



Scottish Government Draft Energy Strategy and Just Transition Plan

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About us

The Scottish Council for Development and Industry (SCDI) is Scotland's Economic and Social Forum. We are an independent and inclusive network representing all sectors and all geographies of the Scottish economy. Our mission is to convene our members, partners, and stakeholders across the private, public and third sectors to deliver inclusive and sustainable economic prosperity for Scotland.

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Chapter 1 – Introduction and Vision

1. What are your views on the vision set out for 2030 and 2045? Are there any changes you think should be made?

- There is broad support among SCDI members for the vision set out for 2030 and 2045 in the draft Energy Strategy. The key ask from them is the development of an evidence-based plan for how it will be achieved, which addresses key concerns about offering timely grid connections, speeding up planning processes, accessing skilled staff and strengthening supply chains in Scotland. This will be essential if progress towards the 2030 and 2045 net zero greenhouse gas emission targets is to be accelerated to the pace required to meet them.
- SCDI supports a net zero energy transition that maintains and strengthens a prosperous Scottish economy and a fair society. The impact of the Russian invasion of the Ukraine on the energy market has shown the critical importance of security and affordability of supply to Scotland's economy and society, and to those of Scotland's and the UK's European partners. This transition from fossil fuels to clean energy will help to deliver these outcomes in the longer-term, but, even with positive progress on this journey, the Climate Change Committee's Balanced Pathway projects that there will continue to be significant demand for oil and gas products, with demand still at 50% of the current level by 2035 and at 25% by 2050. SCDI is concerned that some of the proposals in the draft Energy Strategy for oil and gas policies would further restrict the share of this demand that can be supplied by Scotland's resources. This would increase Scotland's, the UK's and Europe's reliance on imported oil and gas, often from locations with higher production emissions and less trustworthy governments. This could also contribute to an economic shock, with a loss of £9bn in GVA per annum. Furthermore, with intensifying global competition for the energy supply chain and skills, if the world-class Scottish oil and gas supply chain is not anchored in Scotland by the availability of profitable business activity, there is high risk that it will relocate rather than wait for renewables activity to expand. This would reduce the opportunity to leverage the capacity of Scottish industry to deliver the net zero vision, a prosperous economy, and a just transition for workers and communities. On balance and at this stage, SCDI does not support these proposals on oil and gas, and recommends that the final Energy Strategy sets out a managed energy transition based on a partnership between a decarbonising existing energy system, which will form a progressively more limited share, and a growing net zero energy system. This view informs our positions on offshore renewables, oil and gas, hydrogen and CCUS.
- While economic opportunities are highlighted in the draft strategy, we recommend that the final strategy should more clearly identify economic outcomes and the relationship with the policy programmes of action from the National Strategy for Economic Transformation.

Chapter 2 – Preparing for a Just Energy Transition

2. What more can be done to deliver benefits from the transition to net zero for households and businesses across Scotland?

- Delivering the transition to net zero is fundamental to delivering the benefits for households and businesses across Scotland. There are many projects varying at stages of development but these, and their associated benefits, will not all be realised if key barriers are not removed.
- Previous examples of major industrial change indicate that whether or not the transition to net zero has delivered benefits for households and businesses across Scotland will be judged

on whether or not they have more or fewer job opportunities and are more or less prosperous. The Scottish economy should not be left behind in the global transition to net zero nor should workers and communities in Scotland be left behind in the domestic transition to net zero. This suggests a relentless focus on delivering a smooth energy transition which maintains and builds on the strengths of Scotland's energy supply chain and maximises economic benefits.

- We welcome the targets for expenditure in local supply chains in ScotWind developers' supply chain development statements. Building on these commitments through public and private investments in expanding the capacity of Scotland's ports and the supply chain would position Scotland to capture more economic benefit from offshore energy projects in the long-term. This would help people to secure, stay and succeed in higher quality, higher paying jobs, protecting and improving their living standards, and help businesses to be more profitable.

3. How can we ensure our approach to supporting community energy is inclusive and that the benefits flow to communities across Scotland?

- Community benefits flow in a range of ways and include improvements to local social, human economic, and environmental capital. This is recognised in the Scottish Government's good practice principles for community benefits. There is no one-size-fits-all approach to delivery.
- Many communities develop their own renewable energy schemes. As net zero energy technologies mature and their costs fall, and the associated network infrastructure is better able to accommodate them, the opportunities to install more local schemes will expand. Government and businesses can support them by offering advice and sharing knowledge. Some communities are currently unable to install renewables energy technologies because of the tighter planning restrictions that are present in designated conservation areas. The Scottish Government could broaden the communities across Scotland which can benefit by removing restrictions on some technologies and by granting permitted development rights.
- Shared ownership models offer communities options to make an investment in a commercially owned renewable energy project and benefit from a share of the financial returns. However, they are complex to develop and involve some financial risks. They may not be suitable for every community or for everyone in a community. By expanding the support and expert advice available to communities through the Community and Renewable Energy Scheme to meet growing demand the Scottish Government can help them to make informed decisions which are most likely to generate the benefits they need and mitigate the risks. The Scottish Government can also improve access to affordable loan funds for communities.
- Shared ownership schemes between businesses and communities are typically based on a community's proximity to a renewables development. Because some locations are more suitable for projects than others some communities have many opportunities while others have none. Some developers have started to offer shared ownership scheme opportunities to communities in projects outwith their areas, which is helping to spread the flow of benefits.
- Onshore renewables developers have positively supported the communities in which they work through community benefit programmes. These provide a lasting legacy for local communities. Communities are diverse and these programmes should be developed in partnership between businesses and communities to generate long-term improvements. SCDI supports contributions to community benefits funds by onshore and offshore developers where appropriate, although the Scottish Government should balance funding expectations with the need to ensure that Scottish projects can successfully compete in UK Contracts for

Difference auctions. Without a route to market and project delivery, neither the community benefits nor the economic, social and environmental benefits to communities can be realised.

4. What barriers, if any, do you/your organisation experience in accessing finance to deliver net zero compatible investments?

- SCDI members have made the following comments on barriers to accessing finance:
 - Investment at scale across a range of sectors is the key to the energy transition. This is needed to deploy existing technologies and develop innovative new technologies.
 - There is a wall of global private capital that could be unlocked to deliver net zero investments. Many countries are acting to maximise their share of this investment. The US Inflation Reduction Act is attracting significant investment in renewable and low carbon technologies and domestic production in the US. The EU has proposed incentives in its Green Deal Industrial Plan to counter the US. While international progress towards net zero ambitions is very welcome, competitive pressures may attract investment, supply chain capability and skills from Scotland and the UK.
 - Companies accept that they are committing finance ‘at risk’ when developing projects. The greater the uncertainties and delays around project development, the higher those risks and the more likely that they discourage financial commitments. Governments can promote investment by reducing the financial risks caused by a lack of certainty over decisions and timescales. This is a challenge currently being faced by ScotWind developers. Government, including its agencies and regulators, should act to tackle the causes and prevent them from becoming a barriers to investments. The Scottish Government should also not propose policies in the Scottish Energy Strategy which will increase uncertainties and delays in the development of energy projects.
 - Companies in a wide range of sectors can transition into delivering net zero compatible investments and they all should be able to access finance for this purpose.
- To increase the pace and scale of delivery of net zero compatible investments the final Scottish Energy Strategy should work to remove the barriers identified in answer to the next question.

5. What barriers, if any, can you foresee that would prevent you/your business/organisation from making the changes set out in this Strategy?

- SCDI members have made the following comments on barriers which need to be tackled:
 - **Consenting/Planning** – The time taken to determine planning applications continues to be a barrier to the delivery of net zero projects and associated network infrastructure, which could impact on Scotland’s interim 2030 climate change target. The new National Planning Framework 4 sets a clear national policy strategy, but it will only prove fully effective if local planning policies are aligned with its policies. There is a need to provide additional resources across the planning system and make processes more efficient. The Scottish Government, agencies and local government should pool resources to create centres of expertise where there are delays in planning and consenting or a need to share knowledge about new technologies. The aim should be reduce the time taken from application to decision to under 12 months.
 - **Grid Connections/Regulation** – One of the biggest barriers to deployment is lack of certainty that offshore and onshore grid reinforcements will be delivered when

required. In particular, offshore wind developers urgently require firm commitments to when they will achieve grid connections. Investment is also needed in distribution networks to decarbonise heat and transport. Stability, predictability and incremental change (rather than revolutionary change) in market regulation would safeguard investor and developer confidence and focus collective attention on project delivery. Transmission use of system charges (TNUoS) continue to disadvantage projects in Scotland due to higher and unpredictable costs which we hope that Ofgem's TNUoS task forces will change through its ongoing review of electricity transmission charges.

- **Skills** – Key skills shortages and gaps are affecting all sectors and could put the transition to a net zero energy system at risk. Retaining and recruiting people with the right skills is essential. There is growing competition for talent in the global energy industry and from other major infrastructure projects. Scotland and the UK need to offer job opportunities and earnings which are attractive to people with the skills required, otherwise they will look for work overseas. Training and retraining more people, including people from a more diverse range of backgrounds in STEM and other skills, is essential. Scotland's colleges and universities were expanding their provision to meet this demand, but reduced budgets from the Scottish Government led to some courses being cut this year. Our answer to Question 8 covers skills in more detail.
- **Supply Chain** – Global competition for supply chains is becoming increasingly intense, with demand outstripping supply. This is increasing costs and timescales for delivery. Commitments on investments in ports and harbour infrastructure are needed to deliver net zero compatible investments in Scotland's offshore energy industry. Scotland has a world-class and internationally active energy supply chain, but if it were to relocate to overseas markets, this would be a barrier to the delivery of net zero changes. Our answer to Question 6 covers supply chain opportunities in more detail.

6. Where do you see the greatest market and supply chain opportunities from the energy transition, both domestically and on an international scale, and how can the Scottish Government best support these?

- Scotland urgently needs to maintain and expand its industrial capacity to deliver the domestic net zero energy transition and compete successfully for clean energy export opportunities. Others will be better placed to provide detail about specific market and supply chain opportunities, but these certainly include floating wind, hydrogen and CCUS, as well as the ongoing opportunities within the renewables sector and the decarbonising oil and gas sector.
- To take advantage of these opportunities, the Scottish Government should develop a low carbon industrial strategy as part of the National Strategy for Economic Transformation, work with the sector to increase investment in the modernisation and decarbonisation of ports capacity, and support more SMEs to position their businesses for domestic and export growth.
- The Scottish Government should work with the offshore wind and oil and gas sectors to deliver the commitments that they made in their sector deals to sourcing and supporting local content. The Scottish Government and its agencies can best support supply chain growth by providing the maximum advance visibility about plans for a pipeline of projects. Scotland should aim to attract key components of the energy supply chain to Scotland and support its growth. There is the potential to grow domestic green steel, cement and polymers production.

- Scotland's oil and gas sector has very successfully been active in international markets for the last 25 years and is known as a global leader in subsea engineering. This gives Scotland a platform to grow energy transition supply chain opportunities on an international scale. This would be supported by the Scottish Government recognising that the offshore energy supply chain is integrated and there is a need to anchor its resources and skills in Scotland through opportunities in oil and gas and renewables as part of a managed transition of its capabilities.
- The UK Government is aiming to liberalise green trade, however SMEs in the supply chain report challenges in accessing the EU market following Brexit and other global markets. Following the agreement of the Windsor Framework between the UK and the EU, businesses hope that the UK Government will agree more Free Trade Agreements with other countries which increase bi-lateral trade in environmental goods and services, and form international partnerships through which supply chain businesses can demonstrate their net zero solutions.
- Scottish Enterprise and the industry should collaborate to create a clear vision for the Scottish based supply chain in a global context, especially its comparative advantages. Some of these may be technological, while others may be areas of expertise. The creation and adoption of exportable innovations is a priority which should be supported through public-private funding.

7. What more can be done to support the development of sustainable, high quality and local jobs opportunities across the breadth of Scotland as part of the energy transition?

- Sustainable, high quality and local job opportunities will be created by investment. Government should support a stable and attractive business environment for investment. Innovation, productivity and higher wages are very closely linked so that the energy transition should be a high priority for UK and Scottish Government innovation strategies and funding programmes, from blue-skies research to commercialisation. The Scottish Government should also continue to leverage its funding and licensing to secure positive outcomes for fair work.
- By increasing the visibility of new opportunities for the supply chain and increasing certainty that these will go through planning and consenting within a set and streamlined timescale, Government can boost confidence in the supply chain that making investments in technologies and training will generate financial returns in the period that businesses seek.
- There is a high level of transferability of skills between energy sectors. The Offshore Wind Sector Deal and North Sea Transition Deal both made commitments to the delivery of skills passporting. We support the development and implementation of the new Energy Skills Passport, and hope that a global agreement to launch it will be reached in the near future. A cross-sector, rather than cutthroat, approach to skills and supply chains should be promoted.
- The retention of existing high quality jobs and the development of new high quality jobs are both priorities. Indeed, premature loss of existing jobs and skills in Scotland's oil and gas industry to overseas markets will make it harder to develop new jobs in offshore renewables, hydrogen and CCUS because it will be these people who transition between the industries. There is a need to anchor highly-mobile talent in Scotland with attractive job opportunities and continue to offer education and entry points for young people across the energy sector. Previous oil price shocks have illustrated the negative impact on high quality jobs of sudden reductions in activity. This has been felt more widely than the oil and sector or the North East.

8. What further advice or support is required to help individuals of all ages and, in particular, individuals who are currently under-represented in the industry enter into or progress in green energy jobs?

- Industry is clearly committed to a range of programmes to attract and support individuals of all ages and, in particular, individuals who are currently under-represented in the industry. However, further effective action to hire and retain diverse talent is evidently an imperative.
- The ‘leaky pipeline’ is commonly used to describe girls and women become progressively more under-represented in STEM fields through successive stages of education and employment. This underlines that actions to increase diversity and inclusion of under-represented individuals should start from early ages in the schools system. SCDI Young Engineers and Science Clubs in Scotland’s primary and secondary schools have a focus on encouraging participation by children from all backgrounds and by schools in deprived areas.
- In our ‘Manifesto for Clean Growth’, SCDI recommended that all schools, colleges, universities, training providers and employers should embed core green skills and carbon literacy across curricula, professional learning and work-based learning. Children and young people, teachers and careers advisers need to understand Scotland’s energy industry and the energy transition. Schools need to be better supported to develop engaging and innovative ways for children and young people to learn how to reduce emissions on an individual, community and organisational basis, and about the opportunities to apply their skills across the energy sector.
- The industry should continue to promote diversity and inclusion in its workforce. Sector-wide initiatives, such as the North Sea Transition Deal, have a strong focus on diversity and inclusion. Larger employers can influence and support diversity and inclusion in their supply chains by including criteria in contracts, as some ScotWind developers are already planning. Employability partnerships with third sector organisations which have expertise in this area can be especially effective in recruiting more individuals from under-represented groups. Employers can also offer programmes to attract and provide workplace support to individuals.
- Employers make a very strong commitment to developing the skills their business needs by offering foundation, modern and/or graduate apprenticeships to young people. In order to help individuals of all ages to retrain or upskill and enter into green energy jobs as part of the energy transition, the Scottish Government could extend apprenticeships to older age groups. The UK Government should also amend the Apprenticeship Levy to allow paying businesses greater flexibility over how funding can be spent to support learning and skills development.
- Colleges and universities have important roles in helping individuals of all ages and backgrounds to enter into or progress in the industry. They have been increasing opportunities for young people to build green skills. However, these efforts to create the future workforce which will tackle the climate emergency and support business growth are being undermined by repeated budget cuts. Accessing skills is a priority for the energy sector and the final Energy Strategy must positively influence future allocations of funding for skills.

What further advice or support is required to help individuals of all ages and, in particular, individuals who are currently under-represented in the industry enter into or progress in green energy jobs?

Chapter 3 – Energy supply

Scaling up renewable energy

9. Should the Scottish Government set an increased ambition for offshore wind deployment in Scotland by 2030? If so, what level should the ambition be set at? Please explain your views.

- Yes. An increased ambition from the Scottish Government for offshore wind deployment is realistic based on the ScotWind offshore wind leasing round and would be useful if it stimulates coordinated actions to deliver the first tranche of ScotWind projects before 2030. This would increase supply chain confidence and raise the trajectory of deployment to 2035.
- The delivery of an increased ambition by 2030 would be challenged by key barriers with a relatively brief timeframe in which these must be tackled if more rapid deployment is to be achieved. These are the facilitation of connections to the onshore grid, the consenting process and planning system for offshore and onshore infrastructure, and the availability of skills. Furthermore, it is essential that Government policies aim to anchor the existing offshore supply chain in Scotland when there is a risk that other countries will attract the industry.
- Grid constraints are also being faced by the Innovation and Targeted Oil & Gas leasing round for offshore wind projects. Removing these would help to reduce emissions from oil and gas production and provide work for the supply chain which would ready it for ScotWind projects.

10. Should the Scottish Government set an ambition for offshore wind deployment in Scotland by 2045? If so, what level should the ambition be set at? Please explain your views.

- Yes. Industry supports the setting of an ambition by the Scottish Government for offshore wind deployment in Scotland by 2045. This ambition should be supported by a long-term roadmap developed in partnership between the Scottish Government and industry.
- The UK Offshore Wind Champion has recommended that the UK Government and Devolved Administrations should set out clear ambitions for 2035, 2040 and 2050 “to provide a clear long term policy framework for sea bed leasing and consenting decisions as well as investor confidence for developers, ports and the supply chain.” Investors need to be confident about the long-term pipeline of opportunities before they will commit to investments in Scotland. While ScotWind projects will create significant opportunities, these should be delivered by the first half of the 2030s and the supply chain requires greater visibility and certainty about the opportunities that will be available in the following years. This can be delivered by the Scottish Government also setting a target for offshore wind deployment in Scotland by 2035.
- The level of these ambitions should be set following further consultation with industry. This will need to take into account a range of ongoing UK and Scottish policy developments. The ambitions should be consistent with the Climate Change Committee’s Balanced Pathway to reach Net Zero for all greenhouse gas emissions and UK and European energy security priorities. The proposed roadmap should set out the actions that will achieve the ambition, such as the scale of future leasing rounds, the consenting process, grid connections and skills.
- Floating wind is a specific technology within offshore wind in which Scotland has leadership in development and deployment and can capitalise on supply chain opportunities. Within the overall ambitions, the Scottish Government should therefore set targets for floating wind.

11. Should the Scottish Government set an ambition for marine energy and, if so, what would be an appropriate ambition? Please explain your views.

- Scotland has large marine energy resources and is at the forefront of the global marine energy industry. Marine energy has the potential to play a role in providing predictable energy which can help to balance the more intermittent generation from wind and solar energy, and Scotland has the opportunity to develop and deploy innovative and exportable technologies. However, wave and tidal energy technologies have not progressed as previous Scottish energy strategies had forecast and the sectors need to overcome ongoing challenges before the technologies can be commercialised. It may therefore not be the right time to set an ambition for deployment and instead to set ambitions related to the solutions for these challenges.

12. What should be the priority actions for the Scottish Government and its agencies to build on the achievements to date of Scotland's wave and tidal energy sector?

- The priority actions for the Scottish Government and its agencies are to help the sectors mature their technologies and therefore reduce their costs and attract investors in commercial projects. This will involve actions to make suitable sites available which allow for a progression through phases of testing and actions to streamline consenting processes.

13. Do you agree the Scottish Government should set an ambition for solar deployment in Scotland? If so, what form should the ambition take, and what level should it be set at? Please explain your views.

- Yes. Solar energy is a mature technology which should be part of a balanced and resilient energy mix, and help to decarbonise heat and transport affordably for domestic and business consumers. There is currently a gap in the deployment of solar generation capacity between Scotland and other parts of the UK, and the UK Government is expecting a five-fold increase in solar deployment by 2035. This suggests that the Scottish Government should be ambitious. Analysis by Solar Energy Scotland has proposed an ambition to deploy 4 to 6GW by 2030. This would be helpful in informing consenting processes and would promote supply chain growth.
- These ambitions should be backed by actions to create a supportive planning regime, including permitted development rights, and to address skills gaps in partnership with industry and the skills system. The co-location of solar with sources of supply (e.g. onshore wind) and demand (e.g. agriculture or storage) can reduce grid constraints and costs, and smooth intermittency.

14. In line with the growth ambitions set out in this Strategy, how can all the renewable energy sectors above maximise the economic and social benefits flowing to local communities?

- Renewable energy sectors already have a focus on increasing the economic and social benefits flowing to local communities. Many companies contribute voluntary community benefit funding from projects to communities and build positive relationships with local communities. Developing sectors have the opportunity to learn from best practice in sectors such as onshore wind. Businesses can maximise the benefits by defining their Purpose (how they create profitable solutions to the problems of people and planet) and the long-term value they deliver for all of their stakeholders, including supporting the communities in which they work, as set out in the Business Purpose Commission for Scotland's Business Purpose Framework.
- Businesses should also assess their contributions to local communities with reference to the five principles of Community Wealth Building. This can help them to focus on how their

projects can improve local social and human capital as well as natural and economic capital. Communities are diverse and businesses must specifically engage with them on local priorities in the development phase. Our work on the rural economy has found that local infrastructure improvements, supply chains, employment and skills development are generally key long-term priorities. Government can encourage maximum economic and social benefits from projects by supporting those that demonstrate positive impacts through the planning system.

15. Our ambition for at least 5 GW of hydrogen production by 2030 and 25 GW by 2045 in Scotland demonstrates the potential for this market. Given the rapid evolution of this sector, what steps should be taken to maximise delivery of this ambition?

- We welcome the ambitions for hydrogen production set by the Scottish Government. The potential global market for hydrogen is growing as the US, EU and other countries invest in the sector as a key element of their strategies for Net Zero emissions and energy security, particularly in harder-to-electrify heavy industries and transport sectors. Scotland has infrastructure, resources and expertise that can position it at the forefront of this transition.
- The creation of a critical mass of demand in Scotland is an essential stepping stone to the development of a scalable and exportable hydrogen economy sector. The Scottish Cluster's roadmap shows includes a range of projections which, if delivered, would drive more rapid progress in both blue hydrogen (supported by CCUS) and green hydrogen in Scotland. The Scottish Government should work with industry, academia, the UK Government, regulators and local government, to develop a pipeline of projects, remove barriers and grow the market. Stimulation, adoption and diffusion of innovation, and skills development, including reskilling, through knowledge exchange between businesses and academia, are important steps to take.

16. What further government action is needed to drive the pace of renewable hydrogen development in Scotland?

- Government action has to date been targeted more on increasing hydrogen production than increasing demand. While support for production is still necessary, a greater focus is needed on stimulating the demand-side to drive the pace of hydrogen development in Scotland. This should include support for projects which match supply with demand and therefore grow both. Government should work with heavy industries and transport sectors, and with sectors such as farming in which green hydrogen will be a key to decarbonisation, to provide funding for hydrogen solutions and, where it can, support hydrogen through its own procurement.
- Planning processes have slowed the pace of hydrogen development in Scotland because most local planners are not yet familiar with applications to deploy hydrogen technologies. The Scottish Government could support local government by creating a centre of expertise on which local authorities can draw to expedite applications and increase their experience. Government should also engage with the public on the deployment of hydrogen in Scotland.
- Hydrogen storage infrastructure is essential to the development of large-scale hydrogen production. The UK and Scottish Governments should create the regulatory conditions and provide the economic incentives which will be needed to stimulate private sector investment.

17. Do you think there are any actions required from Scottish Government to support or steer the appropriate development of bioenergy?

- The development of bioenergy can contribute to Scotland’s target for net zero emissions, particularly in hard-to-decarbonise sectors such as agriculture and aviation. However, land is a finite resource which is used for a range of important purposes. Government planning policy should steer the development of bioenergy based on sustainability criteria and balanced with other priorities for land use including food production and nature restoration. Land use change associated with bioenergy is of great significance to local communities and businesses. All proposals should take into account their views from the start and deliver benefits for local communities and supply chains which improve natural, economic, social and human capital.

18. What are the key areas for consideration that the Scottish Government should take into account in the development of a Bioenergy Action Plan?

- Others will be better placed to answer this question in detail. A wide range of biomass feedstocks may be used for bioenergy and the Bioenergy Action Plan should take into account the resources that are likely to be available and whether these have utilisable value in other sectors. The Scottish Government should not incentivise the utilisation of feedstocks in bioenergy that are important to other industries, such as farming, and should support actions to protect supply, for both production and reduction of emissions in their supply chains.
- Aviation is a hard-to-decarbonise sector which is vital to Scotland’s international connectivity and the success of many sectors in the economy. Sustainable aviation fuels are expected to achieve the largest reduction in life cycle emissions from aviation in the medium term. The Bioenergy Action Plan should consider how Scotland can create a sustainable aviation fuel industry through investment in production facilities by industry supported by Government.

19. How can we identify and sustainably secure the materials required to build the necessary infrastructure to deliver the energy strategy?

- Sustainable production of materials and circular economy products are key priorities. Millions of tonnes of materials are required to build the necessary infrastructure for Net Zero emissions and at present the vast majority will be imported, much of it from more emission intensive economies via emission intensive transportation. The development of sustainable steel, concrete and polymer manufacturing in Scotland could supply more of this demand locally, generate local economic activity, and support green jobs and a just transition for workers. Government and industry should work together to establish this industrial base, including the hydrogen and CCUS infrastructure that are required to make it sustainable. The two new Scottish Green Freeports could be potential locations for investments. Cost-competitiveness with producers elsewhere in the manufacturing of these materials would need to be a priority. This would maintain the affordability of infrastructure construction and of energy prices for domestic and business consumers, as well as enable Scottish producers to diversify into export markets, on which their long-term profitability is likely to depend. The introduction of Carbon Border Adjustment Mechanisms – carbon tariffs on imports of carbon intensive products – by the EU and (potentially) the UK could encourage cleaner industrial production in Scotland which can also be exported to the EU, but manufacturing in Scotland would still need to be cost-competitive with production elsewhere in the UK and in the EU.
- The circular economy keeps materials longer in production cycles and uses them repeatedly. At present Scotland exports steel from infrastructure which has reached the end of service life, including the first generation of windfarms, for recycling in other countries. However, it can more sustainably secure the materials required to build the infrastructure for net zero through research and innovation into the use of more recycled materials in infrastructure

(including wind turbines), and into solutions for components which are harder to recycle (such as blades), and through the creation of more green steel facilities in Scotland to recycle steel. This will require funding from Government and industry into research and knowledge exchange, and investment into facilities in which the supply chain can locate and develop.

North Sea Oil and Gas

20. Should a rigorous Climate Compatibility Checkpoint (CCC) test be used as part of the process to determine whether or not to allow new oil and gas production?

- Yes. The UK Government should continue to apply the new CCC in licensing rounds.

21. If you do think a CCC test should be applied to new production, should that test be applied both to exploration and to fields already consented but not yet in production, as proposed in the strategy?

- The CCC has been designed to apply to exploration. Its application is based on whether new licenses would, if developed alongside existing and consented production, breach the Climate Change Committee's balanced pathway to Net Zero greenhouse gas emissions. The emissions from consented but not yet in production fields are therefore already taken into account by the CCC. Furthermore, regulations stipulate that these projects must be subject to an Environmental Impact Assessment before production begins, which includes compatibility with statutory Net Zero targets and the minimisation of emissions. There is no need to apply a retrospective CCC to them, which would not improve regulatory processes (which is the purpose of Scottish Government's Joint Regulation Taskforce) and would slow investment.

22. If you do not think a CCC test should be applied to new production, is this because your view is that:

- **Further production should be allowed without any restrictions from a CCC test;**
- **No further production should be allowed [please set out why];**
- **Other reasons [please provide views].**
- The extension of a CCC test to new production would need to be based on evidence that existing regulation does not apply a rigorous Net Zero assessment. However, the North Sea Transition Deal agreed in 2021 that the sector would support the development of, and rapidly implement and follow, the North Sea Transition Authority's Net-Zero Stewardship Expectation, which covers emissions reductions from both existing and new developments, through exploration and appraisal, development, production, late-life and decommissioning. This is monitored in various ways to evaluate compliance and published in performance benchmarking data, and this forms part of regulatory consenting and decision-making process. Application of a CCC test as well would be an unnecessary duplication of this process.

23. If there is to be a rigorous CCC test, what criteria would you use within such a test? In particular [but please also write in any further proposed criteria or wider considerations]

- **In the context of understanding the impact of oil and gas production in the specifically on the goals of the Paris Agreement, should a CCC test reflect –**

A) the emissions impact from the production side of oil and gas activity only;

B) the emissions impact associated with both the production and consumption aspects of oil and gas activity (i.e. also cover the global emissions associated with the use of oil and gas, even if the

fossil fuel is produced in the Scottish North Sea but exported so that use occurs in another country)
– as proposed in the Strategy;

C) some other position [please describe].

- Should a CCC test take account of energy security of the rest of the UK or European partners as well as Scotland? If so, what factors would you include in the assessment, for example should this include the cost of alternative energy supplies?
 - Should a CCC test assess the proposed project's innovation and decarbonisation plans to encourage a reduction in emissions from the extraction and production of oil and gas?
 - In carrying out a CCC test, should oil be assessed separately to gas?
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- As currently designed, the CCC tests the emissions impact from the production side of oil and gas. This is within the control of the oil and gas industry in the UK Continental Shelf. The use of oil and gas in another country is controlled by demand-side measures that are not within the control of government or industry in this country. Applying a CCC test to emissions generated outwith Scotland and the UK would not reduce global demand for oil and gas. If production in the UK Continental Shelf fell as a result, other countries would meet their demand needs from alternative suppliers. OPEC+ regularly reduces production, but this does not fundamentally change market demand. These alternative suppliers would be likely to produce oil and gas more carbon-intensively than the UK, resulting in a net increase in global emissions. It would also be very complex to test the emissions impact associated with consumption in other countries, especially as these countries may not measure emissions. The CCC should, therefore, continue to test the production side of oil and gas activity only.
 - The energy security of the rest of the UK and European partners, and innovation and decarbonisation plans to encourage a reduction in emissions from the extraction and production, are both critically important policy objectives. However, the purpose of the CCC is to test the compatibility of production with the Climate Change Committee's Balanced Pathway to reach Net Zero for all greenhouse gas emissions. This assessment informs the UK Government's decisions alongside its assessment of UK and European security of supply considerations. Meanwhile, decarbonisation plans are part of regulatory processes for the licensing and development of oil and gas projects. The inclusion of these policy objectives in the CCC would fundamentally change its purpose and design, which would seem unnecessary given that these criteria are already covered within the wider decision-making framework.
 - A separate assessment of oil and gas in a CCC test would be problematic because exploration activity may discover either or both, with more than half of the assets operating in the UK Continental Shelf at present producing both and uncertainties around long-term recovery.

24. As part of decisions on any new production, do you think that an assessment should be made on whether a project demonstrates clear economic and social benefit to Scotland? If so, how should economic and social benefit be determined?

- Government should assess the economic and social benefit to Scotland and the UK of a project, based on the outcomes agreed in the North Sea Transition Deal, in its decision-making on production. Companies should commission independent analysis of projects to support this assessment. However, this does not need to be incorporated into the CCC, which can continue to test compatibility with the Balanced Pathway to reach Net Zero emissions.

25. Should there be a presumption against new exploration for oil and gas?

- No. We do not support a presumption against new exploration for oil and gas at this stage of the energy transition. The Climate Change Committee's Balanced Pathway to reach Net Zero for all greenhouse gas emissions projects that there will continue to be significant demand for oil and gas, with demand declining to 50% of the current level by 2035 and to 25% by 2050.
- Around half of UK demand for gas is met through domestic supplies at present. The oil and gas industry has forecast that a presumption against new exploration for oil and gas could reduce overall production by up to 15% per year by 2030, leading to UK production falling to less than 80% of the current level. This would mean that a far larger share of UK demand would be supplied by oil and gas imports. As emissions from oil and gas production on the UK Continental Shelf are lower than the global average, it is likely that higher production elsewhere to meet the UK's ongoing needs would result in a net increase in global emissions.
- While some of these imports will be from reliable, democratic partners, some imports would be from countries with unreliable, authoritarian regimes with poor human rights records. As the Russia-Ukraine war has demonstrated, greater dependency on oil and gas imports from these countries may present a geopolitical risk to security of supply and buttress their regimes.
- Oil and gas production on the UK Continental Shelf contributes to security of supply for European partners as the EU works to diversify oil and gas supply routes as well as diversify energy sources. Norway continues to offer opportunities for new exploration for oil and gas.
- There is a high level of global demand for the skills and assets in the UK Continental Shelf. A presumption against new exploration for oil and gas which accelerates the decline in production would, at this stage, be more likely to result in their transference to oil and gas production elsewhere, rather than into clean energy production in the UK in which, even should projects progress as rapidly as hoped, it will take years before supply chain activity approaches that of oil and gas. Fast-tracking the ongoing decline in oil and gas production would cut the significant upstream and downstream GVA and jobs generated by the industry.
- Countries such as Saudi Arabia and (as stimulated by the incentives in its Inflation Reduction Act) the US are attracting more of the global oil and gas, renewables, CCUS and hydrogen supply chains. The loss of investment, skills and assets from the UK Continental Shelf would hinder Scotland's aspirations to be a global leader in development of offshore wind, CCUS and hydrogen. This would not represent a just transition for the Scotland's economy and workers. Offshoring of both emissions and economic activity has been a feature of industrial change in Scotland in recent decades, with the economy and affected communities weaker as a result. The energy transition that is essential will be more successful and more just with the industry anchored in Scotland and able to invest across oil and gas and renewables opportunities.
- The new Climate Compatibility Checkpoints test whether or not new exploration for oil and gas is consistent with the UK's pathway to reach net zero for all greenhouse gas emissions. This should at this stage provide a more evidence-based approach rather than a blanket ban.

26. If you do think there should be a presumption against new exploration, are there any exceptional circumstances under which you consider that exploration could be permitted?

- SCDI does not believe that there should currently be a presumption against new exploration.

Chapter 4 Energy demand

Heat in Buildings

27. What further government action is needed to drive energy efficiency and zero emissions heat deployment across Scotland?

- The planned Heat in Buildings Bill and Public Engagement Strategy for Heat in Buildings will need to accelerate and expand delivery of energy efficiency and zero emissions heat deployment, particularly for people and organisations in socially deprived or remote and rural areas. There is a need to ensure that funding programmes are accessible and responsive to needs, and that gaps in the available support are identified and addressed when possible. As electric heating and mobility both require place-based solutions and will impact on electricity distribution networks, there should be joined-up local planning for them. The Scottish Government has previously stated that it did not want to set targets for energy efficiency and zero emissions heat that were beyond the scale-up capacity of the Scottish-based supply chain. It should assess whether progress is consistent with the achievement of Scotland's net zero and interim climate change targets, and, if not, work with industry to tackle the obstacles.
- SCDI Chief Executive Sara Thiam is co-chairing the Scottish Government's Green Heat Finance Taskforce. This is developing a portfolio of innovative financial solutions for building owners in Scotland. It will publish its interim findings shortly and its final recommendations later this year. SCDI has helped to facilitate engagement with the non-domestic property sector. The challenges in the non-domestic sector are even more complex than in the domestic sector due to the wider variety of buildings, uses, legal structures and relationships between owners, managers and occupiers. The sector is under pressure due to changes in the property market following the COVID-19 pandemic and rising costs following the Russian invasion of the Ukraine. There are uncertainties over who pays and how returns on investment can be achieved. The challenges are acute for retrofitting existing properties which are below the top of the market and often occupied by SMEs. Owners have no incentives to invest because their tenants cannot afford to pay more rent nor can SMEs afford to fund retrofitting. While Government does offer useful funding pots, money for energy efficiency can be separate to money for zero emissions heat when a multi-faceted approach would build a stronger case.

Energy for transport

28. What changes to the energy system, if any, will be required to decarbonise transport?

- The energy system will have to facilitate the transition to electric road vehicles (EVs). The Climate Change Committee's latest assessment of Scotland's progress highlighted that plans to decarbonise transport are falling behind other parts of the UK, with sales of electric cars now behind those in England, despite Scotland's greater ambition to decarbonise transport. Charging infrastructure will need to be available across the country and Scottish Government intervention will be necessary to ensure that this includes areas where the market alone will not provide it. As electric heating and mobility both require place-based solutions and will impact on electricity distribution networks, there should be joined-up local planning for them.
- The final Energy Strategy should include more information on the Scottish Government's actions in relation to freight transport, both to support modal shift and decarbonisation.

29. If further investment in the energy system is required to make the changes needed to support decarbonising the transport system in Scotland, how should this be paid for?

- Others will be better placed to answer this question. SCDI supports national road user charging to replace Vehicle Excise Duty and fuel duty as the transport system is decarbonising in order to fund the maintenance and development of road and transport infrastructure.

30. What can the Scottish Government do to increase the sustainable domestic production and use of low carbon fuels across all modes of transport?

- The draft Energy Strategy sets out actions. Others will be better placed to say what else it can do in detail. As previously stated, aviation is a hard-to-decarbonise sector which is vital to Scotland's international connectivity and the success of many sectors in the economy. Sustainable aviation fuels are expected to achieve the largest reduction in life cycle emissions from aviation in the medium term. The Bioenergy Action Plan should consider how Scotland can create a sustainable aviation fuel industry through investment in production facilities by industry supported by Government. The Scottish Government should also fund colleges and universities to train and retrain people for the job opportunities that will be created in the sustainable domestic production of low carbon fuels across all modes of transport in Scotland.

31. What changes, if any, do you think should be made to the current regulations and processes to help make it easier for organisations to install charging infrastructure and hydrogen/low carbon fuel refuelling infrastructure?

- Recent changes to permitted development rights and to building regulations for new buildings and major renovations to deliver EV charging infrastructure are welcome. Their impact should be closely monitored and further changes should be made if the need for them is identified.

32. What action can the Scottish Government take to ensure that the transition to a net zero transport system supports those least able to pay?

- The Scottish Government should continue to take action to improve access to active travel and affordable, low carbon public transport. Any new fiscal levers which are introduced by the Scottish Government and local government to help reduce car kilometres by 20% by 2030 should be designed in ways which do not make it more expensive for those least able to pay to access employment and services, especially where there are no alternative travel options.
- The Scottish Government, local government and industry should work together on business models to install public EV charging infrastructure in areas of social deprivation where the market is not delivering it to stimulate take-up of EVs and the creation of a market in which there is an increasingly strong case for commercial investment to provide for further growth.
- SCDI has been developing a follow-up report from our Rural Commission in consultation with its members and other rural stakeholders. These discussions have highlighted that a lack of access to inexpensive and reliable public charging infrastructure continues to be a major concern for many. Actions to expand coverage are required to 'rural-proof' EV infrastructure.
- With Transport Scotland's Mobility-as-a-Service (MaaS) Investment Fund programme nearing an end, the Scottish Government and industry should review options to further develop MaaS.

33. What role, if any, is there for communities and community energy in contributing to the delivery of the transport transition to net zero and, what action can the Scottish Government take to support this activity?

- Others will be better placed to answer this question.

34. Electric vehicle batteries typically still have around 80% of their capacity when they need replacing and can be used for other applications, for example they can be used as a clean alternative to diesel generators. What, if anything, could be done to increase the reuse of these batteries in the energy system?

- Others will be better placed to answer this question.

Energy for agriculture

35. What are the key actions you would like to see the Scottish Government take in the next 5 years to support the agricultural sector to decarbonise energy use?

- Others will be better placed to answer this question in detail. In general terms, the Scottish Government should take actions which support the agriculture sector – the key supplier of the wider Scottish food and drink sector – to generate and utilise more clean energy. This will help the sector to avoid some of the impacts from energy price increases and to meet the growing market demand for low carbon produce. Farm energy solutions can also support the challenges of energy decarbonisation and affordability in their local rural communities. The Scottish Government should work with the sector, Distribution Network Operators and rural communities and businesses to develop the necessary local infrastructures and partnerships.
- The actions in the Scottish Energy Strategy to support the agricultural sector to decarbonise should be joined-up with and supported by actions across related strategies, including the planned Agriculture Bill and the Just Transition Plan for Agriculture and Land Use, and policies to expand agroforestry, silvopasture, hedgerows, energy crops and a circular waste streams. These actions should include targeted funding and incentives for projects, changes in planning policies and regulations, and accessible expert advice and skills development for farmers. A key priority is decarbonising farm machinery and vehicles through investments in on farm green fuel production, static and mobile equipment, and storage, required for these solutions.

Energy for Industry

36. What are the key actions you would like to see the Scottish Government take in the next 5 years to support the development of CCUS in Scotland?

- A range of energy and climate organisations, including the International Energy Agency and the UK Climate Change Committee, have produced long-term outlooks for energy and net zero greenhouse gas emissions that rely on the expansion of CCUS. The Scottish Government should therefore continue to provide strong support for the development of CCUS in Scotland.
- The UK Government has responsibility for key actions, particularly whether Project Acorn, which is critical to the Scottish cluster, will be funded through the Track-2 process to establish two new CCUS clusters in the UK. The UK Government will also lead negotiations with the EU to remove the regulatory barriers to importing and storing CO₂ from mainland Europe in the UK. The Scottish Government should continue to inform and influence progress in these areas.

- The Scottish Government should take actions which anchor and develop the supply chain and skills for CCUS in Scotland. This is essential for a managed, prosperous and just energy transition. It should also work with the Scottish Cluster and hard-to-decarbonise industries in Scotland to improve the business case for large-scale commercial CCUS projects in Scotland.

37. How can the Scottish Government and industry best work together to remove emissions from industry in Scotland?

- CCUS is a vital part of decarbonisation and it should have a complementary role to play alongside clean electrification and green hydrogen. The Scottish Government and industry should also work together to scale-up green hydrogen solutions where these become viable.

38. What are the opportunities and challenges to CCUS deployment in Scotland?

- Aberdeen is a global energy hub with the supply chain and skills that can develop a successful CCUS sector, Grangemouth is a large industrial cluster which needs to be decarbonised, and Scotland has extensive gas transport infrastructure and a large capacity for storing carbon in the North Sea. However, there are larger industrial clusters in England and more accessible CO₂ storage capacity in the southern North Sea which is closer to these clusters and to Europe. There is now a global race to deploy CCUS and there is a risk that if the oil and gas supply chain and skills are not anchored in Scotland that one of Scotland's key advantages will disappear.

39. Given Scotland's key CCUS resources, Scotland has the potential to work towards being at the centre of a European hub for the importation and storage of CO₂ from Europe. What are your views on this?

- We agree that Scotland can be at the centre of a European hub. Countries in Europe, including Denmark and Norway, are accelerating plans to apply CCUS technologies and develop CCUS markets, as are the USA (with further support in the Inflation Reduction Act) and other countries. There is therefore growing global competition for CCUS investment and skills. While the launch of the Track 2 cluster process by the UK Government and the confirmation of the Acorn Project as a 'leading contender' were welcome, this should be concluded quickly. There are also regulatory barriers to importing and storing CO₂ from Europe in the UK which the UK Government and EU will need to remove for Scotland to be at the centre of a European hub.

Chapter 5: Creating the conditions for a net zero energy system

40. What additional action could the Scottish Government or UK Government take to support security of supply in a net zero energy system?

- We have set out key actions for Governments to create the conditions for a net zero energy system in response to previous questions, including fast-tracking of consenting and planning, and certainty over onshore and offshore grid reinforcement work for offshore wind projects in Scottish waters. Others will be better placed to provide more detail of additional actions.
- The UK Government is reviewing all non-retail electricity markets to enable the transition to a decarbonised power sector by 2035 and a Net Zero emissions economy by 2050. While this is necessary, disruptive changes may risk investor confidence and a hiatus in investment. Incremental changes can improve outcomes, while offering stability and clarity for investors. The introduction of locational pricing would be a significant threat to investments in Scotland.

- Following reviews of the market, the UK Government should act to increase regional security of supply in Scotland and elsewhere in the UK by delivering market mechanisms and incentives which support and accelerate private investments in dispatchable electricity generation, smart grid technologies and energy storage (including Pumped Storage Hydro) in Scotland. Anticipatory investments should be permitted based on a longer-term view of consumer impacts. The Scottish Government should facilitate the co-location and operation of technologies to deliver the transition to a secure net zero energy system in an efficient way.

41. What other actions should the Scottish Government (or others) undertake to ensure our energy system is resilient to the impacts of climate change?

- Others will be better placed to answer this question. As electricity grid is decarbonised, renewable generators will increasingly need to have the capacity to provide services to balance of energy supply and demand which were supplied by flexible thermal power plants. National Grid is supporting projects which will provide wind turbines and battery energy storage systems which supply more stability to the power grid in Scotland, but these will not be enough for the full system, and a new market mechanism will be required for this purpose.

Chapter 6: Route map to 2045

42. Are there any changes you would make to the approach set out in this route map?

- The route map should include analysis of how the actions will deliver the vision.

43. What, if any, additional action could be taken to deliver the vision and ensure Scotland captures maximum social, economic and environmental benefits from the transition?

- The Scottish Government should ensure that Scotland is a competitive and attractive location for purposeful businesses and people who are driven by finding profitable solutions to the problems of people and planet, and by delivering positive outcomes for all their stakeholders. Anchoring these businesses and people in Scotland will create the jobs, wages, taxes and emissions reductions that are essential to sustainable economic growth and a Just Transition.

Impact assessment questions

44. Could any of the proposals set out in this strategy unfairly discriminate against any person in Scotland who shares a protected characteristic? These include: age, disability, sex, gender reassignment, pregnancy and maternity, race, sexual orientation, religion or belief.

- Others will be better placed to answer this question.

45. Could any of the proposals set out in this strategy have an adverse impact on children's rights and wellbeing?

- Others will be better placed to answer this question.

46. Is there any further action that we, or other organisations (please specify), can take to protect those on lower incomes or at risk of fuel poverty from any negative cost impact as a result of the net zero transition?

- Domestic customers are at present protected to an extent from higher energy costs by the Energy Price Guarantee, which has been extended until the end of June. It is the right time for Governments, Ofgem, energy retailers, not-for-profit organisations and consumer groups to develop long-term, cost-effective solutions which protect people on lower incomes or at risk of fuel poverty. This should include consideration of arrangements such as a social tariff.

47. Is there further action we can take to ensure the strategy best supports the development of more opportunities for young people?

- In SCDI's Manifesto for Clean Growth, it was proposed that the Scottish Government should coordinate a voluntary, inclusive and accessible 'National Service for Net Zero' programme of employment and volunteering opportunities across the public, private and third sectors. This would be voluntary, open to all and offer Fair Work. There would be a mix of potential opportunities, including work-based learning (e.g. at a local repair café), short-term work (e.g. on a wildlife or nature conservation project) and long-term work (e.g. peatland restoration or buildings retrofit), with a Green Skills Passport to validate skills learned for employability.

Just Transition energy outcomes

48. What are your views on the approach we have set out to monitor and evaluate the Strategy and Plan?

- The approach to implementation should be flexible and adaptable. The Russian invasion of Ukraine has shown the potential for disruptions in the global and domestic energy markets. Key clean energy technologies are not yet mature and the achievement of net zero emissions is likely to require R&D and commercialisation of promising but not yet proven next-generation technologies. UK Government and EU energy strategies, which have a major influence on the energy market in Scotland, may change as governments adopt different policies. The Scottish Energy Advisory Board was established by the Scottish Government in 2009 to provide a forum for strategic discussion on the current and future energy challenges and opportunities for Scotland, and been co-chaired by the First Minister. It is supposed to meet four times a year, but the last meeting for which minutes were published was in January 2022. The draft Energy Strategy does not set out its proposed role in monitoring and evaluating the Strategy and Plan. The final strategy should set out how the strategy would be flexed and adapted in response to new developments, and how stakeholders will be involved.

49. What are your views on the draft Just Transition outcomes for the Energy Strategy and Just Transition Plan?

- The inclusion of Just Transition outcomes in the Energy Strategy and Just Transition Plan is welcome. The proposed outcomes could include the ambition for Scotland to play a positive role in a Just Transition in the UK, Europe and internationally by developing and exporting profitable solutions for people and planet, and helping to inform other countries' Just Transition Plans. It might also state that the current energy market disadvantages some communities and businesses (e.g. in rural areas) and a Just Transition should close this gap.
- The Scottish Government proposes to develop Just Transition Plans for a range of sectors. It will be important that their outcomes co-owned by Governments, industries and workers. The early development of corporate just transition strategies in the energy sector is a positive step and the sector should share its learnings with other sectors starting to develop their thinking.

50. Do you have any views on appropriate indicators and relevant data sources to measure progress towards, and success of, these outcomes?

- Progress towards, and success of, Just Transition outcomes is a new area which will be difficult to measure because the range of factors which impact on social fairness and inclusivity. Scotland's work on a Just Transition so far is internationally recognised and it can work with international economic and labour organisations, governments, academics, and trade unions to help develop standard indicators for all stakeholders to monitor and measure progress.