nuclear power stations and to meet increasing demand from other sectors. By doing so, Scotland can ensure that by 2030, renewables generate 143% of Scotland's electricity demand, with the excess exported to the rest of the UK.[10]

Whilst we welcome this priority, we would urge the Scottish Government to close ecological data gaps, particularly around marine areas, thus enabling the development of renewable technology which does not harm wildlife. Closing these gaps could support industries such as wave, tidal and floating wind to move forward more cost-effectively.

Priority five - *Increasing the flexibility, efficiency, and resilience of the energy system as a whole*

SCCS strongly welcomes the Scottish Government's prioritisation of flexibility, efficiency and resilience of the energy system as a whole. In particular, we welcome the recognition that Scotland's energy system must become less centralised and more flexible.

The recognition of the need for energy efficiency is also very welcome. However, as we have argued in this response and elsewhere, the speed and scale of action on energy efficiency in both domestic and non-domestic buildings in Scotland must be significantly improved in the immediate future if fuel poverty and climate targets are to be met.

We are disappointed to see assumptions around transport demand growth built in to the energy strategy. The suggestion that vehicle km will increase by 27% is very pessimistic and runs contrary to recent experience where it fell 5% between 2004 and 2014 despite Transport Scotland assumptions which modelled growth in the same period. As the Rural Economy and Connectivity Committee stated in their report on the draft Climate Change Plan *"The Committee heard that stakeholders are unconvinced by the assumption that vehicle traffic will grow by 27% by 2030 and the Minister's explanation of the figure lacked clarity"*. The Committee urged the Scottish Government to provide further information about traffic growth assumptions and their role in setting the level of ambition in the transport sector of the draft Plan.

The Scottish Government should establish a clear, credible path with detailed policies and milestones for achieving the ambitions on heat. This should include an earlier start in the shift to low carbon heat, building on existing success in heat pumps and district heating and growing Scottish low carbon heat businesses. Both the final Energy Strategy and the final Climate Change Plan must provide greater policy clarity on the pathways for achieving decarbonisation in heat, particularly in relation to the use of the gas grid.

We support the Scottish Government's plans to work closely with the UK Government on the future of the gas grid. However, the Scottish Government must provide confidence and clarity for the low carbon heat industry on the pathways for achieving decarbonisation. This

[10] Ricardo Energy & Environment for WWF Scotland, Friends of the Earth Scotland and RSPB, *The Energy of Scotland*, (2016) available at http://assets.wwf.org.uk/downloads/ricardo_energy_report_web.pdf#page=5

is crucial to promoting the deployment of existing low carbon heat technologies and to guiding Local Authorities in the design and delivery of LHEES.

We are also keen to see a review of building regulations and advice and support for consumers to ensure that new buildings are fitted with proven low carbon heat sources and that older, carbon intensive boilers are replaced appropriately. This would avoid expensive and unnecessary retrofit.

Question 2

What are your views on the actions for Scottish Government set out in Chapter 3 regarding energy supply? In answering, please consider whether the actions are both necessary and sufficient for delivering our vision.

Chapter 3 contains actions under each of the priorities:

1) continuing to support the recovery of North Sea oil and gas as a highly regulated source of hydrocarbon fuels;
2) supporting the demonstration and commercialisation of Carbon Capture and Storage and CO_2 Utilisation;
3) exploring the role of new energy sources in Scotland's energy system;
4) increasing renewable energy generation; and
5) increasing the flexibility, efficiency, and resilience of the energy system as a whole.

Priority one - *continuing to support the recovery of North Sea oil and gas as a highly regulated source of hydrocarbon fuels*

In relation to this priority, the Strategy sets out welcome plans for action on decommissioning and on supporting the development of jobs and skills for the transition to a low carbon economy.

However, the actions also state that the Scottish Government will "…continue to work with the Oil and Gas Authority (OGA), the UK Government and industry to avoid premature cessation of production and maximise economic recovery of oil and gas through encouragement of innovation and investment, in line with Scotland's Oil and Gas Strategy, the OGA Corporate Plan and its Sector Strategies" (p.32).

The suggestion that "premature cessation" of oil and gas production is something to be avoided goes against the Scottish Government's own commitment to a transition to a low carbon economy. As stated in the answer to Question 1, if Scotland is to stand a chance of meeting national or international emissions reductions targets and of keeping global temperature increases to below 1.5º, the transition to a low carbon economy must begin in earnest in the immediate term.

In addition, we could question whether maximising economic recovery of oil is compatible with wider societal goals. The International Monetary Fund suggests that removing oil and

gas subsidies would result in environmental, economic and welfare gains.[11] Their report also notes that subsidies to the fossil fuel industry may deter investment in renewable energy.

Priority two - *Supporting the demonstration and commercialisation of Carbon Capture and Storage and CO2 Utilisation*

As stated in our answer to Question 1, SCCS remains concerned that the Scottish Government may be over reliant on Carbon Capture and Storage (CCS) in both the draft energy strategy and the draft Climate Change Plan in achieving negative emissions by 2027 and in using CCS in the short-medium term in conjunction with other technologies such as biomass.

The actions set out in the strategy (p.36) appear to be largely reliant on persuading industry, the oil and gas sector and the UK Government to support the Scottish Government's vision. We would suggest that the lack of support from the UK Government for CCS so far, indicates that such an approach would not be successful.

Because of the strong emphasis on CCS in the strategy, any failure to get CCS off the ground could have a significant impact on the rest of this strategy and on the Scottish Government's ability to meet both national and international climate targets.

Priority three - *Exploring the role of new energy sources in Scotland's energy system*

SCCS strongly welcomes the Scottish Government's commitment to exploring how planning can support a future energy system. It is very positive to see a recognition that both Scottish Planning Policy and the National Planning Framework have a key role to play in delivering this strategy and in delivering the final Climate Change Plan. We would encourage the Scottish Government to explore the ways in which local development plans could enhance and support national energy strategy whilst boosting community energy and new energy sources within the wider system.

However, we urge the Scottish Government to ensure that any such exploration of the role of hydrogen does not displace, delay or detract from the use of proven low carbon technologies, particularly in the short term.

Priority four - *Increasing renewable energy generation*

SCCS strongly welcomes the commitments to increasing renewable energy generation, particularly given that the costs of onshore and offshore wind and of solar continue to fall. By some estimates, these technologies are now cheaper than some fossil fuel generation,

[11] Coady, D. et al. (2015) *IMF Working Paper: How Large Are Global Energy Subsidies*

contrary to the statement made in section 106. Onshore wind is now one of the lowest cost forms of new electricity generation according to the most recent BEIS analysis[12].

Section 99 of the draft strategy suggests that between 11-17 GW of installed renewable capacity will be required by 2030. SCCS would encourage the Scottish Government to aim for the higher end of this scale, particularly given the doubts about the potential for Carbon Capture and Storage within that timeframe.

We recommend introducing a planning requirement for installation of solar PV and solar thermal in new buildings.

Priority five - *Increasing the flexibility, efficiency, and resilience of the energy system as a whole*

We support the actions suggested in relation to priority five. In particular, we support the commitment to pumped hydro.

We urge the Scottish Government to give significant consideration to what actions could be taken to reduce transport demand, given that sections 131 and 132 suggest that transport demand is destined to increase over the coming decade. SCCS advocates an increase in the active travel budget to 10% of the overall transport budget and calls on the Scottish Government to facilitate the introduction of demand management policies such as Workplace Parking Levies by local authorities as part of negotiated fair, green travel plans.

Question 3

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.

SCCS strongly welcomes the proposed target to supply the equivalent of all Scotland's energy needs from renewable sources by 2030, as called for in *The Energy of Scotland* report from WWF Scotland, Friends of the Earth Scotland and RSPB Scotland and supported by Scottish Renewables. This is a very positive step forward from previous Scottish Government policy.

We recommend establishing sectoral pathways for achieving this target, in order to provide clarity to industry and the market on the Scottish Government's expectations. Adding these pathways to an Annual Energy Statement would ensure that they were also monitored effectively and could evolve as technologies change over the next 13 years.

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/566567/BEIS_Electricity_Generation_Cost_Report.pdf

Question 4

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

SCCS welcomes the discussion in the draft Strategy around developing targets to encourage low and zero carbon energy technologies. However, we would urge the Scottish Government to encourage the roll out of such technologies through strong, ambitious and credible targets in the Climate Change Plan and the upcoming Climate Change Bill.

In particular, we advocate a target of net zero emissions by 2050 at the latest, compared with 1990 levels, with strong interim targets. These targets should be accompanied by clear pathways for delivering policies and actions, including those which will support the roll out of low and zero carbon energy technologies. In addition, these pathways should include milestones and indicators to allow for transparency and measurability.

We want to see stronger targets for energy in relation to transport, heat and energy efficiency.

As we stated in our response to the draft Climate Change Plan, the Plan does not present the strong suite of new policies required to accelerate the sales of electric vehicles, let alone what is needed to meet the ambition set out by the UK Committee on Climate Change. The UKCCC recommends that 65% of new car sales should be electric by 2030, compared with just 27% as set out in the draft Plan. Targets in relation to EV sales should follow the more ambitious route set out by the UKCCC and should align Scotland with the ambition set out by other nations such as Norway, India and Germany where targets are being considered around the date at which new petrol and diesel cars will no longer be sold.

Other targets such as allocating 10% of the transport budget to active travel would support a reduction in emissions from transport.

On heat, SCCS agrees with the recommendations of the Energy of Scotland report by WWF Scotland, Friends of the Earth Scotland and RSPB which sets out clear and credible pathways for achieving 40% of Scotland's heat from renewables by 2030. Crucially, if the Scottish Government is committed to achieving an even higher proportion of heat from renewable sources by the same date, it must set out credible pathways with achievable milestones and detail on the technologies needed.

Finally, SCCS advocates an energy efficiency target of ensuring that the vast majority of homes achieve an EPC rating of C by 2025. This would significantly reduce fuel poverty and address energy demand.

Question 5

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

SCCS welcomes the Scottish Government's challenge to the renewables industry to make Scotland the first area in the UK to deliver commercial onshore wind without subsidy. As one of the lowest cost forms of new electricity generation, onshore wind has an essential role to play in decarbonising Scotland's energy sector and in doing so at relatively low cost.

However, there are limited routes to market, even for onshore wind generation which has been given the go ahead but has not yet been developed. The Scottish Government must work closely with the UK Government on a market stabilisation mechanism in the short term and on a future price control framework.

In addition, we recommend lowering the risks to renewable energy developers by using spatial analysis to help guide sites for future development which have the lowest costs, both in terms of initial finance and costs to wildlife and the environment. Such an approach would benefit from Scottish Government leadership.

Question 6

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

SCCS does not believe that there is a need for new thermal generation in Scotland. The Energy of Scotland report shows that reliable electricity generation is achievable with enhanced flexibility, demand management and grid upgrades. However, we recognise that it is crucial to maintain the resilience of the electricity system as we decarbonise.

We are of the view that there is potential for beneficial use of decommissioned sites, both as sites for new renewable energy development, making use of existing grid connections, and for supporting wildlife.

Question 7

What ideas do you have about how we can develop the role of hydrogen in Scotland's energy mix?

On exploring the use of hydrogen as a new energy source, SCCS is of the view that there may be some merit in exploring its use as a replacement for natural gas within the existing gas grid. There may also be a role for inter-seasonal heat storage and, potentially, for decarbonising some parts of the transport sector.

However, we urge the Scottish Government to ensure that any such exploration of the role of hydrogen does not displace, delay or detract from the use of proven low carbon technologies, particularly in the short term. It is unlikely that any use for hydrogen in decarbonisation would happen quickly. Therefore, prioritising hydrogen above technologies

such as heat pumps and district heating risks missing opportunities to decarbonise now, particularly in off gas grid areas, and to provide certainty to Scottish low carbon energy businesses.

While hydrogen may have a role to play in our future energy mix, particularly in heat decarbonisation, this is likely to be merely a transitional role unless electrolysis or CCS can be developed at sufficient scale. Given the challenges set out above, including lack of support from the UK Government, infrastructure challenges and associated costs, SCCS suggests that hydrogen may not be the most effective route to decarbonisation of the energy system.

Finally, SCCS is concerned that hydrogen would not contribute to the proposed 50% renewable energy target if created from fossil fuels. The *Energy of Scotland* report by WWF Scotland, Friends of the Earth Scotland and RSPB Scotland sets out an alternative pathway for delivering 50% renewable energy and heat decarbonisation based on existing technologies.

Questions 8 and 9

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.

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.

Energy efficiency

SCCS supports the priorities for transforming energy use presented in Chapter 4. However, we believe that greater emphasis should be placed on an "energy efficiency first" principle. This would ensure that the most cost-effective route to decarbonisation is achieved across the energy system, whilst also helping to address fuel poverty.

- Scottish Energy Efficiency Programme

SCCS believes that there should be a statutory foundation for the new Scottish Energy Efficiency Programme, incorporating targets and governance arrangements. This foundation should establish a clear target for energy performance of buildings by the end of the SEEP Programme, with interim targets set for 2025 and 2030.

We believe the interim target for the vast majority of domestic buildings should be EPC band C by 2025.

In addition, SEEP should set out clear pathways for a more rapid uptake of renewable heat, particularly in off gas grid areas, and for the upgrade of electric heating. SEEP will also

require substantial public investment to reap the benefits of the low carbon Scotland which it will help to create. SCCS estimates that to reach the interim target of an EPC band C rating for domestic buildings SEEP will require an average of £450 million per year. This investment by the public sector will lever in private finance and ensure that the poorest in our society are supported to live in warm dry homes. Such investment and large scale delivery will require an independent body to be set up to be responsible for SEEP.

- Minimum Standards

SCCS welcomes the Scottish Government's consultation on minimum standards of energy efficiency in the private rented sector but we urge the Scottish Government to extend any such standards to all private sector homes including those which are owner occupied.

- Warm Homes Bill

As part of the development of the Warm Homes Bill, the Scottish Government should review any barriers to the uptake of energy efficiency and renewable energy measures and assess how such barriers should be overcome.

Electricity

SCCS is of the view that priorities for transforming the use of energy over the coming decades should aim to achieve a reduction in demand. However, the Energy Strategy predicts a 30% *increase* in electricity demand as a result of heat and transport electrification. This will produce significant additional electricity system costs. These should be addressed through an electricity demand reduction strategy that raises the profile of demand reduction amongst businesses and consumers.

Heat

The Scottish Government's current goals for heat demand reduction, as set out in the draft Climate Change Plan, are very modest with 6% reduction in the domestic sector and 10% in the commercial sector compared with a 15% growth in demand on today's levels. This does not suggest the step change in approach implied by designating energy efficiency a National Infrastructure Priority.

As stated in response to Question four above, SCCS agrees with the recommendations of the Energy of Scotland report by WWF Scotland, Friends of the Earth Scotland and RSPB which sets out clear and credible pathways for achieving 40% of Scotland's heat from renewables by 2030. Crucially, if the Scottish Government is committed to achieving an even higher proportion of heat from renewable sources by the same date, it must set out credible pathways with achievable milestones and detail on the technologies needed

We welcome the consultation on district heating regulations and local heat and energy efficiency strategies: a consistent regulatory and policy framework across Scotland should give developers the confidence to invest in district heating schemes, and consumers the confidence to connect to them.

We also believe the proposed review of building regulations must deliver low carbon heat in new buildings from the outset to avoid the need for retrofit.

Transport

As the strategy notes, transport accounts for around a quarter of Scotland's emissions, yet there is little emphasis on transport demand management, other than through continued support for active travel funding at existing levels. Indeed, the draft Energy Strategy assumes a 27% growth in vehicle km through to 2032, with no new policies to support demand reduction. These assumptions fail to take into account the fact that demand actually fell by 5% between 2004-2014.

It will be essential for the Scottish Government to set much more ambitious targets to reduce demand by 2030. Such targets should be accompanied by clear policies and pathways to drive down demand. This will support the Scottish Government's aim of achieving cost effective delivery of the overall 50% renewable energy target and climate change targets.

SCCS recommends several specific policies to cut transport demand. Firstly, the Scottish Government must increase the active travel budget to 10% of the overall transport budget to achieve the step change in active travel described in the draft Climate Change Plan.

Demand-side policies, such as Workplace Parking Levies, Low Emission Zones and freight consolidation should become firm commitments in the final Climate Change Plan and the final Energy Strategy, and be used to encourage the faster growth of electric vehicles, helping to tackle the health effects of air pollution in our cities and towns.

Whilst the draft Climate Change Plan predicts an increase in the sales of electric vehicles, the level of ambition in the Plan and the Energy Strategy is disappointingly low. Neither the Plan nor the Strategy presents the strong suite of new policies required to accelerate the sales of EVs, let alone what is needed to meet the ambition set out by the UK Committee on Climate Change. The UKCCC recommends that 65% of new car sales should be electric by 2030, compared with just 27% as set out in the draft Plan. This should be addressed in both the final Climate Change Plan and the final Energy Strategy.

Question 10

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.

SCCS welcomes the proposal to set an energy efficiency target for Scotland for 2030. Scotland has made good progress on reducing energy demand, having already exceeded its 2020 target but a new target is now required.

We support a target of 30% reduction measured in final energy demand. An ambitious target will deliver macroeconomic benefits for Scotland, supporting the Scottish Government's goals around sustainable development and a more inclusive economy. However, in order to meet these ambitions, Scotland will need to take stronger action in cutting demand in heat and transport.

Any new target should operate in conjunction with an interim target of getting the vast majority of Scottish homes up to an EPC band C rating by 2025. In addition, the new target must be accompanied by clear policies and pathways for delivery. Governance and transparency will be key in delivering on these ambitions. We recommend the creation of a new body to oversee the delivery of SEEP which could also ensure that Scotland is on track to meet any new target set.

Questions 11 and 12

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.

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.

The priorities established in Chapter 5 are;

- directly supporting the demonstration and growth of new innovative projects; and
- developing a strategic approach to future energy systems in partnership between communities, the private and public sectors.

SCCS welcomes the Scottish Government's priorities for delivering a smart, local energy system and particularly the emphasis on funding innovative, local solutions through CARES, REIF, DHLF and LCITP. We especially welcome the proposal to "…explore the development of a regulatory framework for Local Heat and Energy Efficiency Strategies that will support area-based energy efficiency programmes, in conjunction with COSLA and local authorities."

We support the Special Working Group on Regulation's recommendation[13] that operators of plants that generate waste heat be required to supply data for incorporation into the heat map. A spatial approach to district heating and other interventions based on the Scotland Heat Map would complement a spatial approach to renewable energy generation, and would ensure that rural and urban communities are covered by similar levels of spatial planning.

We would like to see a stronger commitment from the Scottish Government to support local authorities to take a more active role in supporting this area of the energy strategy. In

[13] http://www.gov.scot/Resource/0049/00497892.pdf

particular, we would welcome a stronger connection with local development plans and with the National Planning Framework and Scottish Planning Policy.

We support the proposal that local authorities should have a duty to produce and implement an LHEES. This duty should include an obligation to actively involve communities, voluntary organisations and the workforce in the sector. Such an approach must ensure that local government is properly funded and equipped to support it.

On community and local ownership and community benefit, we recognise that there are significant challenges around the lack of a clear route to market for the cheapest renewable technologies including onshore wind and solar. The proposal for a Renewable Energy Bond may help to expand the ownership model.

Question 13

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.

SCCS supports the idea of a Government-owned energy company (GOEC) to support the development of local energy. Possible roles for a GOEC include supporting the community ownership of renewables or administering a Scottish Renewable Energy Bond. Given that district heating distribution infrastructure is a high-cost, long-life asset, we would welcome consideration of the potential role of a GOEC to lead on the delivery of such infrastructure and to act as a provider of last resort for district heating.

Alternatively, a GOEC could act as a statutory Energy Agency with responsibility for delivering major Scottish Government programmes such as SEEP. Models such as those employed in Ireland and Denmark demonstrate the value of such an approach.

Question 14

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.

SCCS supports the idea of a Scottish Renewable Energy Bond to allow savers to invest in Scotland's renewable energy sector. A bond would support future infrastructure growth, generate stronger public buy-in for renewables and broaden the ownership model. It is crucial that any such bond was only used to invest in projects which were beneficial to the environment and which do not pose significant risk to wildlife.

We suggest that there may be merit in aligning any Scottish Renewable Energy Bond with the Scottish Local Government Pension Scheme which has more than £36bn of assets. This could ensure that the Pension Scheme provides a strong return on investment, whilst divesting public money from industries which generate harmful emissions.

Question 15

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 2050 vision for energy in Scotland?

SCCS welcomes the Scottish Government's proposal to expand the remit of the Scottish Energy Advisory Board. Numerous groups exist at present, all with separate but overlapping remits and membership. By aligning these more effectively under the SEAB and creating an inclusive guiding body for delivering this Strategy, the Scottish Government would ensure a strong partnership from across the private, public and third sectors to contribute expertise, leadership, monitoring and scrutiny.

Question 16

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

SCCS supports the idea of an Annual Energy Statement which connects this strategy and the actions taken to implement it with the Climate Change Plan and the related indicators. Scrutiny of such a Statement by the Scottish Parliament would strengthen the transparency and credibility of the Scottish Government. It is important that any such Statement is jointly 'owned' across the relevant areas of Government, including energy, housing and transport.

The addition of clear timescales with milestones and indicators would significantly strengthen this Strategy. In order for industry, stakeholders, local government and the wider public to have confidence in the Strategy, these milestones and indicators must be published and the Annual Energy Statement measured against them. Such a monitoring framework should also refer to the responsible body for delivering action, as proposed in the Draft Climate Change Plan. Given the reliance on the UK and EU for the success of aspects of the Energy Strategy, such an approach would act as an early warning system if the actions hoped for from the UK and EU are not forthcoming or successful.

Very few of the actions set out in the Strategy are "SMART". This should be rectified in the final Strategy.

Monitoring should include reviews of implementation of the Strategy against energy security, fuel prices and emissions. In addition, environmental impacts of implementation should be closely monitored and reported on.

Question 17

What are you views on the proposed approach to deepening public engagement set out in Chapter 6?

SCCS supports the Scottish Government's goals of deepening public engagement, as set out in Chapter 6. In particular, we welcome the commitment in the strategy to "…combine the

mutual strengths, capacities, skills and ideas of communities, industry, and other stakeholders in shaping and delivering Scotland's future energy system [and to] embed meaningful consultation, engagement and deliberation into this strategy by using a range of tools, methods and platforms to involve people in the decisions that affect them."

We particularly welcome the Scottish Government's commitment to supporting local conversations around energy and climate change and we would urge the Scottish Government to consider what role a coproduction approach might play in embedding meaningful participation of communities in the decisions which affect them. Support for local authorities to engage with communities will be important in connecting changes to infrastructure and services with the communities affected.

It is vital that the Scottish Government does not rely solely on digital platforms for engaging communities, particularly those communities where broadband and mobile internet is slow, delayed, expensive or simply unavailable. This applies to communities of place as well as individuals who are digitally excluded because of socio-economic factors or issues relating to language or mental or physical health. We therefore support the Government's commitment to using a range of methods and platforms to involve people.

Finally, we strongly urge the Scottish Government to embed the forthcoming engagement strategy across policy areas of the Scottish Government and throughout layers of government including at a local level. Engagement, understanding of, and active participation in the considerable changes in Scotland's energy system, as set out in this strategy, will be vital in securing public support for necessary change.