

BUSINESS AND ENERGY

Analysis of Consultation Responses for the Draft Energy Strategy and Just Transition Plan

August 2023

This is an independent analysis by Alma Economics commissioned by the Scottish Government.

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About the authors



Alma Economics combines unparalleled analytical expertise with the ability to communicate complex ideas clearly.

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Table of contents

Table of contents	3
Executive summary	4
Introduction	9
Background and context to the consultation.....	9
Consultation format and structure	9
About this report	10
Methodology	11
Data processing	11
Approach to analysis of open-format questions	11
Key findings	13
Profile of respondents.....	13
Overarching themes	16
Chapter 1: Introduction and vision	18
Chapter 2: Preparing for a Just Energy Transition	21
Chapter 3: Energy supply	30
Chapter 4: Energy demand.....	66
Chapter 5: Creating the conditions for a net zero energy system	83
Chapter 6: Route map to 2045	87
Impact assessment questions	90
Just Transition energy outcomes.....	95
Strategic Environmental Assessment	100
Summary of non-standard responses	104
Summary of campaign responses	107
Appendix 1 – consultation questions	111
Appendix 2 – detailed response statistics	115

Executive summary

Between January 2023 and May 2023 the Scottish Government held a public consultation relating to their draft Energy Strategy and Just Transition Plan, providing an opportunity for communities, workers, citizens and businesses to engage in the process of designing Scotland's energy transition. Alma Economics was commissioned by the Scottish Government to analyse and report on the main themes emerging from the consultation responses.

The consultation included 58 open-format questions with free-text fields, and there was no limit to the amount of text which respondents could write in their answers. In total, 1,598 responses to the consultation were received. All responses to the open-text questions were read in full by our team of researchers, with thematic analysis of each response being conducted to capture the main opinions expressed by respondents in overarching themes as well as to understand the reasoning behind answers. Themes were summarised in order of their prevalence as measured by the frequency of respondents raising each theme.

Overarching themes

Several themes were frequently repeated across multiple elements of the draft Energy Strategy and Just Transition Plan. Respondents commonly highlighted the need to implement the strategy in a way which fairly spreads the benefits and costs of decarbonisation across society. Many respondents highlighted the need for a supportive policy environment directed by all layers of government (including the UK Government, Scottish Government and local authorities) to overcome challenges and barriers to decarbonisation. These respondents often emphasised the key role government can play in equipping Scotland's workforce with the necessary skills to implement the proposed plan.

Other overarching themes raised by respondents included the important role of upskilling and training the workforce in facilitating the energy transition, suggested alterations to the mix of technologies required to deliver the Scottish Government's decarbonisation ambitions (for which there was no general consensus), the need to mitigate the potential adverse impacts of the plan on Scotland's environment and landscapes, calls for more detail particularly around how the vision will be implemented, and both praise and concerns around the level of ambition of the plan in terms of its scale and the nature of the outlined goals.

Chapter 1: Introduction and vision

Respondents made a broad range of comments and suggestions relating to the Scottish Government's visions for 2030 and 2045. Respondents most commonly offered general support for the Scottish Government's vision, particularly with respect to its scale, the nature of the outlined goals, and the opportunities it would generate for Scotland's population.

Many respondents suggested changes to aspects of the vision, including calls for more detail and clarity particularly on how the vision would be implemented, monitored, and evaluated. There were also calls for more ambition in the scale of the stated objectives

with respect to decarbonisation and the timeframes for delivering them, and suggestions for a different mix of technologies to achieve the Scottish Government's decarbonisation ambitions. Respondents also highlighted the need to outline how any negative socio-economic and environmental impacts resulting from implementation of the vision would be mitigated.

Chapter 2: Preparing for a Just Energy Transition

Respondents were asked for their views on various aspects of preparing for a just energy transition.

Respondents commonly raised the need for a supportive policy environment for a just energy transition. The need for increased financial support was frequently suggested by respondents in relation to multiple issues, including supporting take-up of low-carbon technologies by households and businesses, funding community energy projects, and funding training and skills initiatives to provide the skills necessary to deliver the plan. It was also argued that skilled workers in the oil and gas sector should be supported in their transition to employment in other energy sectors, with some emphasising the need for a focus on transferable skills between sectors.

Respondents also commonly asked for more detail and clarity on the expected role of the public and businesses in the just energy transition – for example, with regards to training and skills. Other respondents requested more transparency surrounding the policies proposed, including the rationale behind their implementation.

Chapter 3: Energy supply

Respondents were asked for their views on the Scottish Government's plans for future energy supply, covering a range of topics including scaling up renewable energy, and North Sea oil and gas.

Scaling up renewable energy

Many respondents also took the opportunity to voice support or concern for aspects of the proposed future renewable energy mix – including onshore and offshore wind, marine, wave and tidal, solar, and hydrogen – although there was generally no clear consensus on what the future energy mix should look like.

Many respondents advocated for a supportive policy environment to drive investment in renewable energy supply – with specific suggestions including setting target ambitions, investing in skills, investing in research and development, and making the consenting process for new projects quicker and less onerous. It was viewed that such measures would create a more investor-friendly environment that would drive investment. Some respondents advocated for community ownership of renewable energy assets, allowing communities to share in the benefits of local assets. Other respondents highlighted the need to mitigate the adverse environmental impacts of renewable energy generation.

North Sea oil and gas

Respondents were generally divided in their views on the role North Sea oil and gas should play in the future energy transition, with some respondents advocating for at least some role for future exploration and new production, whilst others argued for no future role for oil and gas exploration and production. The most common reasons for arguing that oil and gas should play a role in the future energy transition were its value to the Scottish economy, its role in a stable and secure energy system, and its alternative usage for production of derivative products, including plastics and chemicals. Respondents against new oil and gas production typically were of the view that it is incompatible with the net zero ambitions outlined in the plan.

Chapter 4: Energy demand

Respondents were asked for their views on the Scottish Government's plans for managing future energy demand, covering a range of topics including heat in buildings, energy for transport, energy for agriculture and energy for industry.

Heat in buildings

Respondents most commonly raised the need for a supportive policy environment to incentivise the uptake of energy efficiency measures and zero emissions heat technologies by households and businesses. It was argued by some respondents that these upgrades often require significant up-front costs, and as such financial assistance could be required to ensure these costs do not have a disproportionately negative impact on low-income households. Some respondents also highlighted the need for coordinated large-scale action and information and awareness campaigns.

Energy for transport

Access to electric vehicle infrastructure, such as charging stations, was viewed as critical for increased uptake of electric vehicles, whilst improvements to access to and the reliability of public transport and infrastructure for active transport were seen as important for improving the viability of alternatives to carbon-intensive transport modes.

Respondents often emphasised the need for a supportive policy environment to stimulate demand for low-carbon transport modes, disincentivise the use of carbon-intensive transport modes, and minimise the cost of transition to low-carbon transport for vulnerable groups.

Energy for agriculture

The key elements of demand reduction raised by respondents related to the transition to low-carbon energy sources, reducing reliance on fertilisers, and the decarbonisation of heavy machinery. Respondents typically highlighted the need for the Scottish Government to support farmers in their transition, both financially and through the provision of advice.

Energy for industry

In this section respondents provided suggestions for how demand for energy by Scottish industry could be reduced. The responses to these questions were largely dominated by discussion of the role of carbon capture, usage and storage (CCUS), with respondents generally quite divided on the role the technology should play in decarbonising industry. Individual respondents largely advocated against CCUS, whilst organisation respondents, especially from the energy and power sectors, more commonly supported CCUS. Respondents often mentioned limitations of CCUS such as the lack of support from the public and government, a lack of evidence that it works at scale, and the high costs associated with the technology. Some respondents conversely highlighted the comparative advantage that Scotland has in this area due to its large storage capacity in the North Sea, and existing infrastructure and transferable skills from the oil and gas sector.

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

Respondents were asked for their views on the necessary conditions required to deliver a net zero energy system which is resilient and supports security of supply.

Respondents frequently highlighted the importance of increased investment in infrastructure to ensure security of supply. More specifically, they saw an urgent need for investment in the grid for transmission and distribution of energy, and in storage technologies to ensure that demand fluctuations can be absorbed.

Respondents also frequently noted the need for a stable and supportive policy environment to guarantee continued investment in energy technologies. Another common opinion was that Scotland should focus on meeting its own demand first and only start exporting energy if there is a surplus. Connected to this, some respondents wanted to see Scotland rely less on imports from abroad to achieve security of supply.

Some respondents highlighted the need for the energy mix to be highly diversified and not rely on specific technologies to support security of supply. Some respondents provided contrasting opinions on whether the energy mix should include nuclear energy and on the role of fossil fuels in the future energy system.

Chapter 6: Route map to 2045

Respondents were asked to provide their views on the Scottish Government's proposed route map to decarbonisation by 2045.

The most frequent suggestion provided by respondents was for the Scottish Government to provide more detail and clarity on the route map. This included requests for a comprehensive report on how the outlined targets would be achieved and additional information on targets, dates, and the costs of delivering aspects of the route map.

There were also various opinions on what constitutes the perfect energy mix, with some respondents highlighting the need to include fossil fuels and nuclear energy, and others arguing against the use of any energy technology that is not completely green, including CCUS and hydrogen.

Respondents also commonly proposed greater consultation on the route map with key stakeholders, including local authorities and local communities, involved in the discussion. Many respondents were concerned that the transition could lead to an increase in existing inequalities and therefore requested that the Scottish Government pay attention to mitigating negative impacts on vulnerable groups within society.

Impact assessment questions

Respondents were asked to provide their views on the draft Energy Strategy and Just Transition Plan's impact on equality across individuals sharing protected characteristics, children's and young peoples' rights and wellbeing, and those on lower incomes and at risk of fuel poverty.

Many respondents highlighted the opportunities the plan presents for groups sharing protected characteristics, including potential new employment opportunities in green industries. Aspects of the strategy which risk negatively impacting these groups were also identified by respondents, such as negative health and wellbeing impacts associated with new infrastructure and the disproportionately high cost of household energy efficiency solutions for low-income households.

Respondents commonly advocated for the role of government intervention to enhance the positive impact of the proposals and mitigate risk for these groups, including reforms to the education system to foster the skills necessary for green employment, and financial support to encourage uptake of energy efficiency improvements by low-income households. Some respondents also called for further consultation with groups sharing protected characteristics to ensure their views and concerns are considered, whilst others called for an equality impact assessment to identify potential risks and issues.

Just Transition Plan energy outcomes

Respondents were asked for their views on the approach to monitoring and evaluation set out in the draft Energy Strategy and Just Transition Plan, including which outcomes should be measured and how. Many respondents broadly agreed with the Scottish Government's proposed monitoring and evaluation approach, although most also provided suggestions for aspects which could be improved. Frequent comments included recommendations for more detail on the monitoring and evaluation approach and outcomes being measured, suggestions for linking the proposed outcomes more directly to actions within the plan, and proposals for monitoring a wider range of environmental and socio-economic outcomes and indicators.

Strategic Environmental Assessment

These questions asked respondents for their views on the draft Strategic Environmental Assessment. The most prevalent overarching theme in responses was the need to consider a wide range of factors when measuring the success of the draft Energy Strategy and Just Transition Plan, particularly impacts relating to Scotland's natural environment and landscapes, and socio-economic impacts – especially those related to local communities.

Introduction

Background and context to the consultation

The draft Energy Strategy and Just Transition Plan sets out the Scottish Government's vision for Scotland's energy system to 2045 and a route map of ambitions and actions that, coupled with detailed sectoral plans and the forthcoming Climate Change Plan, will guide decision-making and policy support over the course of this decade.

The consultation on the draft Energy Strategy and Just Transition Plan provided an opportunity for the general public to engage in the process of designing Scotland's energy transition. In consulting on this draft vision and route map, the Scottish Government aimed to:

- seek views on its vision and the actions they are taking to transition to an affordable, resilient and clean energy system.
- understand how they can secure the maximum social and economic benefits from the energy transition for Scotland.

Consultation format and structure

The Scottish Government's consultation on its draft Energy Strategy and Just Transition Plan was hosted on the Scottish Government's Citizen Space portal and consisted of 58 questions. The Scottish Government also accepted responses provided via email or post. The consultation opened on 10 January 2023 and closed on 9 May 2023, with 1,598 responses to the consultation being received in total. Questions were organised under the following thematic chapters:

- Chapter 1: Introduction and vision
- Chapter 2: Preparing for a Just Energy Transition
- Chapter 3: Energy supply
- Chapter 4: Energy demand
- Chapter 5: Creating the conditions for a net zero energy system
- Chapter 6: Route map to 2045
- Impact assessment questions
- Just Transition energy outcomes
- Strategic Environmental Assessment

Respondents were advised that they did not have to answer all questions, with respondents being welcome to respond only to the questions and sections of the report that are relevant to them. A full list of the consultation questions mapped to each thematic chapter heading is summarised in Appendix 1.

About this report

This report has been prepared by Alma Economics on behalf of the Scottish Government and provides an independent analysis of responses to the public consultation on the draft Energy Strategy and Just Transition Plan.

Methodology

Data processing

At the start of the consultation analysis, the responses extracted from the Citizen Space portal, as well as the responses provided by email that mirrored the format of the consultation questionnaire, were merged into a single dataset using Python. All responses were treated equally regardless of how they were submitted. During the manual review of responses, the research team screened for those that were clearly intended as offensive, abusive or explicitly vulgar, with no responses being removed as a result of this screening.

The consultation responses were also screened to identify duplicate responses or campaigns organised by external groups or individual coordinated responses to the consultation. As part of this process we identified 1,233 near identical responses relating to a single organised campaign. To avoid the thematic analysis being dominated by the views put forward by one specific campaign, the close or exact duplicate responses associated with this organised campaign have been summarised in a standalone section of the report and are then counted only once within the rankings of themes presented in the question-by-question summary.

The consultation also received responses by email or post which did not follow the prescribed question format and did not always refer to specific recommendations. Given that some of these responses could not be directly mapped to specific consultation questions or recommendations, the insights raised have been summarised and reported on separately in a sub-chapter of this report. In some cases, due to the non-standard nature of these responses, some may not be accurately reflected in the breakdowns of the totals in the quantitative analysis. Nonetheless, the themes raised in the non-standard responses are reflected in the executive summary and summary of overarching themes.

Approach to analysis of open-format questions

The consultation included 58 open-format questions with free-text fields, and there was no limit to the amount of text which respondents could write in their answers. All responses to the open-text questions were read in full by our team of researchers, with thematic analysis of each response being conducted to capture the main opinions expressed by respondents in overarching themes as well as to understand the reasoning behind answers. All themes identified were fed into a comprehensive Excel-based codebook of themes, with regular project team meetings being used to ensure themes were defined consistently across researchers. This codebook was then used to identify the most frequent themes raised for each question, with the most prevalent themes summarised in this report.

Responses to the consultation differed in depth and approach, and while many responses included evidence to back up opinions, other responses primarily expressed preferences, concerns or expectations without further analysis. Our approach to handling these differences involved:

- Capturing the main idea regardless of whether it was expressed as a personal view or if evidence was provided to sustain the argument.
- Including every response in the analysis, reading beyond grammar or spelling mistakes and capturing the main idea regardless of difficulty in distilling the information.

Supplementary quotes from respondents have been used in the report to support many of the highlighted themes and views raised in response to the questions in this consultation. The quotes used are generally intended to be representative of themes or views raised by multiple respondents, unless otherwise stated. Quotes have only been attributed to specific segments where respondents have given express permission to publicly share the quote.

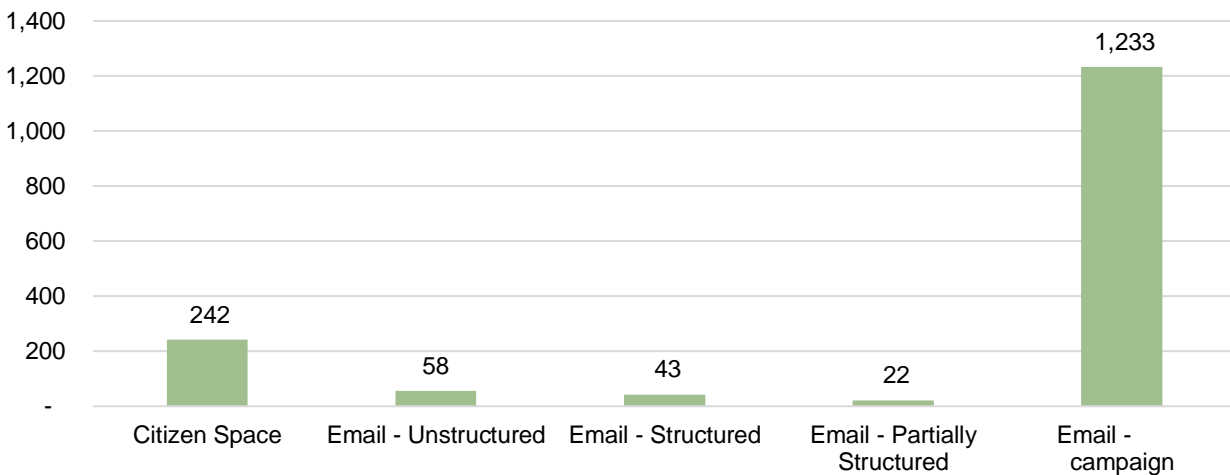
Key findings

Profile of respondents

Response type and source

A breakdown of the type and source of consultation responses is summarised in the chart below.

Number of respondents by response type and source



Responses to the consultation were received through two sources:

- 242 responses received through the online consultation platform Citizen Space.
- 1,356 responses submitted to the Scottish Government by email.

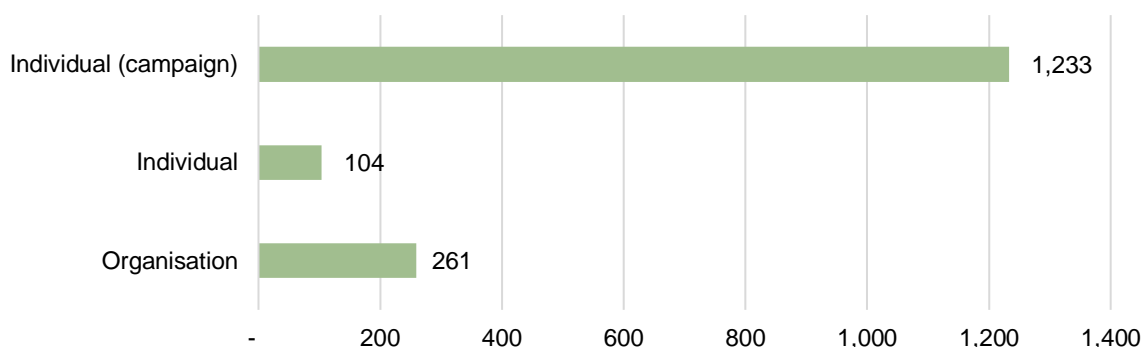
The consultation received three broad categories of response:

- 307 structured responses which referred to the format of the consultation questionnaire, of which 242 were submitted through Citizen Space and 65 submitted via email (of which 43 were fully structured according to the consultation questionnaire and 22 partially structured with an element of unstructured).
- 58 unstructured responses which did not refer to the format of the consultation questionnaire.
- 1,233 near identical campaign responses submitted through email relating to an organised campaign.

Individuals versus organisations

Of the 365 non-campaign responses, 261 (71%) were submitted by individuals responding on behalf of organisations, whilst 104 (29%) were submitted in an individual capacity. A further 1,233 responses were submitted by individuals as part of an organised campaign response.

Number of respondents by individual or organisation



Respondents by organisation type

A summary of the number of non-campaign responses submitted by organisation type is summarised in the table below, with the three most prevalent organisation types being energy services (85), advice, advocacy, or campaigning (56), and professional or representative body (39).

Responses by organisation type

Respondent type	Frequency
Individual	104
Energy services	85
Advice, advocacy, or campaigning	56
Professional or representative body	39
Property and housing	24
Academic, think tank or consultant	22
Local authority	14
Training and skills organisations	12
Community group	7
Not specified	2
Total	365

Note: The segments above are defined as follows:

- Energy services - All companies involved in the extraction, generation, distribution, transmission, and supply/retail of energy (including energy industry trade bodies).
- Advice, advocacy, or campaigning – organisations which advise, advocate, or campaign on behalf of consumers and residents (e.g., registered charities, consumer advice organisations, environmental campaign groups).

- Professional or representative body – other businesses and representative bodies (i.e., non-energy or property-related businesses and trade bodies).
- Property and housing organisations – property and housing companies and representative bodies.
- Academic, think tank, or consultants.
- Local authority – Scottish local authorities.
- Training and skills organisations.
- Community groups – organisations representing the interests of specific Scottish communities (e.g., community councils).

Responses by consultation question

The number of responses by consultation question for all structured responses is summarised in Appendix 2, with significant variation observed in the response rate depending on the question being answered. A detailed summary of frequency of responses by respondent segment is also included in Appendix 2.

Overarching themes

This section summarises the most prevalent overarching themes that were reflected across responses to multiple consultation questions.

Fairness of implementation

One overarching theme regardless of the question was the view that the plan needs to be implemented in a way which spreads its benefits and costs fairly across society. Many respondents highlighted the need for proposals to be adapted to the needs of local communities, many of which are remote or rural, given specific challenges they face with regards to the energy transition. These respondents also highlighted the need for the plan to maximise benefits and minimise costs for low-income households and individuals with protected characteristics. Some respondents throughout the consultation called for greater engagement with the aforementioned groups to ensure the plan is implemented in a fair way.

Role of a supportive policy environment

Respondents commonly highlighted the many barriers and challenges to achieving the decarbonisation ambitions included within the plan, and the role all levels of government can play in overcoming these. Specific barriers and challenges raised often related to facilitating the development of the necessary infrastructure, increasing uptake of low-carbon solutions, and reducing the usage of carbon-intensive technologies. More specifically, respondents commonly highlighted challenges such as a limited availability of finance (relating to both green energy infrastructure and demand-led decarbonisation solutions), unaffordability by households, insufficient skills, and limited information and awareness. Respondents commonly provided suggestions for addressing these challenges, including the provision of direct subsidies, market-based incentive mechanisms (e.g., taxation), regulation, creating an investor-friendly environment, and providing information and raising awareness relating to low-carbon solutions.

Skills and training

Related to the previous theme, many respondents highlighted the need for government and industry to work together to invest in the required skills capacity to implement the proposals included in the plan. It was acknowledged by many that the proposals included in the plan will result in shifts in the skills demanded by industry, such as a shift in the skills required to support the oil and gas industry to those required to construct and operate renewable energy infrastructure. It was viewed that the Scottish Government has a role to play in supporting the upskilling of the workforce involved in delivering the plan's net zero ambition, including through support for education and training programmes targeted toward addressing skills gaps in emerging areas.

Suggestions for the future energy mix

Respondents provided a wide range of suggestions for how Scotland's mix of energy sources should evolve, often calling for more or less emphasis on certain technologies in this mix. These suggestions primarily related to the future roles of oil and gas, renewable energy sources, CCUS, and energy storage within Scotland's energy

system. For many technologies there was no clear consensus on whether the emphasis should be greater or smaller, with the criteria used by respondents to critique technologies including technical feasibility, cost, environmental impact, socio-economic impact, and other attributes such as resilience and security of supply.

Mitigating the impacts of the plan on Scotland's environment and landscapes

Many respondents highlighted the need for the plan to be implemented in a way which mitigates any negative impacts on Scotland's environment and landscapes. These respondents commonly highlighted risks relating to the development of new energy and other infrastructure, and potential adverse impacts on Scotland's land-based and marine ecosystems. It was commonly suggested that the negative impacts resulting from new clean energy infrastructure could disproportionately affect Scotland's remote and rural communities, given their proximity to, and thus increased reliance on, specific ecosystems.

Calls for a more detailed delivery plan

Many respondents called for more detail on the plan, whether this related to specific detail on the plan's aims and objectives, how it would be implemented, how adverse impacts would be mitigated, or how the success and progress of the plan would be monitored and evaluated. Some respondents called for the Scottish Government to consult with communities and other stakeholder groups when determining how to implement the plan.

Comments on the ambition level of the plan

Respondents frequently commented on the general ambition levels of the plan, in terms of the scale and framing of its vision and objectives. Respondents most frequently welcomed the outlined ambitions included in the plan, often praising the scale of the objectives. However, some respondents called for the plan to be more ambitious in the timeframes and scale of its objectives, with many of these respondents citing the urgency of mitigating climate change and calling for either shorter timeframes or more ambitious objectives for decarbonisation. Other respondents called for a less ambitious plan, citing negative environmental and socio-economic impacts associated with delivery of elements of the plan (particularly with reference to the delivery of new green energy infrastructure).

Chapter 1: Introduction and vision

Q1. What are your views on the vision set out for 2030 and 2045? Are there any changes you think should be made?

259 respondents provided responses to this question.

The most prominent theme raised by respondents to this question was general support for the Scottish Government's visions for 2030 and 2045. The aspect of the plan which was most frequently referenced for praise was its ambition, particularly with respect to its scale, the nature of the outlined goals, and the opportunities it would generate for the Scottish population. This theme was also often coupled with critiques of the vision and suggestions for changes that should be made (the most common criticisms of the vision are summarised as a separate theme below).

“The vision set out by the Scottish government for the coming decades is ambitious and reflects the criticality of driving forward net-zero and climate-conscious targets, across the breadth of the energy sector and beyond.”
(Organisation – Training and skills)

“Net zero is a huge opportunity for economic growth and local energy employment. The vision that has been set out for 2030 and 2045 is ambitious, but if successful, will deliver maximum benefits for the community, environment and businesses throughout Scotland. The focus on delivering the government's net zero ambitions through a just transition will increase the communities well-being and overall economy, ensuring no one is left behind on the path to net zero.” (Organisation – Energy services)

The next most prevalent theme was suggestions for the role of specific technologies in the energy transition, to ensure energy supply can be met as part of the vision. Respondents commonly argued for either a larger or lesser role for a range of technologies within the vision without arriving at a clear consensus. Specific technologies referenced in relation to this theme (in no particular order) included hydrogen, biomass, solar, geothermal, nuclear, anaerobic digestion, CCUS, energy storage, and both onshore and offshore wind.

The next most commonly raised theme was criticisms around aspects of the plan being vague or requiring more detail. The most common critique provided by respondents raising this theme was a lack of detail around how the vision would be actioned and implemented. Respondents raising this theme also commonly called for more clarity on the specific goals of the vision as well as details on how progress and success would be monitored and evaluated. Some respondents suggested that interim targets were needed to ensure the 2045 target remained on track.

“There should be at least one more additional date with interim targets between 2030 and 2045. [...] an interim target would be more indicative of how to bridge the gap and at what rate.” (Organisation – Local authority)

Within this theme, some respondents also made specific suggestions around the wording included within the vision. The most commonly suggested wording change was to elaborate on the meaning of “this will deliver maximum benefit for Scotland”, on

the basis that this can be interpreted differently by different stakeholders, potentially leading to conflicting objectives. Several respondents suggested this phrase should be amended to “we will maximise benefit to Scotland”, on the basis that projects should be required to demonstrate how they have maximised benefit to Scotland.

“we highlight the start of the second sentence “this will deliver maximum benefit for Scotland...” is likely to prove problematic from a policy-making perspective. Under the current wording, what constitutes maximum benefit will likely be interpreted very differently by different stakeholders. The current wording risks undermining progress as processes such as consenting will become mired in contentious arguments over whether the maximum benefit has been achieved [...]”. (Organisation – Energy services)

The next most prominent theme was suggestions that the vision should be more ambitious, with these respondents often citing negative consequences resulting from not mitigating climate change urgently enough. The most commonly offered suggestion for more ambition was for condensed timeframes for achieving the Scottish Government’s net zero ambitions. The second most commonly provided suggestion for more ambition was the need to deliver greater action within the proposed timeframes, particularly with respect to the level of carbon abatement. Some respondents also suggested a more ambitious role for the public sector in supporting the plan.

“Whilst we welcome the Scottish government’s focus on 2030 within the ESJTP, their overall target to be a net-zero nation by 2045 is too late for an internationally just transition and for avoiding catastrophic climate breakdown.” (Organisation – Academic, think tank or consultant)

The next most commonly raised theme was that the vision should have a greater emphasis on mitigating the negative impacts of the strategy whilst ensuring an equitable distribution of the benefits. Respondents raising this theme most commonly highlighted the need to ensure the vision was implemented in a fair way which maximises its impact on the wellbeing of residents. This was most commonly raised with reference to the impact on communities, where it was regarded as necessary to mitigate the adverse impacts of elements of the vision, including the negative impacts of new clean energy infrastructure development on local biodiversity and the welfare of local residents. Some respondents also argued that measures could be taken to maximise the benefits flowing to communities when implementing the vision, for example through community ownership of clean energy assets.

“Overall, we support the vision as detailed in the strategy. However, we would stress that affordable energy can mean different things for different households and their circumstances. It is important therefore to consider equity in relation to the affordability of an essential service such as energy and we would urge that the final strategy reflects this.” (Organisation – Advice, advocacy, or campaigning)

“[...] Although the visions set out for 2030 and 2045 reflect commendably bold emission reduction ambitions for Scotland, a more pressing and immediate energy concern amongst many island communities is fuel poverty. With high and rising energy costs compounding challenges facing

many island households and all kinds of local businesses, some SIF members are keen that the potential for enhanced resilience, prosperity and wellbeing of island communities should be anticipated by 2030, as a direct consequence of strategic investment in renewable generation schemes as appropriate to particular island situations [...].” (Organisation – Community group)

Respondents raising this theme also commonly highlighted that the vision should place a greater emphasis on mitigating its impact on Scotland’s biodiversity and landscapes, given the potentially adverse impacts of aspects of the vision, particularly resulting from the construction of new clean energy infrastructure.

“Generally support, although there are some concerns regarding the likely trade-off between the delivery of increased renewables infrastructure as per national policy, and the environment, namely landscape and visual impacts, as well as potential detrimental impacts on soil function and health [...].” (Organisation – Local authority)

Respondents raising the above theme also commonly emphasised the need to provide more clarity on the specific targets being monitored and how these would be evaluated.

Chapter 2: Preparing for a Just Energy Transition

Q2. What more can be done to deliver benefits from the transition to net zero for households and businesses across Scotland? Please give us your views.

This question was answered by 211 respondents.

The most frequently raised theme across respondents was the view that more financial support would be required for households and businesses. Given the transition to net zero was typically viewed to require substantial investment from both households and businesses, these respondents typically argued that the Scottish Government should provide increased financial support to ease their transition to low-carbon alternatives. Grants were commonly raised as a means for achieving this.

“More funding that doesn't result in additional direct costs for households. Even putting the current cost crisis aside, the current part grant/part loan system keeps transition completely unaffordable to most households”.
(Individual)

“The lack of funding for energy efficiency improvements for the private rented sector and agricultural properties is an issue in the current climate of rent control and, to protect supply, grants, as opposed to loans, should be made available”. (Organisation – Property and housing)

The next most frequently raised theme was the view that the benefits from the net zero transition can be realised through the increased development of renewable energy in order for households to gain from cheaper and more sustainable energy. Respondents raising this theme typically argued that the Scottish Government should support the development of local renewable energy projects, including solar and wind, alongside developing new technologies including carbon capture. This was often argued in tandem with the view that this should be accompanied with clear information surrounding the technologies available to reduce energy consumption.

“By increasing access to renewable energy, households and businesses can benefit from cleaner, more affordable energy. The Scottish Government can continue to support the development of renewable energy projects, such as wind and solar, and explore new technologies, such as hydrogen and carbon capture. More straightforward explanations of the various technology options available to reduce household heat energy would boost public confidence and understanding”. (Organisation – Professional or representative body)

The third most frequently raised theme across respondents was the view that there should be more clarity and transparency surrounding the policies and targets required to reach net zero. This view was also often held by respondents that answered for organisations, particularly within the energy and power sectors. It was generally argued that there should be greater clarification on what is expected from the public and businesses, alongside clearer explanations of the policies and the rationale behind them. Participants focused on a range of examples, including asking for general clarification on the use of the term “just transition” and requesting for more granular explanations of why the transition is required within the proposed timelines. Some

respondents then turned to more specific examples, requesting further information on funding and certain objectives, including expanding access to affordable, clean energy. Regarding the latter, it was argued that a common understanding of what this means in practice was needed to ensure policies and investments achieve this aim and enable progress to be measured.

“Many consumers do not know what the most effective actions are to reduce our emissions and environmental impacts or appreciate the scale of change that will be needed to reach net zero or adapt to climate change, even where people can identify the most impactful actions.” (Organisation – Advice, advocacy, or campaigning)

“Greater transparency around the route maps and timelines for delivering net zero targets and initiatives will be vital in optimising the economic, social and environmental impacts of the transition”. (Organisation – Professional or representative body)

Q3. How can we ensure our approach to supporting community energy is inclusive and that the benefits flow to communities across Scotland? Please give us your views.

This question was answered by 182 respondents.

The most frequently raised theme across respondents was the view that this could be ensured through increased support and guidance. Whilst respondents generally appreciated the existence of schemes, such as CARES and Local Energy Scotland, it was often argued that these schemes did not go far enough in providing technical and financial support for community energy projects, and were less accessible for rural, remote rural and island communities. Based on this, it was suggested that the Scottish Government should ensure that “hard-to-reach” communities are provided with support for considering community energy opportunities and in implementing community energy projects based on local needs and wants.¹ This was viewed as including access to clear information, training and capacity-building programmes.

“It is also important that people/communities have access to additional support to learn more about how to go about setting up community energy projects. Energy academy could be used as a source of inspiration on how to facilitate local ownership of renewable energy investments and ensure benefits flow to communities [...]”. (Organisation – Local authority)

The next most frequently raised theme was the view that greater inclusivity could be achieved through a greater emphasis on collaboration between relevant stakeholder groups, including community groups and local authorities. Some respondents, including individuals identifying as local residents, indicated that they did not feel included in the decision-making process for new energy projects, arguing that communities should be more involved in decision-making, particularly given they directly bear any adverse consequences of such projects.

¹ Respondents did not generally provide a clear definition of “hard-to-reach”.

“Workforces and communities at the centre of discussions on a just transition need to be made to feel part of decision-making and processes that will have disruptive consequences for them before these changes begin.” (Individual)

“We would like to see a stronger emphasis on ensuring that those who are not currently engaged in climate issues, and those who are likely to be most affected by climate change and policy decisions around it, are supported to be involved. Often, it is those communities who aren’t heard that are disproportionately impacted on by policy decisions”. (Organisation – Community group)

The third most frequently raised theme across respondents was the view that the financial barriers to implementing community energy projects could be tackled through increased access to long-term funding. These respondents typically argued that in contrast to current short-term funding arrangements, a stable and supportive long-term grant and loan system would help communities realise the benefits of community energy projects.² This was often viewed as particularly crucial for remote or low-income communities.

“Funding has become increasingly short-term and rushed which undermines progress, innovation, and long-term planning, and often places smaller groups at a disadvantage.” (Organisation – Community group)

“Practically, there must be support put in place that allows people with low incomes to engage with and reap the benefits of shared ownership schemes without the need for initial spend such as buying shares in a community owned windfarm. People living on low incomes already struggle to afford essentials like food, housing, and transport, any other cost barrier will prevent engagement and be inequitable”. (Organisation – Advice, advocacy, or campaigning)

Q4. What barriers, if any, do you/your organisation experience in accessing finance to deliver net zero compatible investments? Please give us your views.

This question was answered by 149 respondents.

The most frequently raised theme across respondents to this question was the view that there were little or no funding sources available to finance certain net zero compatible investments. Examples of investments that respondents found challenging to finance included for net zero private homes and hydrogen infrastructure, as argued in the quotes below.

“In many cases, such finance simply does not exist in any meaningful or sustainable way. Funded pots of grant money are too small and too fragmented and almost always exist in a shifting landscape that means that

² Respondents did not generally provide a definition of short-term or long-term.

even if one project is funded, a subsequent project must apply to different funds to compensate for those that have since closed”. (Organisation – Energy services)

“There is virtually no funding available to stimulate the hydrogen economy in Scotland. there is no appropriate amount of money for production, storage and refuelling infrastructure or vehicles, meaning neither fuel or vehicles are available at scale to end users. This means that absolutely no confidence is being created, either on the supply or demand side, to drive the hydrogen economy.” (Organisation – Energy services)

The next most frequently raised theme was the view that there were pressing planning policy barriers in the short and long-term. In the short-term, it was argued by some respondents that more supportive policy frameworks must be developed, for example, with reference to planning systems that would subsequently encourage investments. In the long-term, respondents argued that stable policy frameworks must be developed in order to attract and maintain access to finance for large-scale infrastructure projects. This theme was mostly raised by respondents that answered for organisations in the energy and power sectors.

“However, many of the barriers faced by the solar sector are non-financial. Policy barriers, such as restrictions on the scope of permitted development rights (PDR) mean that the planning system often acts as a disincentive for building owners wishing to install solar panels, limiting their ability to control their energy costs and their ability to decarbonise their energy use, in the process.” (Organisation – Energy services)

“In order to unlock this investment, supportive policy and market frameworks must be developed by government which will give investors’ the confidence to invest in the UK energy system and wider economy. Ensuring supportive policy and frameworks are required due to uncertain and fluctuating revenue streams for large project.” (Organisation – Energy services)

The third most frequently raised theme amongst respondents was the existence of administrative barriers when securing finance. This was mostly raised by local authorities and predominantly discussed with regards to timescales for completing funding applications, with respondents arguing that the application windows were often too short to complete all the necessary administrative work required for the application. Some respondents suggested that application windows should be replaced by a continuous open application process.

“We are also of the view that timescales for external grant funding applications can be prohibitive, and the funding landscape could be streamlined to reduce complexity and widen the scope of eligible projects.” (Organisation – Local authority)

“However, it can also be difficult to keep up to date with all funds such that opportunity can be maximised. windows of opportunity can often be very limited, with little chance to undertake all the necessary pre-requisite feasibility, procurement work etc.” (Organisation – Local authority)

Q5. What barriers, if any, can you foresee that would prevent you/your business/organisation from making the changes set out in this Strategy?

This question was answered by 146 respondents.

The most frequently cited barrier across respondents was the absence of clear, supportive policies for enabling the changes set out in the Strategy. Respondents commonly argued that there was a need for greater coordination between policymakers, such as between local authorities and the Scottish Government. It was therefore argued that a holistic whole-system approach would ensure the interdependencies between different sectors were captured when implementing the Strategy. This view was mostly argued by respondents working for energy and power organisations.

“Policy inertia and inadvertent conflicts between policies should be seen as a potential barrier for organisations partly publicly funded, that are supporting the transition. If the just transition policy is out of step with other policy and regulation it can act as a drag on the change necessary to support the just transition”. (Organisation – Professional or representative body)

The next most frequently cited barrier across respondents was the likelihood of skills gaps when implementing the Strategy. These respondents typically argued that there was an industry-wide shortage of individuals with the needed expertise to implement changes set out in the strategy, which could act to delay the Strategy’s implementation. Some respondents suggested working with industry to identify existing capabilities and any skills gaps, as well as co-designing and delivering new relevant training programmes.

“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 [...]”. (Organisation – Professional or representative body)

The third most frequently mentioned barrier was limitations in infrastructure. These respondents, often working for energy and power organisations, typically argued that the infrastructure needed for the implementation of the Strategy was either absent or outdated. This was argued with reference to both large-scale (e.g., the electricity grid, interconnection) and small-scale (e.g., smart meter) infrastructure.

“Interconnector capacity and other relevant infrastructure which is currently lacking will also prevent Scotland as whole, let alone business and communities, from achieving the vision of this strategy. on a smaller, yet also significant scale, smart meters are not universally available to households and businesses across Scotland with many rural and island places struggling to get appointments with providers to install one. Providers

argue that telecom networks do not support the meters or else, they argue they do not have enough installer.” (Organisation – Community group)

Q6. 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? Please give us your views.

This question was answered by 183 respondents.

The most frequently raised theme across respondents was that the energy transition represents a significant opportunity for Scottish industry and supply chains. It was argued that the energy transition will provide companies across Scotland with opportunities to benefit from involvement in the manufacturing, installation, and maintenance of various components needed to deliver the necessary infrastructure to implement the plan, including renewable energy systems. Some respondents argued that local manufacturing of components for renewable energy systems, including for wind and solar energy generation, would yield benefits such as reduced global carbon emissions and increasing Scotland’s security of supply.

“In my opinion the greatest market and supply chain opportunities for Scotland in the energy transition, is in the manufacture of electrical power equipment for the wind and marine renewables sector - electrical generators, power converters, transformers, switchgear, and cabling. there are a number of companies providing servicing and refurb activities for electrical motors and generators, e.g. Quartzelec, TDC Parsons Peebles, Sulzer, that could scale-up to supply the market rather than provide a repair service.” (Individual)

The next most frequently raised theme across respondents was the view that Scotland’s skilled workforce would present opportunities for the domestic market and supply chains. Respondents typically argued that it was possible to use Scotland’s existing skills base to support the domestic energy transition, whilst simultaneously supporting other countries with their respective transitions to lower carbon economies.

“Despite current shortfalls, the Scottish skills development landscape is well placed to deliver the local resource needed during the operations phase and innovation bodies such as the ore catapult are rightly focussed on opportunities for new technologies to support UK companies here.” (Organisation – Energy services)

“Internationally countries worldwide are looking to transition to a low-carbon economy, and Scottish companies can provide solutions and services to support these transitions. There are significant opportunities for Scottish companies to export their expertise and technologies in low-carbon energy production and storage.” (Organisation – Professional or representative body)

The next most frequently raised theme across respondents was the view that development of offshore wind technologies would provide significant market and

supply chain opportunities. These respondents, often representing organisations in the energy and power sectors, highlighted Scotland's competitive advantage in this area and resulting opportunities for local markets and supply chains involved in the manufacture of components.

“There is clearly a massive floating offshore wind opportunity for Scotland to capitalise upon. This is particularly the case for the north east of Scotland – combining both the ScotWind and INTOG licenses almost 17gw of floating wind projects are within 100 nautical miles of Aberdeen accounting for 73% of all such projects in Scottish waters. Given this region is home to a significant proportion of the world's subsea engineering capability, this is a sector it has a natural competitive advantage to become global leaders”. (Organisation – Energy services)

“Existing capabilities that are relevant for the new floating offshore wind industry includes design and manufacture of mooring and anchoring systems, and dynamic cable systems”. (Organisation – Energy services)

Q7. What more can be done to support the development of sustainable, high quality and local job opportunities across the breadth of Scotland as part of the energy transition? Please give us your views.

This question was answered by 201 respondents.

The most frequently raised theme across respondents was the view that the Scottish Government should have a role in facilitating the training of future cohorts of workers. Respondents raising this theme typically argued that further financial support should be given to education providers, from primary level to further education. In particular, respondents mentioned there should be an emphasis on continued investment in STEM subjects in schools, vocational training in fields such as electrical and mechanical engineering, and in support of Scotland's academic institutions. It was argued that this would help ensure that there is a sufficient supply of skilled educational professionals to teach appropriate courses.

“Upskilling existing workforce is mentioned however there is a lack of detail on plans to attract new people into this area of work. What can be done to support early engagement in schools and colleges, for example science, technology, engineering, and maths (stem) focused hubs which can support practical hands-on learning and encourage our young people with an exciting new prospect for a variety of career opportunities that are required for net zero to be realised in Scotland by 2045.” (Organisation – Local authority)

The next most frequently raised theme amongst respondents was the view that skilled workers in the oil and gas sector should be supported in their transition to employment in other energy sectors. This was generally viewed by respondents as key to ensuring the large skilled workforce employed in these sectors is able to adapt to take advantage of new opportunities in the green economy. In the long-term, respondents often argued that training and skills development initiatives should develop transferable skills to avoid potential gaps in future employment by enabling individuals to transfer between sectors.

“With an anticipated drop (but not disappearance) in reliance on oil and gas, many workers are expected to leave conventional oil and gas roles over the next decade. However, there will be opportunities for these workers to transition into fruitful careers in the low carbon economy.” (Organisation – Training and skills)

“As industries shift and new markets open up through advances in material science and technologies, it will be increasingly important that workers have transferable skills, like adaptability, to enable them to move between industries as industries evolve with the transition.” (Organisation – Advice, advocacy, or campaigning)

The third most frequently raised theme was the view that more information was required on the exact details of the scheme that seeks to address employment and skills as part of the energy transition. Some respondents specifically argued that more clarification was required on the definitions of “green jobs”, as well as further detail provided on which businesses should upskill staff and how.

“Greater clarity is required to support employers to understand what and where green jobs are, how businesses can diversify and expand, and how they can access practical and financial support to do so – including upskilling staff and taking on new employees.” (Organisation – Local authority)

Other prevalent themes raised by respondents included that manufacturing should remain local in order to generate jobs, alongside considerations of the geographical distribution of training facilities. Related to the latter, it was argued that there was a lack of training facilities in remote rural and island areas compared to the density of facilities in more central areas of Scotland.

Q8. 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? Please give us your views.

This question was answered by 153 respondents.

The most frequently raised theme amongst respondents to this question was the view that there should be changes within the education system at both primary and secondary level. These respondents typically suggested that the government should bolster education at an early stage, with a focus on increasing children’s knowledge of climate change, green energy, and the transition to net zero. Some respondents were of the view that financial investment in STEM education will be vital to providing the skills required for jobs in the green energy sector. Some respondents viewed this as particularly important for upskilling young girls, who are frequently under-represented in STEM fields.

“Continued and broad investment into stem education is critical to building talent pipelines required for green energy jobs. This includes government and private investment. Past research on science capital has shown that the decision on whether science subjects are “for them” is determined at an

early age, and this continues to leave many pathways towards green jobs closed off for people.” (Organisation – Energy services)

“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.” (Organisation – Professional or representative body)

The next most frequently raised theme amongst respondents was the view that there should be changes within the higher education system to support under-represented groups to access green jobs. These respondents commonly suggested that there should be focused financial support for relevant courses at university level and apprenticeships for all ages. Some respondents further argued that specialised programmes and scholarships should be developed that target under-represented groups.

“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.” (Organisation – Professional or representative body)

“Develop specialised programs and scholarships targeting under-represented groups to encourage participation in low-carbon industries like plumbing.” (Organisation – Professional or representative body)

The third most frequently raised theme amongst respondents was the view that there should be increased outreach and measures to increase awareness of green jobs amongst under-represented groups. These respondents commonly suggested that more campaigns and events should be organised to raise awareness surrounding employment opportunities in the green energy industry for these groups. Targeted outreach schemes aimed at under-represented groups or those with transferable skills were highlighted by some respondents as a way to achieve this.

“Organise campaigns and events to increase awareness about green energy jobs, targeting schools, colleges, and community centres. Showcase success stories of under-represented individuals who have positively impacted the industry. More work is required to explain the transition spectrum, the many assets and facets of the transition, how it makes a difference to our society (personal, local and global) and the options open to all people from all backgrounds and educational attainment levels.” (Organisation – Professional or representative body)

Chapter 3: Energy supply

Scaling up renewable energy

Q9. 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.

The question was answered by 156 respondents.

The most commonly raised theme across respondents was general agreement that the Scottish Government should set an increased ambition for offshore wind deployment in Scotland by 2030. In explaining why they support the increased ambition, these respondents typically highlighted that fact that what the offshore wind sector can deliver today already exceeds current targets. Many respondents also stated their preference for offshore over onshore wind as a reason, mentioning both the higher efficiency of offshore wind farms due to larger turbines and steadier winds, as well as the view that onshore wind farms are visually intrusive. The majority of respondents refrained from giving specific targets for what the ambition should be, although specific suggestions were primarily in the range of 15-20GW, compared with the current ambition of 8-11GW mentioned in the plan.

“2030 targets are significantly lower than offshore can deliver. No further onshore proposals should be considered and only offshore developments approved. [...]” (Individual)

“Setting more ambitious targets would send a powerful signal to supply chain, regulators, industry and investors that the Scottish Government is backing offshore wind development. We would see an ambition of 20gw of offshore wind capacity by 2030 as a realistic target.” (Organisation – Energy services)

The second most commonly raised theme was concern with how the ambition for offshore wind could be delivered. These respondents most often mentioned concerns with the inadequacy of existing infrastructure and skills, and the lack of a supportive policy environment. These concerns were mainly held by respondents representing organisations, especially from the energy and power sectors.

“[...] 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. [...]” (Organisation – Professional or representative body)

The third most commonly raised theme was concern about potential adverse effects of offshore wind projects on the natural environment, especially marine ecosystems. Respondents raising this theme generally argued that the impact on the environment of more ambitious targets for offshore wind should be considered when deciding whether to proceed. Concerns about the potentially negative impacts on the environment were mainly presented by individuals, environmental organisations, and local authorities.

“Offshore wind deployment should not be rushed if it might have a negative impact on marine biodiversity, and a reliance on global supply chains which will also have a negative impact on the environment. All activities relating to offshore wind deployment should go through rigorous environmental assessments to establish whether this is best way to harness natural energy, and the level of ambition/target dates should be decided based on when this can be implemented effectively. [...]” (Organisation – Local authority)

Q10. 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.

The question was answered by 140 respondents.

The types and prevalence of themes raised by respondents were very similar to those raised for the previous question, with many respondents repeating their previous response.

The most commonly raised theme by respondents was general agreement with the idea of setting an ambition for offshore wind deployment in Scotland by 2045. These respondents typically argued that this would support investment in the sector by providing confidence to investors. The majority of respondents did not suggest a specific level of ambition for offshore wind by 2045, respondents who did answer suggested targets for offshore wind deployment ranging from 25-200GW.

“[...] Setting a Scottish Government ambition for offshore wind deployment by 2045 would serve to provide a greater degree of industry certainty regarding the role of offshore wind in meeting Scotland’s net zero commitments. This would in turn provide greater certainty of a sustained pipeline of work for Scotland’s offshore wind supply chain. [...] renewable energy deployment targets are useful for communicating government policy intent to businesses and can help to stimulate interest in investment within a sector.” (Organisation – Professional or representative body)

The second most commonly raised theme across respondents was concern about the Scottish Government’s ability to deliver on the current ambition for offshore wind by 2045. These respondents were typically of the view that additional investment into the necessary infrastructure and a more supportive policy environment were required to reach current ambitions.

“[...] we generally support longer term targets and ambitions, but the right levers must be in place to deliver them, and industry must be assured that these will be delivered. To reiterate, these levers include grid capacity, supply chain capacity, skills availability and planning processes in place that keep up with the pace of the industry. [...]” (Organisation – Energy services)

The next most commonly raised theme was the view that the Scottish Government should consider environmental impacts when deciding on where to set the ambition for offshore wind by 2045.

“Any increased ambition should fully recognise and mitigate the impacts to habitats and species whether formally designated and legally protected or not. [...]” (Organisation – Local authority)

Q11. Should the Scottish Government set an ambition for marine energy and, if so, what would be an appropriate ambition? Please explain your views.

The question was answered by 134 respondents.

Similar to the two previous questions, the most prevalent theme raised by respondents to this question was agreement with the proposal to set an ambition for marine energy. Respondents most commonly suggested that a set ambition would increase investor confidence and thus encourage investment in marine energy. Many respondents emphasised the advantage of the predictability of tidal energy compared to wind, supporting the case for greater ambition. Some respondents also argued that the transition presents an opportunity for Scotland to become a market leader in marine energy due to its geographical characteristics such as its long and convoluted coastlines. While the majority of respondents refrained from proposing a specific level of ambition for marine energy capacity, multiple respondents suggested targets of 40MW by 2027, 200MW by 2030 and 700MW by 2035.

“[...] Marine energy has a critical role to play in our future energy system and security of supply. Ambitious medium and long-term targets will cement industry and investor confidence. They will drive the sector globally whilst ensuring Scotland’s important tidal and wave energy resource is accessed in a sustainable manner. [...]” (Organisation - Property and housing)

“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. [...]” (Organisation – Professional or representative body)

The second most prevalent theme raised by respondents to this question was concern about the environmental impact of marine energy, with respondents raising this theme typically supporting the ambition for marine energy but only if adverse environmental impacts can be mitigated. Again, these concerns were mainly held by individuals, environmental organisations and local authorities.

“If marine energy can generate true clean energy without impacting the ocean ecosystem and coastal communities or need supporting infrastructure which means massive substations and lines 400kv pylons throughout the North East to move it elsewhere then yes.” (Individual)

The third most prevalent theme was that more research needs to be done into the benefits and costs of marine energy, given its relative infancy as an energy source. Some respondents felt that more investigation was required before an appropriate ambition could be set, while others argued that setting an ambition might spur more research.

“The failure of companies in the wave energy space indicates that this is a more difficult proposition than wind. Until there is more proof that wave and tidal can be developed at commercial scale it would not be appropriate to state large ambitions for these technologies. [...]” (Individual)

“[...] To fully unlock its potential, the sector needs certainty about the support that will be available in future allocation rounds. Access to revenue support is especially important for technologies that are early in their journey towards being fully commercial. In addition to fair access to revenue support that reflects each technology’s position on the cost curve in terms of reducing the levelised cost of energy, it would be positive to see an ambition for new sites to be identified across Scotland’s waters. [...]” (Organisation – Professional or representative body)

The last prevalent theme raised in response to this question was concern with the feasibility of marine energy technology and issues relating to the delivery of any ambitions set. Relating to the former, some respondents raised concerns around the large-scale effectiveness and economic viability of marine energy. Regarding the latter, respondents typically argued the lack of a supportive policy environment and missing infrastructure could hinder the delivery of ambitions.

“Marine energy is more problematic than other forms of renewables. The European marine renewable energy centre in Orkney has conducted large scale trials and has proven to be problematic in performance. Prototype devices requiring considerable repair and maintenance have been trialled but without notable success. Perhaps funds provided for these trials would see better returns if placed elsewhere.” (Organisation – Not specified)

Q12. 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? Please give us your views.

The question was answered by 118 respondents.

The most common theme raised by respondents was that the Scottish Government should support the sector to help enhance the commercial viability of the wave and tidal energy sector. Types of support referenced included both general and financial support.

“The primary target should be business support to grow commercial installations that scale the work into profitable businesses.” (Organisation – Academic, think tank or consultant)

The second most commonly raised theme was that the Scottish Government should do more to create a supportive policy environment for the wave and tidal energy sector, with a focus on addressing barriers to obtaining planning consent through reducing consenting times and streamlining consenting processes. Some respondents suggested this could be achieved through changes to regulation and legislation. This view was predominantly held by organisation respondents, especially from the energy and power sectors.

“[...] Finally, the Scottish Government should aim to reduce consenting times for wave and tidal stream projects via regulation and legislation on environmental consenting. This would enable Scottish projects won in the CFD rounds to deploy in Scottish waters and prevent unnecessary project delays.” (Organisation – Academic, think tank or consultant)

The third most commonly raised theme was that promoting and funding further research into wave and tidal energy should be a priority action of the Scottish Government. Respondents generally argued this was necessary given the relative infancy of the wave and tidal energy sector.

“[...] Increase innovation, research and development support for MRE. Innovation and demonstration projects will be crucial in developing the MRE industry. Innovation funding is crucial to expected reductions in the strike price. However, limited innovation support or demonstration programmes are available for MRE in the UK, and ongoing uncertainty around UK participation in the horizon programme is damaging. [...]” (Organisation – Energy services)

The next most commonly raised theme was that the Scottish Government should support the wave and tidal energy sector by investing in the infrastructure needed to support the energy sector, with specific suggestions for further investment including grid connections and energy storage. Similar to the demand for a more supportive policy environment, this request was dominated by respondents from energy and power organisations.

“Like wind energy, wave and tidal also needs a strong and purpose-built electrical infrastructure. We would like to underscore that planning of such large new electrical power infrastructure should commence as early as possible and suggest that it should feature in the energy strategy, considering its key role in supporting the required large-scale investment in renewables of all types. We strongly believe that Scottish Government has a crucial part to play in the development of this infrastructure which could provide a long-term investment opportunity.” (Organisation – Energy services)

The next most frequent theme raised by respondents was the view that the Scottish Government should work to facilitate the development of sites for wave and tidal energy projects. Specific suggestions for tasks that could be carried out by the Scottish Government included the identification of suitable sites and carrying out feasibility tests and impact assessments for these potential sites.

“[...] The Scottish Government must carry out environmental impact assessments to identify areas that are suitable for marine energy. This will help accelerate investment and reduce uncertainty on the potential risks of marine energy.” (Organisation – Advice, advocacy, or campaigning)

Q13. 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.

This question was answered by 155 respondents.

The most prevalent theme among responses to this question was support for setting a target for solar energy production in Scotland, without generally providing suggestions for the level of ambition. This view was held mostly by respondents answering for organisations, particularly in the energy and power sectors, as well as local authorities and advice, advocacy, or campaigning organisations. Many respondents raising this theme argued that solar energy is cheap and efficient to deploy. Some respondents stated that clear targets will have to be set for both 2030 and 2045. Finally some respondents mentioned that setting targets can assist in providing incentives for investment by increasing investor confidence.

“Yes. This should be a target arrived at in consultation with bodies behind a larger public sector role in owning and planning future solar energy as well as in developing related industrial capacity within Scotland.” (Individual)

Yes. It is clear from the substantial pipeline of potential projects that the Scottish Government could dramatically increase the total capacity of solar power available. It is also one of the cheapest forms of generation, meaning that little fiscal support is required.[...].” (Organisation – Energy services)

The second most frequently mentioned theme among respondents was the view that the Scottish Government should take action to promote the deployment of solar panels on the roofs of existing and future buildings across Scotland. Many respondents argued that building solar panels on roofs should be a planning requirement for all new buildings in Scotland.

“I’d like as much environmentally and socially sustainable solar as possible. Every newbuild should have solar panels. As should all buildings on to which they can be fitted this is one area where your green and just transition is going to come from.” (Individual)

“Yes, Scotland needs a diverse renewable energy mix, and solar is an element to include, both on a commercial and domestic scale. Legislate that all new builds (residential and commercial) must have solar panels included as part of the installation.” (Organisation – Academic, think tank or consultant)

The next most commonly raised theme in responses to this question was that there are various limitations of solar energy, both in general and in Scotland’s context specifically. Respondents raising this theme most commonly cited challenges to adopting solar energy relating to Scotland’s geography and climate, including that due to weather conditions and limited daylight hours during winter, solar energy would be less suited to Scotland’s context. Geographical and climate challenges were raised predominantly by individual respondents. Many respondents highlighted that there are currently infrastructure constraints hindering the capacity of the Scottish energy grid, which may not accommodate a significant increase in solar capacity. Infrastructure and

grid capacity concerns were raised entirely by organisations, and particularly those in the energy and power sectors. Other respondents argued that solar energy is an inefficient energy source. Finally, some respondents cited environmental challenges and concerns due to the carbon emissions arising from producing and decommissioning the materials used to build solar panels.

“Solar deployment should not be a priority in Scotland, it will have a low capacity factor and generate very little energy during peak winter demand. No reason to restrict it, but targets in this sector don’t seem sensible.”
(Individual)

“[...] Solar deployment has been widespread and it offers a relatively cheap and easy opportunity for households and businesses to invest in renewable energy however within Argyll and Bute some larger scale solar arrays have been impacted by the limit to grid connections and so appropriate infrastructure will be required [...]” (Organisation – Local authority)

The next most prevalent theme among responses was the view that the targets set by the Scottish Government should be more ambitious. This view was more commonly held by organisation respondents. Many of these respondents argued that solar energy production in Scotland should be considerably higher than the numbers cited in the Draft Energy Strategy document. Additionally, some respondents argued that an ambitious target should be set for a shorter time horizon, as early as 2030.

“I do believe we need to set a realistic ambition for solar energy to ensure we have a balanced energy portfolio. The current level of solar energy ambition is low in comparison to our wind ambitions and therefore only marginally helps toward a balanced energy policy.” (Individual)

“Yes. There should be an increased ambition for solar in Scotland. The level should be informed through further study to identify the best areas in which it can be deployed with minimal impact on the environment, communities and competing land use. [...]” (Organisation – Property and housing)

The next most commonly raised theme was specific recommendations for how the Scottish Government could promote the expansion of solar production. Many respondents suggested that the Scottish Government should offer incentives for solar deployment to drive uptake. Some respondents proposed that the Scottish Government should directly invest in solar energy technology. Some respondents mentioned that the Scottish Government should plan for the development of renewable sources, and address barriers to deployment particularly related to planning and grid capacity constraints.

“[...] The government needs to look at how it can play a role in fostering the deployment of solar in ways beyond subsidising installations. For example, the government will need to work with industry stakeholders, housebuilders and dno’s [Distributed Network Operators] to create smart grid solutions, necessary for creating a future proof flexible grid. Requiring local authorities to re-examine planning consent for solar will see a huge increase in

systems nationwide and create natural economic growth as demand increases and career opportunities grow alongside it. [...].” (Individual)

“[...] 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.” (Organisation – Professional or representative body)

The next frequently mentioned theme was specific suggestions for the level and form of the ambition for future solar deployment. A small number of respondents argued that the target should be set at 4-6GW by 2030. Additional recommendations included: (i) the ambition taking the form of a % of total renewable energy production, (ii) setting different targets for each local area, and (iii) setting a target that corresponds to domestic energy demand.

“[...] The ambition should be a minimum of 4gw with a stretch ambition of 6gw of solar PV by 2030. [...].” (Organisation – Energy services)

The next most prevalent theme raised by respondents was the view that solar energy production infrastructure, such as solar panel parks, should not be deployed on agricultural or otherwise useful land. This view was held both by individuals and organisations, however support for this view was more common among individual respondents. Some respondents argued that solar panels should be deployed on brownfield rather than greenfield sites.

“Solar deployment should be encouraged on existing structures, roof tiles can now be used as PV cells; but policy should not encourage solar on a large scale in green fields. [...].” (Organisation – Community group)

“I do not believe that solar farms should be built on land that is conceivably usable for other purposes. Land beneath solar panels can grow no crops and absorb no rain and it should be used for these purposes. There is only a small amount of land that has no other use, such as severely contaminated land. Solar panels belong on roofs and there should be a presumption that all new roofs should be suitable and used to their maximum capacity. [...].” (Individual)

Q14. 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? Please provide further details.

This question was answered by 172 respondents.

The most prevalent theme raised by respondents to this question was that the renewable energy sectors can bring significant benefits to local communities' economies through offering opportunities to local people for employment and upskilling, as well as supporting local businesses and manufacturing through local procurement of goods and services. Some respondents also mentioned that development projects can stimulate additional investments locally. This theme was

mostly present in responses by organisation respondents, particularly in the energy and power sectors.

“The current focus on scaling-up renewable energy production will have implications for jobs, i.e. the potential for increased employability and opportunities for those living and working in Scotland. That focus will also bring with it increased investment to critical areas, like ports, and could also help rejuvenate under-developed locations to the betterment of communities. [...]” (Organisation – Training and skills)

“The infrastructure improvements required will see local employment opportunities and investment in the local area as well as the opportunities for new businesses in the support sector. [...]” (Individual)

The second most commonly raised theme was the view that companies in the renewable energy sector can play a role in ensuring that benefits accrue to local communities by ensuring that a share of the revenues from renewable energy production is returned to the local communities where the energy is generated through community benefit schemes. This view was held mostly by organisation respondents, with high levels of support from organisations in the energy and power sectors, local authorities, and environmental organisations. These respondents typically argued that such schemes can help drive community wealth building, and are a fair way for local communities to be included in the economic growth arising from renewable energy sector growth.

“Benefits should be a requirement of any renewable energy project and not voluntary. Provision of community benefit can not only help communities realise direct benefits from energy project but they could also help to support further energy related activities being delivered locally.”
(Organisation – Local authority)

“Ensuring that the principles of both a circular economy and community wealth building are embedded into all of our procurement and commissioning, especially public spending can help realise the opportunities to maximise economic and social benefits at scale. Community wealth building aims to have an outcome where resources that are generated locally are returned to the local economy for communities to benefit from. [...]” (Organisation – Advice, advocacy, or campaigning)

The next most prevalent theme among responses was suggestions that local communities will derive the most benefits from the renewable energy sector where there is community or shared ownership of renewable energy projects and infrastructure developed in their area. Respondents raising this theme generally mentioned that through owning a share of the projects, a larger share of the revenues will stay in and be reinvested in the local area.

“It should be made as easy as possible for local communities (but also citizens generally) to become part owners of their energy infrastructure.[...]”
(Individual)

“By setting up small, local companies/associations where private citizens can invest in buying stakes in their 'own' solar panels or wind turbines, that are installed in their council area (for instance on supermarket car parks). When the sun is shining or the wind is blowing they get part of the electricity for free - just like when you've got a solar panel on your own roof. [...], many citizens cannot install renewable energy on their own property, but they still may want to invest, and get the (very satisfying) return of free electricity when the wind is blowing or the sun is shining. [...].” (Individual)

The next most commonly raised theme was the view that a key benefit to local communities from the renewable energy sector could be more affordable energy bills. Some respondents mentioned that the development of renewable energy will lead to a lower cost of energy. Other respondents argued that renewable energy companies should provide energy at a lower price to the local communities where this energy is produced as a form of community benefit. This theme was more frequent among individual respondents.

“I believe it is up to the government to maximise the benefits to local communities by ensuring the lower costs of producing clean energy are reflected in the bills.[...].” (Individual)

“Communities should be given opportunities to be involved in energy programmes, and renewable energy projects should be developed in a variety of communities across Scotland depending on the natural resources available in these areas. these smaller-scale projects can then be replicated and scaled up across the country to build a sustainable, clean energy system which delivers benefits for communities including job opportunities, reliable and affordable energy supply, and reduced fuel poverty.” (Organisation – Local authority)

“A mixed renewable supply combined with storage provides the lowest cost energy. However, supporting distributed, local generation feeds those benefits in directly at a community level.” (Organisation – Academic, think tank or consultant)

The next most prevalent theme among respondents was comments related to how government and firms can ensure that local communities are able to secure the maximum benefit from community benefit and shared ownership schemes. Many respondents highlighted that firms should actively engage with local community members and stakeholders, throughout the development process, to ensure any benefits and investment are targeted to local needs. Support for ongoing consultation and engagement with local communities was voiced mainly by organisation respondents. Many respondents, predominantly among organisation respondents, argued that there should be a specific, binding framework for community benefits outlining the responsibilities of firms to local communities.³ Additionally, many

³ This point was raised despite the existence of frameworks for community ownership of energy assets, such as the Scottish Government Good Practice Principles for Shared Ownership of Onshore Renewable Energy Developments.

respondents highlighted that there is the potential for geographic discrepancies across communities benefiting from renewable energy development. Respondents argued that new clean energy projects should be fairly distributed across Scotland, ensuring that as many communities as possible can benefit from these developments. Furthermore, some respondents mentioned that often local communities are not able to obtain the most from community benefit schemes due to various barriers including administrative burden, lack of specialisation from community members who are voluntarily involved in the process, and lack of funding required to participate in shared ownership. These respondents typically suggested that the Scottish Government could assist these communities through providing loans and finance to support local community ownership, and support them with managing funds from community benefit schemes.

“Communities are essential stakeholders in the decarbonisation of our energy system – neither the energy sector, nor the UK as a whole will reach net zero without the support of communities that host the assets essential to decarbonisation. Community support payments are one route to allowing communities to benefit from local infrastructure development. [...] However, this should not be considered as an alternative to proper community engagement during the development and deployment of clean energy projects. Early and close engagement with local communities is essential to securing buy-in for projects.” (Organisation – Energy services)

“Without a ‘requirement’ to provide some sort of community benefit only those in the sector that follow good practice are likely to deliver on this. the requirement needs to be written into planning legislation.” (Organisation – Local authority)

“[...] Navigating the administrative necessities of both delivering and receiving community benefits can create a significant burden on developers and local communities, which in turn leads to lower industry support for community benefit schemes and less benefit delivered overall. Further, communities often need guidance on funding and legal support throughout the process, as well as guidance on how to utilise and manage the funds once they are in place. Community capacity and expertise can be a barrier to effective utilisation of funds. Addressing key barriers and administrative burdens is necessary to achieve the ESJTP’s stated intention to make community benefits and ownership standard.” (Organisation – Energy services)

The last most commonly raised theme by respondents to this question was the view that local communities can benefit from funds flowing from renewable energy production, if these are directed to strategic investments such as developing local infrastructure and long-term assets, supply chain development, and investments in innovation.

“[...] 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." (Organisation - Professional or representative body)

Q15. Our ambition for at least 5GW of hydrogen production by 2030 and 25GW 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? Please give us your views.

The question was answered by 171 respondents.

The most prevalent theme raised by respondents to this question was the view that the Scottish Government should create a more supportive policy environment for hydrogen production. Respondents typically suggested that this would ensure that demand for hydrogen will materialize in lockstep with supply. Specific suggestions for policy measures included a stable regulatory environment, international cooperation to ensure there is a pipeline for exports, fostering engagement across stakeholders, and upskilling the workforce in this area. This view was reported the most by respondents from organisations in the energy and power sectors.

"The single biggest influence will be in developing a stable regulatory and policy landscape that make future demand opportunities clear to developers and providing to give confidence for investors. [...]" (Organisation – Professional or representative body)

"[...] 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 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." (Organisation – Professional or representative body)

The second most commonly raised theme was that the Scottish Government should support the sector to maximise the delivery of the ambition, including through the provision of financial and other support. Respondents highlighted the need to focus on developing the necessary infrastructure now as it will take several years to be implemented.

"[...] Steps to maximise delivery of this ambition need to include sustained programmes of funding to support not just innovation but the

commercialisation of new technologies by businesses. [...]” (Organisation – Local authority)

“Both Scottish and UK governments must also focus on developing the necessary infrastructure for storage and transmission. It is important to accelerate this work since it will require several years of studies and investment. [...]” (Organisation – Energy services)

The third most prevalent theme was the view that the Scottish Government should refrain from taking any key steps to maximise the delivery of the ambition for hydrogen. The respondents expressing this view most commonly considered hydrogen fuel to be either ineffective at scale as a fuel source, too costly, or that there are more suitable alternatives to support Scotland’s net zero ambition. Respondents raising this theme were for the most part individuals and environmental organisations.

“Blue hydrogen is produced through gas and is not a clean energy which will allow us to get to net zero. There are very little cases of green hydrogen production being cost and energy efficient. Therefore this should not be a viable option for net zero.” (Individual)

The next most prevalent theme raised by respondents was the view that the Scottish Government should focus its efforts on promoting green hydrogen. These respondents generally argued that only green hydrogen should be supported given it is the only genuinely climate friendly form of hydrogen.

“We are against all hydrogen production which is not truly green - that is, from renewable energy. Blue or low carbon hydrogen is dependent on an unproven technology (CCUS) to mitigate its emissions. It also depends on a discredited fossil fuel source (methane) [...]” (Organisation – Advice, advocacy, or campaigning)

Q16. What further government action is needed to drive the pace of renewable hydrogen development in Scotland? Please give us your views.

This question was answered by 145 respondents.

The most prevalent theme among respondents was the view that the Scottish Government should channel funding into hydrogen power infrastructure, including hydrogen storage and transport. This theme was more common among organisation respondents, mainly from the energy and power sectors, and was also raised frequently by local authority respondents. Some respondents suggested that there should be support for early stage projects in hydrogen generation and development of local capacity. Some respondents supported investments in innovation and developing key technology for the sector.

“More investment to make it the primary means to cleanly fuel vehicles, [...]” (Individual)

“In some locations financial assistance may be required to help to develop the infrastructure required for hydrogen production, storage and use.[...]” (Organisation – Local authority)

“Scottish Government leadership is required for substantial and early support (public, private or partnership) for the development of green hydrogen production technology, electrical infrastructure interface demonstration and associated storage/transmission technology [...]”
(Organisation – Energy services)

The second most prevalent theme raised by respondents was the suggestion that the Scottish Government focuses its efforts on supporting green hydrogen in particular. Respondents raising this theme generally argued that the Scottish Government should focus specifically on green hydrogen, and combine production with offshore wind projects, as well as co-locate hydrogen production facilities with renewable energy production facilities. This theme was predominantly reported by organisation respondents, mainly from the energy and power sectors and environmental organisation respondents.

“Build greater wind-based infrastructure to provide the necessary spare capacity to produce green hydrogen.” (Individual)

“There is a need to remove the "false solution" rivals to green hydrogen. We need to close down hydrogen production from fossil fuel sources until/unless CCUS is proven without any shadow of doubt. [...]”
(Organisation – Advice, advocacy, or campaigning)

The next most common theme among responses was the argument that the Scottish Government should focus its efforts increasing market demand for hydrogen fuel. These respondents most frequently suggested that the focus should be on increasing the use of hydrogen as fuel for vehicles. This theme was most frequently raised by organisation respondents.

“There needs to be more financial support for the end users of hydrogen technology to create a sizeable demand for hydrogen, supporting the business case for hydrogen or vehicle producers. Without demand from end-users, due to high capital and operational costs, there is simply no business case to produce either. [...]” (Organisation – Energy services)

[...] Promote hydrogen powered vehicles e.g. buses, tractors, long & short distance lorries, earth movers etc., all the vehicles and machines where electric power is not a good alternative. When and if green hydrogen is available at scale promote industrial/domestic heating/hot water. [...]”
(Organisation – not specified)

The next most frequently raised theme among respondents was opposition to driving up the pace of hydrogen development and adoption in Scotland. The majority of respondents that held this view were individuals. Many respondents argued that there are better renewable sources of energy than hydrogen. Some respondents were against the use of hydrogen for fuel in general, or particularly blue and grey hydrogen.

“I don't believe hydrogen generation is an effective use of surplus renewables...the conversion of electricity to hydrogen is only around 75% (better than pumped hydro at 65%) but compression and storage loses

another 10%, not to mention leakage if supplied domestically.[...].”
(Individual)

“[...] We are deeply concerned that prioritising green hydrogen production will delay decarbonisation in the heat and transport sectors, where much more efficient uses of clean renewable electricity are possible.”
(Organisation – Energy services)

“[...] We need to close down hydrogen production from fossil fuel sources until/unless CCUS is proven without any shadow of doubt.[...].”
(Organisation – Advice, advocacy, or campaigning)

The next most common theme was the view that the Scottish Government should create incentives for investing in the hydrogen sector. This theme was predominantly raised by organisation respondents. Many respondents raising this theme argued that currently there are significant barriers to the adoption of hydrogen, particularly in relation to planning and consenting processes, and that the Scottish Government should act to address these barriers.

“Companies continue to look for consistent and strong policy support and volume targets to provide confidence to invest.[...].” (Organisation – Professional or representative body)

“Positive ScotGov encouragement, tax breaks, reward entrepreneurial industry, share the risk and the rewards. Promote hydrogen powered vehicles e.g. buses, tractors, long & short distance lorries, earth movers etc. All the vehicles and machines where electric power is not a good alternative. When and if green hydrogen is available at scale promote industrial/domestic heating/hot water. Develop housing schemes with community hydrogen heating. [...]” (Organisation – not specified)

The next most prevalent theme among responses was the view that the Scottish Government should work to foster greater cooperation with various stakeholders including from academia, the public and industry, as well as with the UK Government in pursuing greater development of the hydrogen sector. This theme was raised mainly by organisation respondents.

“[...] The Scottish Government should provide a leadership and coordination role, engaging closely with UK government, industries, national grid and Ofgem [...]” (Organisation – Academic, think tank or consultant)

“Government need to work closely with those businesses working in this sector and those who could potentially be attracted to move operations to the UK.” (Organisation - Professional or representative body)

The last common theme among responses was the view that there are various challenges and concerns related to adopting and further developing hydrogen power. Respondents raised various concerns including the adverse environmental impacts of hydrogen, the inefficiency of producing hydrogen energy, and its high cost. Challenges and concerns were more frequently mentioned by individual respondents.

“We must stop considering it green hydrogen if it is simply using green energy to produce. the massive devastation to marine environments the production and transport via fossil fuel powered ships is in no way green.”
(Individual)

“We are not anticipating the use of hydrogen in new build housing in the near future. We would require significant evidence and proof of safety and how hydrogen would provide greater environmental benefits than for example heat pumps. Concerned that the transition could put those currently in or at risk of fuel poverty due to the costs to create. [...]”
(Organisation – Local authority)

Q17. Do you think there are any actions required from Scottish Government to support or steer the appropriate development of bioenergy? Please give us your views.

The question was answered by 116 respondents.

The most prevalent theme raised in response to this question was the view that the Scottish Government should refrain from taking any action to support the bioenergy sector. This theme was pushed by individual respondents and respondents from environmental organisations. The main reasons provided for this view included that there are better alternatives to get Scotland to net zero and that the land needed for it would be better utilised for food production.

“Government should not support development of bioenergy. Biofuels for transport will lock up land that could be used for food production. This should be resisted especially since it is unlikely to make a huge contribution and continues to release carbon. Similarity for heating, there are fears that wood burning is not really carbon neutral.” (Individual)

The second most prevalent theme was the view that only certain bioenergy technologies should be supported by the Scottish Government. The type of bioenergy that received the biggest support from respondents was the production of bioenergy from waste products. Many respondents raising this theme were opposed to biomass technology due to concerns that the burning of wood pellets would contribute to deforestation, and create carbon emissions and pollution that might adversely affect health outcomes. Additionally, there was not much support for biofuels that were made from purpose-grown crops, as respondents were worried about the use of productive land to create this type of bioenergy.

“Using biomass usually involved destruction of forests and also import of trees for burning from across the globe - This type of bioenergy should not be used.” (Individual)

“Bioenergy needs to be carefully considered, in particular with regards to the source of biomaterial. Bioenergy sustainably derived from biowaste (grass clipping, wood chips from plantations, etc.) are fine, but it cannot be derived from carbon locking woodlands or products destined for the food market.”
(Organisation – Energy services)

The third most prevalent theme raised by respondents was the view that socio-economic and environmental impacts should be considered when deciding whether or not to support the development of bioenergy. Many of these respondents agreed with the principle outlined in the consultation document that bioenergy should align with, and support, Scotland's goals for protecting and restoring nature. Respondents raising this theme were often concerned about the conversion of land use to bioenergy production and this having consequences for both society and the environment, such as increases in food prices, impacts on biodiversity due to monocultures, or the loss of land use for nature restoration.

“We are pleased to note that the availability of land and competing priorities, such as woodland creation, peatland restoration, biodiversity regeneration, food and fodder production are a key consideration in the future of bioenergy production. [...] Any deployment of bioenergy should also ensure environmental enhancement. Bioenergy developments can create additional pressure on land and the risk of displacement it can potentially create. [...]” (Organisation – Advice, advocacy, or campaigning)

The next most common theme raised by respondents was that bioenergy technology should only be used in places where no alternatives exist, such as very remote and rural areas, or for “hard-to-decarbonise” sectors. Many respondents raising this theme argued that focusing on bioenergy in these areas would support the aim outlined in the consultation document to use bioenergy where it can be most effective in reducing emissions and where there is the greatest need for alternatives to fossil fuels in the short- to medium-term.

“[...] We believe that biomass has a limited role for heating in rural hard to treat properties and only where electrification is not an appropriate or financially viable option. [...]” (Organisation – Advice, advocacy, or campaigning)

The next most frequent theme was the view that the Scottish Government should provide general support and demonstrate commitment to the development of bioenergy. A majority of the respondents that held this view were representing organisations in the energy and power sectors.

“[...] The Scottish Government should demonstrate a firm commitment to bioenergy, specifically recognising that it has an important role to play, alongside other low carbon technologies, in enabling Scotland to meet its net zero targets. This will ensure confidence is maintained in the market, as Scotland develops its bioenergy action plan. [...]” (Organisation – Energy services)

Q18. What are the key areas for consideration that the Scottish Government should take into account in the development of a Bioenergy Action Plan? Please give us your views.

The question was answered by 107 respondents.

The most common theme raised by respondents to this question was that the Scottish Government should take into account the environmental and socio-economic impacts of bioenergy production and use. The concern mentioned most often in relation to this theme was about land being used for bioenergy production instead of agriculture, which it was argued could increase food prices and lower food security. Some respondents were also concerned with environmental impacts of bioenergy more generally. These concerns were mostly held by individuals, environmental organisations and local authorities.

“[...] Biomass can only contribute to emissions reductions and climate mitigation targets if it is sustainably sourced, with low levels of carbon emissions across the full lifecycle of growth, collection, and transformation. Whole lifecycle carbon should be a core issue for consideration. Whilst [...] recognises the opportunities that a bioenergy action plan could deliver, we would still highlight that any large-scale transfer of arable land to produce dedicated energy crops would be dependent on adaptations at landscape and/or farm level, and could give rise to other unintended consequences including as examples, an adverse impact on feed prices, and additional dependency upon imports for animal feeds and other food products. [...]”
(Organisation – Advice, advocacy, or campaigning)

The second most common theme was that the Scottish Government should provide a supportive policy environment that allows the development of bioenergy as a sector. Respondents raising this theme were mainly representing organisations in the energy and power sectors and typically mentioned the need for the Scottish Government to engage with stakeholders and facilitate coordination.

“[...] Underlining the increasingly interconnected nature of the energy system, it is likely that the use of bioenergy solutions will often need to be supported through multiple local markets to stimulate sufficient levels demand to enable economies of scale to deliver value to consumers. [...] Local area energy planning and a regional whole system energy plan for Scotland could help to identify such cross-sector interdependencies, de-risking both public and private investment in low carbon infrastructure and providing meaningful opportunities for consumers to engage with and help shape the energy transition at a local level. [...]” (Organisation - Advice, advocacy, or campaigning)

“[...] Such evaluation should remain science-led and be done in collaboration between government and industry. Be proportionate and not hinder current proven approaches to sustainable biomass provision. Continue to use principle-based approaches over blunt prescriptive criteria which could fail to recognise regional differences in forests and management requirements. Ensure that business and investor confidence is maintained by the government publicly showing long-term support for the sector and sustainability governance regime. [...]” (Organisation – Energy services)

The third most frequently raised theme was the view that the Scottish Government should only consider specific types of bioenergy. Respondents most frequently argued

for support for bioenergy produced from agricultural or domestic waste, and bioenergy production combined with CCUS.

“I believe the development of bioenergy should be investigated...Where it involves the removal of productive farmland (whether for ethanol production, biodiesel or biomass), it should be restricted... Where it involves novel technologies (e.g. biofuel from algal farms or from commercial waste, or biogas production from agricultural/domestic waste) it should be encouraged.” (Individual)

The next most common theme was the view that the Scottish Government should not support the bioenergy sector at all. The main reasons provided by respondents holding this view was that there are better alternatives to bioenergy, as well as the concerns previously raised, such as potential adverse effects on food supply, biodiversity and the environment more generally.

“Concentrate instead on the existing proven and increasingly cheaply available technologies of wind and solar to drive rapid transition away from fossil fuel use.” (Individual)

Q19. How can we identify and sustainably secure the materials required to build the necessary infrastructure to deliver the energy strategy?

This question was answered by 132 respondents.

The most frequently raised theme amongst respondents to this question was the view that the Scottish Government should support the maximisation of recycling and reuse of materials coming from the decommissioning of various technologies. Respondents, mostly from organisations in the energy and power sectors, often made this argument with reference to the decommissioning of wind turbines. These were seen to provide an opportunity for recycling and reuse given many were reaching the end of their life. Some respondents also argued that this approach could reduce dependence on imports, helping to ensure the long-term sustainable use of critical materials and minerals.

“Our latest evidence suggests that while demand for materials in the energy transition will be extremely high, a proportion of this can be captured from domestic reuse and recycling options. For example, we forecast two estimates for decommissioned onshore wind turbines from 2021 to 2050 covering a low decommissioning forecast and a high decommissioning forecast. The low decommissioning forecasts estimates >4800 turbines with an associated 1,238,000t of materials.” (Organisation – Advice, advocacy, or campaigning)

The next most frequently raised theme was the view that only local resources should be used in the manufacturing of necessary infrastructure, although only a few respondents provided specific explanations for how to identify and sustainably secure local resources. This was mostly raised among individuals or respondents that answered for organisations, especially in the energy and power sectors. A few respondents provided specific suggestions. For example, material needed for solar

panels could be sourced and manufactured in Glasgow, leading to its emergence as a hub for solar technology goods.

“There should be a presumption that materials should be sourced ethically and sustainably, ideally within Scotland.” (Individual)

“For example, the Glasgow city region has the potential to manufacture materials needed for solar PV and could be used as a hub to produce solar technology goods such as solar panels and solar powered cars”
(Organisation – Local authority)

The third most frequently raised theme among respondents was the view that more research should be conducted on how to identify and sustainably secure the materials needed to build infrastructure. This was mostly raised by respondents that answered for organisations in the energy and power sectors. These respondents typically argued that there should be increased investment in research and development programmes relating to innovative methods for separating and reprocessing materials.

“Further collaborative R&D programmes between industry, Scottish Government and academia focussed on the development of innovative methods for material separation, recovery and reprocessing, with a particular focus on more sustainable practices than those currently in use for processing end of life materials.” (Organisation – Energy services)

North Sea Oil and Gas

Q20. 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?

This question was answered by 123 respondents.

The most prevalent theme raised by respondents was support for the introduction of a Climate Compatibility Checkpoint (CCC) test. These respondents most commonly argued that a CCC test should set clear criteria and requirements for new oil and gas production, and ensure oil and gas producers adopt new environmentally friendly standards in production. Some respondents also noted that the introduction of a CCC test could support a gradual transition to renewable sources. These views were reported by a comparable share of individual and organisation respondents. The most frequent type of organisation respondent in this theme was energy and power sector organisations, while this theme was also prevalent among local authority respondents.

“Absolutely, yes. I used to work in the O&G industry, however, I think we have moved on from it being a necessity. There are now alternatives, so we need to always look at the alternatives first.” (Individual)

“New oil and gas production should be required to demonstrate that the most energy efficient means are employed to develop the discovery. Lower emission technologies and methods should be encouraged where it is economic to include these.” (Individual)

“[...]upscaling the necessary renewable and low carbon energy installed infrastructure will take time, and in the interim oil and gas will still continue to play a part of the energy solution. Until then, it is important to ensure their need is rigorously tested.” (Organisation – Local authority)

The second most prevalent theme raised by respondents to this question was opposition to the introduction of a CCC test. This theme was most frequent among individual respondents. This view was also prevalent in the majority of responses from environmental organisations. These respondents most commonly highlighted their opposition to any new oil and gas production, viewing it as incompatible with achieving net zero targets and other climate policy commitments, thus viewing a CCC test as unnecessary. Some respondents opposing a CCC test did so because they viewed that there should be no restrictions to oil and gas production. The figure summarising the findings of the closed question 22a provides a breakdown of the reasons respondents had for objecting the introduction of a CCC test.

“No. There can be no new oil and gas production at all in order to have any chance of staying below 1.5 degrees global heating. Oil and gas are in no way climate compatible, and any truly rigorous CCC would find that. A CCC is therefore a waste of time and risks letting new oil and gas slip through. [...]” (Organisation – Advice, advocacy, or campaigning)

“No. Scottish ministers should strongly oppose any new gas and oil, starting now. Instead of CCC testing, focus should be on supporting a just transition, [...]” (Organisation – Community group)

“No new oil or gas production should be allowed considering the current climate crisis and related goals.” (Individual)

“No, the only test that has merit is that as long as there is a need for it, oil and gas should be produced domestically rather than imported.” (Individual)

The next most prevalent theme raised by respondents was the value of the oil and gas sector to other industry sectors in the Scottish economy. This view was held predominantly by respondents from organisations. These respondents most commonly argued that oil has uses over and above being an energy source, including that its derivatives can be used in the production of products such as plastics and chemicals. The majority of respondents raising this theme were in favour of the CCC test and were also in favour of reducing the use of oil for energy generation.

“[...] In principle new oil and gas production runs counter to net zero ambitions. However, the reality is that Scotland will continue to be dependent on fossil fuels in the short to mid-term. Hydrocarbons are used in a wide range of products (including food / clothing production) beyond the energy sector. It has not yet been demonstrated that we are able to holistically replace fossil fuels at scale, sufficiently to maintain present societal needs and operations. [...]” (Organisation – *Academic, think tank or consultant*)

“[...] we will still need oil for uses other than ‘burning’, e.g. plastics, road building and lubricants, for the foreseeable future. And carbon capture and

storage (CCS) offers the possibility of using this resource at least as a transition. [...].” (Individual)

Q21. 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? – Please explain your views

This question was answered by 99 respondents.

The most prevalent theme raised by respondents to this question was support for the strategy’s proposal that the CCC test should be applied both to exploration projects and fields already consented. Many respondents raising this theme disagreed with a CCC test and any further oil and gas extraction, however argued that if a CCC test was to be introduced it should be applicable to already consented fields. Some respondents also highlighted that when some older licenses were granted, the environmental impacts were not adequately considered.

“We consider this test should be applied to all new production in Scottish waters, both currently consented and not yet producing; and those applying for new exploration.” (Organisation – Advice, advocacy, or campaigning)

“Apply a CCC test if it will hinder any further development both to fields already consented and to exploration, [...].” (Individual)

The second most common theme raised by respondents was disagreement with applying the CCC test to already consented fields. Among organisation respondents, this theme was mostly commonly raised by respondents from the energy and power sectors. These respondents typically cited negative economic impacts, particularly the potential to undermine business and investor confidence. Some respondents further noted that environmental impacts were already considered prior to the approval of the consented projects under existing frameworks.

“No. Again I disagree entirely with the principal. We need to leverage both existing oil & gas in parallel with new energies. [...].” (Individual)

“We believe the adoption of a ccc test should only apply ahead of new licencing rounds to maximise the stability of any fiscal investment environment. There is a risk that already consented fields will have secured shareholder and partner funding to proceed. Retrospectively applying CCC will cast any financial decision in doubt and jeopardise future investment in that project. [...].” (Organisation – Energy services)

“No. The current licensing regime has a climate compatibility checkpoint which is used to inform decision-making on whether to offer new licenses. extending the test to cover existing licenses will slow down development, negatively impact investor confidence and risks energy security.” (Organisation – Energy services)

The next most prevalent theme raised by respondents was the view that any new oil and gas extraction should be stopped altogether. This view was more frequent among individual respondents.

“No new oil or gas production should be allowed considering the current climate crisis and related goals.” (Individual)

“[...] there should be no test and instead a ban on new exploration and production, as well as revoking existing licences and a managed wind down of current production. [...]” (Organisation – Advice, advocacy, or campaigning)

Q22a. If you do not think a CCC test should be applied to new production, is this because your view is that: (i) Further production should be allowed without any restrictions from a CCC test; (ii) No further production should be allowed [please set out why]; (iii) Other reasons [please provide views].

This closed question was answered by 69 respondents.

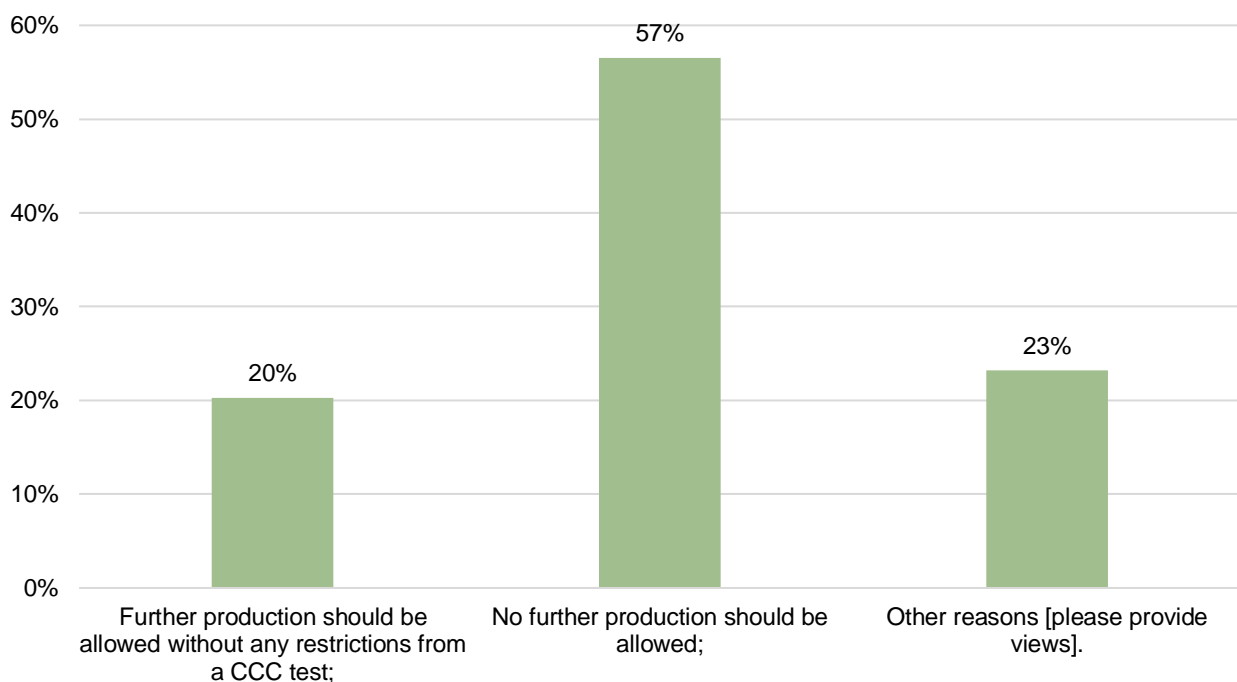


Figure 1. A bargraph showing percentages of respondents that chose answer (i) Further production should be allowed without any restrictions from a CCC test; (ii) No further production should be allowed; (iii) Other reasons. The bargraph shows that 57% chose (ii), 23% chose (iii) and 20% chose (i).

The majority of respondents (57%) that did not think a CCC test should be applied, did so because they viewed that no further production should be allowed. A significant percentage (23%) cited other reasons than those listed. A further 20% of respondents viewed that further production should be allowed without any restrictions from a CCC test.

Q22b. If you do not think a CCC test should be applied to new production, is this because your view is that: - Please explain your answer

This question was answered by 86 respondents.

The most commonly raised theme by respondents to this question was the view that there should not be any new production of oil and gas. Respondents raising this theme typically argued that any expansions of oil and gas production would hinder Scotland's decarbonisation efforts. Additionally, some respondents supported a reduction in current oil and gas production.

"[...] there should be no further production of oil and gas permitted as this is not compliant with the Paris agreement to limit global warming to 1.5 degrees." (Organisation – *Advice, advocacy, or campaigning*)

"Investing in further production at this point entails investing in new assets on the understandings of a long period of future production which is a very different proposition from continuing production from existing developed fields." (Individual)

The second most prevalent theme raised by respondents was the view that there should be no CCC test as oil and gas extraction is still necessary to Scotland. The two main arguments expressed by these respondents was security and resilience of energy supply to external market shocks, and the need for oil derivatives in non-energy sectors.

"Our view is "further production should be allowed without any restrictions from a CCC test". the reason for this is we still need fuel derived from oil and gas for our transportation and household heating systems; therefore, the oil and gas production shall not be disrupted to ensure the domestic supply of the required fuels for the former consumers. [...]" (Organisation – *Professional or representative body*)

"Oil is still a vital resource for many things beyond fuel, plastics to name one thing. We still need to make use of both oil and gas to help fund the transition, and gradually slow it's use as renewables take more hold. a considered process and plan must be created." (Individual)

The next frequently mentioned theme was that no new CCC test is needed, and that decisions on whether to permit new exploration and production of oil and gas should be made under the existing regulatory framework of the UK's CCC, and the terms of the North Sea Transition Deal. This view was voiced mostly by organisations from the energy and power sectors, and other industry organisations.

"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.”
(Organisation – Professional or representative body)

Q23a. 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 Scottish North Sea specifically on the global 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 production and consumption aspects of oil and gas activity – as proposed in the strategy; C) some other position.

This closed question was answered by 75 respondents.

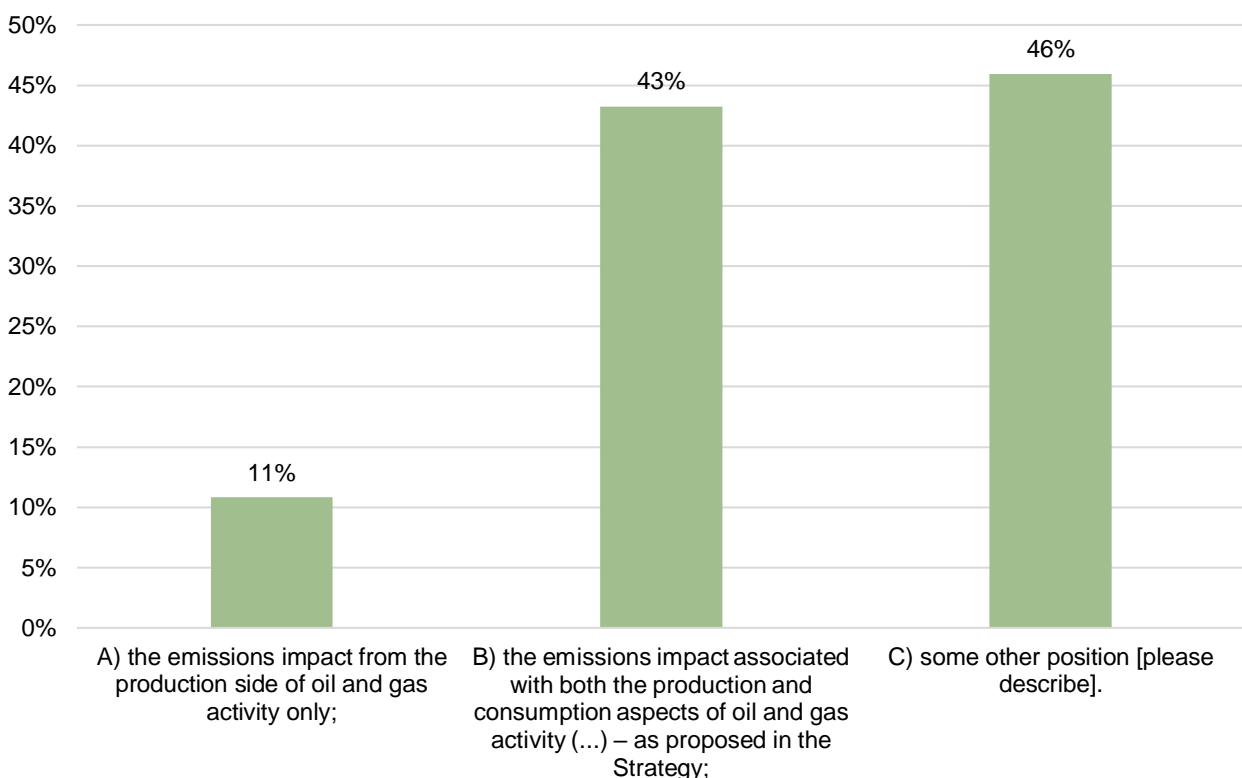


Figure 2. A bargraph showing percentages of respondents that chose answer A) the emissions impact from the production side of oil and gas activity only; B) the emissions impact associated with both production and consumption aspects of oil and gas activity – as proposed in the strategy; C) some other position. The bargraph shows that 46% chose C, 43% chose B and 11% chose A.

The most common response to this question 46% was respondents who held some other opinion than options A) and B). 43% of respondents chose option B), supporting consideration of the impact associated with both production and consumption of oil and gas activity. A further 11% of respondents were in favour of proposal A), that only the impact of the production side of oil and gas activity is assessed.

In Questions 23b, 23c, 23d, 23e, respondents provided further elaboration on criteria to be included in a CCC test.

Q23b. If there is to be a rigorous CCC test, what criteria would you use within such a test? - Please explain your answer

88 respondents provided answers to this question.

The most prevalent theme raised by respondents to this question was support for the proposal that both emissions from production and consumption of oil and gas should be part of the criteria to a CCC test. Some of these respondents also mentioned that since a significant portion of oil and gas extracted in Scotland is exported abroad, the test should also consider the global emissions impact of Scottish oil and gas. Among organisations that responded to this question, these views on the criteria to be used in a CCC test were particularly frequent among environmental organisation respondents, local authorities, and academic organisations.

“All emissions for production and consumption should be taken into account. keep looking at efficient ways to extract and use oil and gas reserves to their maximum though in as “green” a way as possible. Must be a proven and safe efficient way of oil and gas abstraction and use as there will be a continued demand for products and not just for energy.[...]” (Organisation – Local authority)

“B – this is the option that is closest to relevant from the perspective of achieving a stable climate that supports a prosperous Scotland, and to the treatment of electricity consumption as including the carbon emissions associated with the production of that electricity.” (Individual)

The second most commonly raised theme was disagreement with considering emissions from consumption of oil and gas in the CCC test, with these respondents typically supporting only the emissions from oil and gas production being considered. Many of these respondents argued that policy actions for reducing emissions from oil and gas consumption should focus on the demand side and not the supply side. Some respondents raising this theme were also against considering the global emissions impact from consumption of Scottish oil and gas after it is exported.

“A only. Oil and gas activity is on the supply side. Emissions from B are a demand side issue and therefore should be dealt with there. The oil and gas industry has shown an ability to respond to demand (price) signals and adjust production. If addressing the demand side is prioritised then the emissions associated with the supply side will reduce as there is less demand for the product.” (Individual)

“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.” (Organisation – Professional or representative body)

The next most prevalent theme raised by respondents was additional suggestions for criteria to be included in the CCC test. Respondents suggested a mix of measures to account for potential negative impacts of oil and gas, as well as proposals for criteria to account for the the oil and gas sector’s positive impacts. Specific criteria suggested by respondents included (i) emissions reductions and overall environment friendly approaches adopted in a proposed project, (ii) broad environmental standards and impact related to oil and gas production project, including impacts of the transport of oil and gas, and (iii) the oil and gas sector’s contribution to the Scottish energy sector and energy security.

Q23c. If there is to be a rigorous CCC test, what criteria would you use within such a test? 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?

This question was answered by 79 respondents.

The most prevalent theme raised by respondents to this question was agreement with considering energy security as part of a CCC test. Amongst organisation respondents, this theme was frequently raised by energy and power sector organisation, and local authority respondents. These respondents most commonly stressed the importance of considering the energy security of Scotland, but also EU partners. Some respondents discussed considerations around energy security in general, citing that a CCC test should explicitly consider domestic supply to account for the risk of external shocks and limit fuel poverty. Some respondents also argued that the energy security of the United Kingdom should be the primary focus of a CCC test.

“Yes. The recent conflict in Ukraine has brought into focus the need for energy security in the face of a volatile global situation. This energy security should be understood within a European context given the close trade links between the UK and Europe, and the inter-dependencies between their energy markets and that of Scotland.[...]” (Organisation – Local authority)

“Energy security must be an important consideration for governments making such decisions. Where a proposed CCC test is to be determinative, then it will of course need to include all relevant economic and social factors, including energy security.[...]” (Organisation – Energy Services)

“As the Scottish Government highlights throughout the draft energy strategy the areas that the UK government needs to address to support the strategy, and that energy security in the plan is not deemed to be a Scottish issue but deferred to the UK grid operator, it would surely be appropriate that UK energy security as a minimum be part of the boundary conditions, if that test be applied.” (Individual)

The second most prevalent theme raised by respondents was agreement with the cost of alternative sources being accounted for in CCC tests. This theme was particularly frequent among respondents from the energy and power sectors. Many respondents gave vague answers without specifying particular criteria that should be considered. Some respondents also supported the view that the carbon footprint of energy imported should be compared to the carbon footprint of Scottish oil and gas production as part of the CCC test evaluation. These respondents typically argued that oil and gas extraction in countries from which the UK imports have higher emissions than domestic oil and gas production.

“[...] It should be compared to the costs financially and environmentally of alternative sources.” (Individual)

“[...] It is essential to take a broad view of the UK’s (and Scotland’s) role as a producer of hydrocarbons of a carbon intensity that is below the global average, and therefore contributing positively in terms of energy security and climate when considering the relative carbon intensity of imports from other regions.” (Organisation – Energy services)

The next most common theme raised by respondents was the general view that Scotland should focus on reaching net zero and meeting domestic energy demand through low carbon green alternatives and a focus on renewable energy and new technology. Some of these respondents therefore argued that carbon intensity and the ability to meet net zero objectives should be a key criterion for future projects. This theme was more frequent among respondents from organisations.

“[...] Energy is a necessity at a basic level, so provision must be made for its continued availability, through fossil fuels until 100% renewable supply is a reality. But on a steady-state basis, Scotland should get its power as much as possible from renewable sources and stored renewable energy.” (Individual)

“[...] we must use whatever we have available to speed the eventual transition to non-hydrocarbon reliance. Scotland could export green energy to the rest of Europe and beyond.” (Organisation – not specified)

The next most prevalent theme raised by respondents was opposition to any new oil and gas extraction. Those raising this theme were most commonly individual respondents. Respondents generally argued that any new oil and gas production would hinder Scotland’s efforts to reach its net zero targets, with some arguing that mitigating the long-term impacts of climate change is more important than energy security.

“No - it needs to purely be based on the remaining carbon dioxide budget to give us a reasonable chance of remaining within 1.5 degrees of global heating.” (Individual)

“Given that the climate emergency threatens the security of all nations on the planet, including Scotland, the UK and EU, on energy and other grounds it is difficult to imagine a scenario where encouraging more oil and gas

production does not trade a short term problem for a much larger long term one. [...].” (Organisation - Academic, think tank or consultant)

Q23d. If there is to be a rigorous CCC test, what criteria would you use within such a test? 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?

This question was answered by 74 respondents.

The most prevalent theme raised by respondents to this question was general agreement with the proposal that a CCC test should assess the proposed project's innovation and decarbonisation plans. This view was more frequently held by individual respondents, with the majority of organisations being academic organisations, and local authority respondents. The majority of respondents did not elaborate on the reasons for their answers.

“Strict regulation should ensure technology is used to minimise emissions from extraction and production.” (Organisation – Academic, think tank or consultant)

Some respondents agreeing with the proposal argued that such assessments would help with improvements that could assist during the transition period, while others agreed that such assessments would incentivise firms to decarbonise.

“Yes, I think it would make sense to assess innovation and decarbonisation plans. this will help to drive improvements, before we have completely moved on from hydrocarbons.” (Individual)

The second most prevalent theme was general disagreement with the inclusion of an assessment of the innovation and decarbonisation plans of a project. This theme was raised more frequently by respondents from organisations, and particularly from the energy and power sectors. Respondents who provided details took one of two main stances. Firstly, some respondents argued that focusing on decarbonisation from the production side of oil and gas without reducing the emissions from consumption would have very little impact on net zero, and would thus distract from climate goals.

“Innovation in decarbonising the production of oil and gas in our opinion is greenwashing. Production/extraction is responsible for 20% of overall emissions from oil and gas and small reductions in this are therefore not going make a large impact and amounts to a token effort, where money would be better spent on investing in renewables, green hydrogen or other sustainable energy vectors.” (Organisation – Energy services)

“Whilst not insignificant, the emissions due to extraction and production are tiny compared with the total 'belch' of co2 into our atmosphere that would result from the consumption of the oil and gas that is currently geologically secured beneath the sea-bed.” (Individual)

Conversely, some respondents argued that the existing regulatory framework accounts sufficiently for decarbonisation efforts and thus no further tests are required.

“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.” (Organisation – Professional or representative body)

The next most commonly raised theme by respondents was disagreement with any new exploration and extraction of oil and gas. Respondents raising this theme generally argued that regardless of the innovation and decarbonisation standards, any new oil and gas production is contrary to net zero ambitions.

“[...] Even if the extraction of oil and gas was somehow able to be 100% clean and renewable, there is no means of burning new oil and gas that would be compatible with global climate targets and attempts to limit global warming to 1.5°C. While efforts to decarbonise production ahead of wind down within this decade should be encouraged, they should not be allowed to enable any additional exploration, development or production.” (Organisation – Advice, advocacy, or campaigning)

“No new oil or gas production should be allowed considering the current climate crisis and related goals.” (Individual)

Q23e. If there is to be a rigorous CCC test, what criteria would you use within such a test? In carrying out a CCC test, should oil be assessed separately to gas?

This question was answered by 76 respondents.

The most common theme in the responses to this question was laconic comments either in agreement or disagreement with the proposal that oil and gas be assessed separately. A similar amount of respondents were in favour of and against the proposal among those who did not justify their opinion, with the majority of respondents being individuals.

The second most prevalent theme raised by respondents was concern over the feasibility of assessing oil and gas separately. This view was held predominantly by respondents from organisations, including in the energy and power sectors, professional and representative bodies, and local authorities. Respondents raising this theme generally argued that it is very challenging to discern the mixture of oil and gas in a resource before the exploration phase of a project, and thus it would be unfeasible to apply the CCC test separately for each. Across respondents raising this theme, support for the overall proposal was mixed.

“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.” (Organisation – Professional or representative body)

“[...] given this test should apply ahead of a licensing round a potential operator does not have a definitive view of what resource will be available in that block, that certainty comes later in the development.” (Organisation – Energy services)

The next most frequently raised theme among responses to this question was agreement that oil should be assessed separately to gas because they are two very different resources. Responses in this theme were mostly from organisation respondents. Respondents generally highlighted that this was important because there are significant differences in both uses and emissions resulting from the two fossil fuels.

“Yes. As a more complex range of molecules, oil hydrocarbons burn less efficiently and cleanly than gas, so purely in terms of pollution oil should be assessed separately. In addition, gas is easier to transport, which results in lower amounts of pollution.” (Individual)

“Yes, whilst the use of natural gas appears to be limited to its role within the energy system, oil has some further role within e.g. the plastic and pharmaceutical industry. As such, when assessing future production it might be beneficial to assess oil and gas separately.” (Organisation – Local authority)

“Both have different uses, which should be described in the economic assessment aspect of the CCC. Oil is currently also the main feedstock for polymeric materials industry, which could be an important aspect for continued exploration, although it may only constitute a small fraction of overall oil consumption and thus not economically viable for North Sea extraction.” (Organisation – Energy services)

Q24. 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? Please explain your views.

This question was answered by 106 respondents.

The most prevalent theme raised by respondents to this question was opposition to any new fossil fuel projects. This theme was raised predominantly by individual respondents, and respondents from environmental organisations. Respondents raising this theme generally argued that the adverse effects of carbon emissions, including their contribution to climate change, outweigh any positive economic and social benefits to Scotland from a new oil or gas production project.

“If Scottish is to achieve the focus on renewable energy needed to achieve its net-zero goals, we would recommend that derogation should not be applied to oil and gas projects during the consenting process. A reliance upon derogation in order to consent such projects is not compatible with the Scottish government’s net-zero targets and call for an accelerated reduction in these highly polluting forms of energy.” (Organisation – Energy Services)

“Not really since such an assessment would be based on the assumption of a stable, safe and functioning society prospering on a liveable planet going forwards – all of which we risk losing by continuing to dump vast amounts of carbon into our atmosphere.” (Individual)

The second most commonly raised theme was agreement with assessing the economic benefits of new production projects. These respondents often cited various possible economic benefits such as tax revenues, contributions to the annual GVA, and jobs created by new investments.

“Yes, there should be benefit to Scotland from development of resources in Scotland. Positive tax revenue projections, employment/industry prospects, energy availability, reliability and cost benefits, commensurate with the exploitation of the resource and any risks involved.” (Individual)

“[...] the industry wide benefit should be taken into consideration given the clear economic benefit the industry current provides to Scotland and the rest of the UK. Similarly, the jobs and skills that are retained in the oil and gas industry have an impact on this which is why the just transition plan is so important.” (Organisation – Energy services)

The next most commonly raised theme was the importance of also assessing environmental factors associated with any new projects. This theme was raised more frequently among respondents from organisations, and mostly among respondents from environmental organisations. Respondents raising this theme generally argued that the potential positive and negative ecological and climate impacts should be carefully considered before approving any new projects.

“[...] any new production should assess the impacts altogether, including the positive and negative impacts (or benefits and disbenefits). Rising temperatures due to excess carbon in the atmosphere would be a disbenefit of any new production and must not be overlooked. Equally, environmental impacts should also be considered, as well as opportunities for ‘net-gain’ with regards to biodiversity.” (Organisation - Advice, advocacy, or campaigning)

“Economic impact should be considered. However, it should not be considered as a trade-off with climate impact. Ideally, the CCC test would aim to assess whether new production had both an acceptable climate impact and an economic benefit.” (Individual)

“Social and economic impacts [...] should, of course, be considered. However, it is important that this does include the disbenefits – including the considerable and damaging social and economic impacts of a rising mean temperature as a result of emissions. Secondly, any assessments of social and economic impacts should consider the social and economic impacts of alternatives, including greater investment in demand reduction, energy efficiency and/or renewables.” (Organisation – Advice, advocacy, or campaigning)

The next most prevalent theme raised by respondents was the importance of assessing the positive economic and social benefits of new production, particularly where local communities are impacted. This view was more frequent among individual respondents.

“[...] If such production does take place there would need to be a clear assessment of the social and economic benefits within the criteria of community wealth building aims. Production which does not help meet the wider SG policy objectives of community wealth building and the just transition should not be entertained.” (Organisation – Property and housing)

“Yes but not just at the macro scale. Communities are important and should not be sacrificed for the benefit of shareholders. It’s not always about money but environment and way of life also count strongly.” (Individual)

Q25. Should there be a presumption against new exploration for oil and gas? Please give us your views.

This question was answered by 132 respondents.

The most commonly raised theme by respondents to this question was general support for adopting a presumption against new exploration for oil and gas, with the majority of respondents raising this theme not providing a reason for their answer. This view was held by a similar share of individual, and organisation respondents. Among organisation respondents, this theme was raised most frequently by environmental organisations. Respondents who did provide more detail often argued that a presumption against new oil and gas is needed for achieving Scotland’s climate goals and net zero, with extraction of new oil or gas hampering these efforts.

“Yes. There should be outright opposition or a ban on new oil and gas exploration and production. New oil and gas production is incompatible with the international agreements to which Scotland, via the UK, is a party. [...]” (Organisation - Property and housing)

“Yes. further oil and gas exploration entails further locking Scotland’s economic structure into a declining sector which it has furthermore been politically agreed is so highly damaging to the future of the planet that it cannot continue. Permitting more exploration in effect presumes decades of future production.” (Individual)

Many respondents expressed their views as to which key actions the Scottish Government should take in the context of implementing a presumption against oil and gas. Some respondents argued Scotland should primarily focus on investing in renewable energy sources. Other respondents called for a stricter stance by the Scottish Government towards oil and gas production, including phasing out approved projects.

“[...] Scottish Government should commit to a fully renewable energy system by 2030.” (Individual)

“Yes. the Scottish government should not only adopt a presumption against new exploration for oil and gas, it should unconditionally oppose all oil and gas exploration and permitting of new projects, and support the phase out of existing licences in line with 1.5°C. This is likely to mean phasing out UK oil and gas extraction within this decade. While the power to phase out offshore oil and gas extraction lies with the UK government, the Scottish government must cease to support such activity through any devolved means such as funding, crown estate licensing and planning.” (Organisation – Advice, advocacy, or campaigning)

The second most prevalent theme raised by respondents was opposition to the Scottish Government adopting a presumption against new oil and gas exploration. Respondents cited various reasons for holding this view, including that oil and gas is still widely used, and that domestic production is environmentally better than alternative supply sources from abroad where the standards of extraction are not as strict. Some respondents also argued that oil and gas are important sectors for the Scottish economy as well as play a role in ensuring energy security. Other respondents suggested that the focus should instead be on reducing imports and overall oil and gas demand rather than reducing the supply.

“No, oil and gas will continue to provide a large proportion of global energy needs. Producing from a mature basin with significant infrastructure has valuable benefits. [...]” (Individual)

“No. there is a clear need for hydrocarbons within the UK and internationally for many decades to come. [...] hydrocarbons will remain essential for baseload electricity supply, as well as more broadly across sectors including transport and heavy industry until alternatives such as hydrogen are available at scale. Even then, there remains significant needs across petrochemicals, plastics, agriculture, manufacturing and so on. The importance of the sector in providing hydrocarbons of below average carbon intensity cannot be overstated. The cessation of exploration and therefore production does nothing to change the demand profile, which would need to [be] met using imported fuels of a higher carbon intensity than those produced domestically. [...] Producing hydrocarbons domestically allows society, via government to put in place rigorous environmental consenting and monitoring controls that may be lacking from other countries from which hydrocarbons may be sourced.[...]” (Organisation - Energy services)

“[...] Despite having no regulatory authority for licensing, adopting such a position creates uncertainty for a sector that supports 90,000 jobs across Scotland. [...] A blanket presumption either way on future production would limit the ability of government to maintain a pathway that delivers the energy transition without threatening energy and economic security.” (Organisation – Energy services)

The next most prevalent theme raised by respondents to this question was the argument that the transition from fossil fuels to renewable sources will be a gradual process, and thus accommodation for some new oil and gas exploration could be required. This theme was mostly raised by organisation respondents.

“Yes, but the timing should be assessed against reducing levels of demand and the likelihood of requiring imports. Oil and gas is needed for the transition phase.” (Organisation – Local authority)

“No we must be practical. Oil is still a vital resource for many things beyond fuel, plastics to name one thing. We still need to make use of both oil and gas to help fund the transition, and gradually slow it's use as renewables take more hold. A considered process and plan must be created.”
(Individual)

Q26. 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? Please explain your views.

This question was answered by 101 respondents.

The most commonly raised theme by respondents to this question was opposition to new exploration under any circumstances, without providing a clear reason for their disagreement. The majority of respondents raising this theme were individuals.

“No there are no circumstance under which this exploration could be permitted.” (Organisation – Community group)

The second most prevalent theme raised by respondents was the argument that oil and gas should be extracted in the instance of exceptional market conditions. The most common argument raised in relation to this theme was that exploration should be allowed if there are risks to the resilience of the energy supply in Scotland. Other respondents suggested that oil and gas exploration should be permitted so long as there is demand that cannot be met by renewable sources.

“Essentially if our energy security is crippled, but this should not happen.” –
(Individual)

“Continue to explore and produce while demand exists, and until the alternate all renewable can be proven to reliable, secure and affordable.”
(Individual)

The last commonly raised theme was the argument that the presumption against new exploration should be upheld under all circumstances for environmental reasons. This theme was raised predominantly by organisation respondents, mainly from environmental organisations. Many respondents raising this theme suggested that meeting Scotland’s climate goals and international commitments should be prioritised over exceptional circumstances.

“[...] the evidence is clear that emissions from investments in new oil and gas production go beyond the constraints of the Paris agreement, [...]. The consequences of breaching these constraints risk the lives and livelihoods of people in the UK and around the world. [...]” (Organisation – Advice, advocacy, or campaigning)

“No. If we are serious about demonstrating global climate leadership, and if we acknowledge our duty to play a part in the delivery of climate justice, we need to cancel all new fossil fuel projects.” (Individual)

Chapter 4: Energy demand

Heat in Buildings

Q27. What further government action is needed to drive energy efficiency and zero emissions heat deployment across Scotland? Please give us your views.

This question was answered by 193 respondents.

The most frequently raised theme amongst respondents to this question was the view that there should be increased financial support and incentives to drive energy efficiency and zero emissions heat deployment across Scotland. These respondents typically argued that financial support should be scaled up to support households with making energy efficiency improvements. This was often viewed as particularly important for driving uptake amongst low-income households, who were viewed as likely to disproportionately bear the costs of the transition to net zero.

“Dramatically scale up the financial support available to households to install low carbon technology to a level that matches the targets set. Far too little has been made available through home energy Scotland to achieve anything like the 1.2m low carbon heating systems in homes targeted by 2030 (requiring around 170,000 installations each year from now until 2030, against an actual level of installation of just 3,500.” (Individual)

The next most frequently raised theme amongst respondents to this question was the view that government action should support large-scale uptake of improvements to building insulation. Respondents raising this theme, mostly comprising individuals, generally argued that improvements to insulation of buildings should be undertaken at a collective rather than individual level. For example, whole streets and neighbourhoods could be insulated effectively in parallel rather than on an individual building basis.

“It would make much more sense for the whole street (or neighbourhood) to be dealt with at the same time. A single organisation would survey the whole street, propose suitable measures, organise and carry out the conversions and installations, no doubt using sub-contractors, but coordinating and overseeing the work. This model makes sense for heat demand reduction (especially insulation), and for heat supply where heat networks are feasible.” (Individual)

The third most frequently raised theme was the view that government action should focus on increasing public awareness of the value of energy efficiency improvements and zero emissions heat deployment. These respondents typically argued that there should be long-term public awareness campaigns which underline the benefits of energy-efficient technologies and the behavioural changes needed for using renewables in heating buildings. In turn, it was hoped that this would increase public demand for these technologies.

“There is a clear need not only for generalised energy information but also for advice, specific to each home and household. To meaningfully drive energy efficiency and increase the implementation of low carbon heating

systems across households in Scotland, especially that of older households, the Scottish government must launch a public engagement campaign on the benefits of energy efficient and low carbon homes. the aim of the campaign should be to ensure homeowners and landlords are aware of what's required what support is available and where to go for help." (Organisation – Academic, think tank or consultant)

Energy for transport

Q28. What changes to the energy system, if any, will be required to decarbonise transport?

This question was answered by 151 respondents.

The most prevalent theme raised by respondents to this question was the need to enable the mass-scale adoption of Electric Vehicles (EVs) to achieve the proposed targets for decarbonisation of transport. Respondents most commonly raised the view that it will be crucial to develop EV charging infrastructure throughout Scotland to facilitate mass-scale uptake of EV technology for transport.

"[...] As electric vehicles (EVs) will be the main technology to decarbonise road transport, we would urge all levels of government to support more widespread availability of EV charging infrastructure. It is our view that particular attention should be paid to areas where the market isn't delivering, to ensure that no communities are left behind. [...]."
(Organisation – Energy services)

Some respondents also highlighted the need to upgrade Scotland's energy grid to establish the reliable, robust, resilient, and flexible infrastructure necessary to effectively support the increased demand for electricity from mass-scale uptake of EVs.

"[...] The key unlocking action that the Scottish Government should take is making and generating significant investment in higher capacity and smarter energy grid infrastructure, which would allow the energy system to handle both renewable electricity production and cater for increased demand resulting from higher take-up of decarbonised modes of transport. [...]."
(Organisation – Energy services)

Other respondents viewed it as necessary to expand Scotland's renewable energy capacity to ensure that EVs are charged through low-carbon sources.

"[...] It is imperative to accelerate the deployment of renewable generation as quickly as possible, so that the UK have sufficient generation to meet the energy requirements of a completely decarbonised transport fleet. [...]."
(Organisation – Energy services)

The second most prominent theme raised by respondents to this question was the view that it will be important to incentivise a shift in transport habits in Scotland, specifically from individual private vehicles to active modes of travel such as cycling and walking, and public transport. These respondents typically highlighted the need for government intervention to make private transport more costly or less desirable while

enhancing the appeal and viability of sustainable travel modes, such as public transport.

“[...] It will be important to make active travel and public transport an easier, safer, more reliable and more cost-effective alternative to the private car. This will require good planning, well-connected networks and competitive pricing. [...]” (Organisation - Advice, advocacy, or campaigning)

The third most prevalent theme raised by respondents was the role of hydrogen fuels in the decarbonisation of transport. Respondents generally viewed this as particularly relevant for decarbonisation of heavy goods vehicles, trains, and maritime transport. These respondents also commonly emphasised the need for complimentary infrastructure, such as hydrogen hubs and fuelling stations, to facilitate the widespread adoption of hydrogen fuelled vehicles.

“[...] Hydrogen production is likely to be necessary, especially for decarbonising heavy transport, aviation and shipping. This will need a network of hydrogen refuelling stations to be deployed but also development of manufacturing and transport facilities for making derivatives such as methanol and ammonia, as well as the production of sustainable aviation fuels potentially including the capture and use of CO₂. [...]” (Organisation – Energy services)

Q29. 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?

This question was answered by 125 respondents.

The most prevalent theme raised by respondents to this question was the view that the most equitable and efficient approach to funding the decarbonisation of the transport sector would be a tax on carbon intensive transport activities. Respondents suggested a wide range of specific measures, here listed in order of their prevalence: fuel duties, road pricing, levies on frequent flyers, increased parking charges, pay-to-access restricted vehicle zones, and congestion charges. Some respondents highlighted the need for any tax to be implemented in a fair way.

“The Scottish Government should look at disincentives to car driving, such as road pricing or a congestion charge in cities. We believe that any charges should be equitable and reflect the environmental and social impact of vehicles, therefore we would particularly welcome charges linked to vehicle emissions or lifecycle emissions, especially for passenger cars.”
(Organisation - Advice, advocacy, or campaigning)

The second most prevalent theme raised by respondents – mostly local authorities and organisations in the energy and power sectors – was the need for government support to incentivise private investment into the decarbonisation of the transport sector. These respondents typically highlighted the substantial upfront costs and uncertainties associated with delivery of new transport infrastructure, which can act to deter private sector investment. It was thus argued that financial and regulatory measures should be implemented by government to mitigate these risks and uncertainties.

“While private finance will support much of the transition, the Scottish Government must provide greater certainty for investors by removing existing obstacles to delivery, providing policy stability for the medium and long term and by laying out tangible actions with corresponding short, medium and long-term timescales. [...]” (Organisation – Energy services)

The third most common theme raised by respondents was the suggestion to finance the decarbonisation of the transport sector through general taxation, including income taxes. These respondents typically argued that this approach would be a progressive means of funding improvements in transport infrastructure given that contributions would be broadly aligned with the income levels of households.

“[...] [Raising the necessary funds through general taxation] is more progressive as it takes into consideration the income variations across households and passes more of the cost to higher income households, who are also more likely to be EV users. [...]” (Organisation – Academic, think tank or consultant)

Q30. What can the Scottish Government do to increase the sustainable domestic production and use of low carbon fuels across all modes of transport?

There were 109 respondents who provided answers to this question.

The most frequently raised theme by respondents to this question was the view that the Scottish Government should take proactive measures to promote the production and adoption of low carbon hydrogen across all modes of transport, with an emphasis on heavy duty vehicles, maritime transport, and aviation. Respondents often suggested a holistic approach consisting of funding initiatives as well as regulatory and legislative adjustments to achieve the desired outcomes.

“[...] There are six key actions the Scottish can take to increase the sustainable domestic production and use of low-carbon hydrogen across all modes of transport: 1) Change the ‘hazardous fuels’ legislation. [...] 2) Provide financial incentives [...] to encourage the adoption of low-hydrogen fuels across all modes of transport. [...] 3) Develop infrastructure: [...] invest in the development of low hydrogen fuel infrastructure, such as refuelling stations and charging points. [...] 4) Support research and development: [...] this could include funding for academic research, as well as support for industry-led initiatives to develop new low-hydrogen fuel technologies. [...] 5) Encourage collaboration [...] between industry, academia, and government to support the development of low hydrogen fuel technologies. [...] 6) Raise public awareness [...] about the benefits of low-hydrogen fuels and encourage their adoption by consumers. [...]” (Organisation – Energy services)

The second most commonly raised theme was opposition to the Scottish Government's proposal to boost domestic production and adoption of low-carbon fuels. These respondents generally advocated for more ambitious change, emphasising the need for a complete modal shift towards active travel and public transport, along with the widespread adoption of zero-emission transport, such as electric vehicles.

“The Scottish Government should not be encouraging or increasing the blanket use of 'low-carbon' fuels for all modes of transportation. [...] Journeys where no alternative to a car is possible, electric cars are more efficient and more cost effective than hydrogen cars. The infrastructure for electric charging vehicles is already much more advanced and therefore much more competitive than hydrogen. The Scottish Government should be encouraging people to use active and public transport measures that are increasingly electric rather than encouraging alternative fuel modes in private car usage. [...]” (Organisation – Advice, advocacy, or campaigning)

The third most prevalent theme raised by respondents was the view that stimulating demand for low-carbon transport modes will be the most effective and viable approach to promoting domestic production and utilisation of low carbon fuels. Respondents generally argued that this should be supported by providing incentives for the purchase and usage of low carbon fuel vehicles, targeting individuals and private companies as well as the public sector when replacing transport fleets.

“[...] To encourage use, offer funding/incentives for uptake and disincentives for not shifting. Utilise grant funding to public organisations as a lever for change and use influence to achieve bulk buying of low emission vehicles across the public sector. Influencing the demand side might create the right conditions for investment in production.” (Organisation – Property and housing)

Q31. 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?

The question was answered by 111 respondents.

The most prevalent theme raised by respondents to this question was a request for simplification and streamlining of a series of procedures connected with the planning and development of new EV charging infrastructure, both for new buildings and on existing premises. Several sub-themes emerged, all ultimately advocating for facilitating faster and easier implementation of EV charging infrastructures. These sub-themes included, in no particular order:

- Digitising the planning process for EV charging infrastructure development, especially on brownfield sites.

“Planning regulations should not present obstacles to the development of renewables infrastructure, especially where this is done on brownfield sites. Processes should be digitised to make it as easy as possible to obtain legal security to install EV chargers.” (Organisation - Academic, think tank or consultant)

- Simplifying and streamlining the wayleaves process for granting permission for renewable connections over private land.

“[...] The wayleaves process could be reformed to grant permission more easily for new renewables connections over private land. This would involve simplifying and streamlining the process for obtaining permission to install charging infrastructure [...] particularly in cases where the infrastructure needs to cross private land.” (Organisation – Energy services)

- Harmonising processes across different Local Planning Authorities to reduce timelines for planning permissions.

“[...] Deployment of public electric vehicle infrastructure would be much higher than current if the delays due to long planning permission timescales were not holding it up. Different LPAs have different processes so a large number of deployments are awaiting planning permission; making the process more efficient would help greatly.” (Organisation – Energy services)

- Implementing simple rules, such as a presumption of approval, for the installation of small-scale charging infrastructure.

“Changes should incorporate [...] streamlining of planning approaches, with simple rules for example that allow for a presumption of approval for the installation of small-scale charging infrastructure.” (Organisation – Energy services)

- Improving the process of engaging with distribution network operators (DNOs) to expedite the DNO-approval stage and enabling work.

“[...] Grid connections remain one of the biggest bottle necks in delivering infrastructure. DNOs are improving in responsiveness, but it remains a very slow and burdensome process to gain connections even once chargers are in the ground. [...]” (Organisation – Energy services)

- Streamlining the process for obtaining new substations to cope with the increased demand for energy driven by EV charging infrastructure in new housing projects.

“Installing EV charging pillars within new build housing projects can significantly increase energy demand and can necessitate the requirement for substations where previously they were not required. The legalities required for new substations seem to take a very long time to arrange. [...] A clearer and faster process for upgrading the infrastructure to facilitate and increase the inclusion of EV charging points would be of great assistance.” (Organisation – Local authority)

- Addressing the challenges around consent and land access rights from landlords, which can hinder the installation of EV infrastructure.

“[...] Challenges arise to get permission from the landlords/landowners which hampers decarbonisation efforts. [...] Therefore, we would welcome any regulatory and/or policy initiatives that would support businesses in this type of situations and address the significant challenges around consent and land access rights [...]” (Organisation – Energy services)

The second most common theme raised by respondents was general support for the mandatory installation of EV charging stations in new buildings, as well as in any existing premises equipped with car parking spaces.

“[...] Make it mandatory for organisations providing staff and customer parking to provide EV charging (to a universal standard) for all bays. [...]”
(Individual)

“[...] We support the march 2023 changes to the building regulations, requiring EV chargepoints for both new buildings and major renovations. we believe that this broad building approach will help reduce barriers to EV uptake and will levelise costs for households regardless of whether they live in owned, rented or social housing.” (Organisation – Energy services)

Q32. What action can the Scottish Government take to ensure that the transition to a net zero transport system supports those least able to pay?

This question was answered by 131 respondents.

The majority of respondents to this question agreed that the optimal approach to supporting a transition toward a net-zero transport system, without imposing undue burden on those with limited financial means, is by ensuring an affordable, reliable, integrated, and potentially zero-emission public transport service.

Among these characteristics, affordability was the most frequently cited aspect for the Scottish Government to consider. Some respondents suggested specific measures to address affordability, including free public transport or the extension of subsidised fares to include more categories.

“[...] In our research with Transport Scotland, public transport was shown to be both used to alleviate poverty but the cost to access public transport can also further entrench the poverty people are facing. [...] The findings of this research highlight the importance of building a long-term sustainable transport system that ensures that transport costs never again contribute to pulling people into poverty or forcing people into expensive private car ownership. [...] It is therefore our recommendation that the Energy Strategy and Just Transition Plan detail more explicit plans on how the Scottish Government will reduce car kilometres, with our recommendation that the expansion of free public transport be rolled out as quickly as possible. [...]”
(Organisation – Advice, advocacy, or campaigning)

Improvements to the reliability and integration of public transport (i.e., the seamless utilisation of various modes of transport from different providers) were also viewed by some respondents as key areas that could be supported by the Scottish Government, particularly in low-density regions of Scotland, where there is often reliance on private cars for transport.

“[...] Public transport needs to be affordable, accessible and reliable. Routes need to serve all communities and services must be frequent enough to meet everyone’s needs. In addition, public transport provision across all modes and operators needs to be joined up, for example via the

implementation of a single ticketing service. [...]” (Organisation – Advice, advocacy, or campaigning)

The second most prevalent theme raised by respondents was that the Scottish Government could act to support access to EVs amongst low-income households. Several specific measures were suggested, including:

- Taking action to support equitable distribution of EV charging infrastructure throughout Scotland, including areas with lower affluence or less population density where market forces may not naturally provide such infrastructure.

“[...] 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. [...]” (Organisation – Professional or representative body)

- Reducing the cost of charging EVs at public charging stations, given the current rates of using these are higher than charging in homes using domestic energy.

“[...] Currently, value added tax (VAT) is applied to public EV charging at 20%, whereas VAT on domestic electricity is 5%. This price disparity means that those unable to charge at home because they do not have off-street parking pay four times more tax for electricity when using public chargepoints. [...]” (Organisation – Energy services)

- Implementing targeted incentives to encourage the purchase of EVs, such as promoting the second-hand EV market or introducing scrappage schemes to incentivise the transition from carbon-intensive vehicles.

“[...] There is clearly a need to make the transition to a low carbon transport system ‘just’ by, for example, offering generous scrappage schemes for people impacted by new LEZs. To this end, we think it is essential that the following funding programmes continue: [...] the used EV loan scheme to support the uptake of electric vehicles for those unable to afford new vehicles. Creating a thriving second-hand EV market will be essential to drive the uptake needed to decarbonise road transport. [...]” (Organisation – Advice, advocacy, or campaigning)

The third most prominent theme raised by respondents was the view that there is a need to encourage the uptake of active travel, which was regarded as both the most environmentally friendly and cost-effective mode of transport. Respondents raising this theme generally emphasised the need for an expansion and improvement of active travel infrastructure, such as cycle infrastructure, alongside support for acquiring active travel vehicles and related equipment.

“[...] Development of supporting infrastructure for [active travel modes] (e.g., parking/storage facilities, dedicated lanes, charging facilities) and legislation is required for co-existence with other travel modes. Subsidised safety equipment for active travel (e.g., helmets, reflective strips etc.) would enable

those least able to pay to safely participate in more active travel. [...].”
(Organisation – Academic, think tank or consultant)

Q33. 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?

This question received 99 responses.

Apart from the specific themes covered by the respondents – reported in the following paragraphs – there was a general agreement that communities are already playing a significant role in decarbonising transport in Scotland. According to this view, community-led projects are well placed to propose low or zero emission transport alternatives tailored to the needs of their local citizens, as opposed to one-size-fits-all national solutions that may not address specific local requirements. Notably, community energy organisations were viewed as experts in engaging with communities and effectively implementing community-oriented initiatives.

“[...] Community Energy England’s UK-wide State of the Sector report notes that the number of planned transport projects outstrips those for energy storage, heat generation or demand-side management respectively. [...].”
(Organisation – Academic, think tank or consultant)

The most prevalent theme raised by respondents was the view that community-owned energy projects have a key role to play in decarbonising the transport sector. Some of these respondents argued that community-owned transport infrastructure, such as EV charging points, could have a role in making low-emission transport more accessible and convenient for local residents. This solution was viewed by some respondents as particularly relevant for rural and island communities, where access to the national grid may be more challenging. Some respondents argued that surplus renewable energy generated by these projects could be used to produce green hydrogen or other low-carbon fuels, which could further contribute to decarbonising transport, particularly in sectors where electrification is challenging, such as long-haul freight or aviation.

“Community energy programmes could be connected to electric vehicle charge points to create a more integrated system which prioritises communities and delivers multiple benefits to citizens. Community run renewable energy could potentially help to supply/power electric buses, in exchange for improved services based on community needs which would improve public transport networks and reduce car use. [...].” (Organisation – Local authority)

It was suggested by some respondents that the Scottish Government could provide financial support to help cover the initial capital costs of community energy projects to improve their financial viability, as well as provide other types of non-financial support, such as clear guidelines and an efficient permitting process.

“[...] The Scottish Government can make community ownership more accessible by ensuring access to financial and regulatory support for individuals and communities. By doing so the Scottish Government would be able to ensure that community energy can be used as part of electric

vehicle charging infrastructure. [...]” (Organisation - Advice, advocacy, or campaigning)

The second most prominent theme raised by respondents was the view that community-based transport solutions can contribute to the decarbonisation of transport, helping to reduce private car usage. Respondents viewed this as particularly relevant in low-density areas where conventional public transport is less effective and thus represents a less viable alternative to private vehicles. Some respondents offered specific solutions to address this issue, such as ride-sharing, car clubs, and demand-responsive transport.

“[...] This kind of project could prove especially beneficial in more remote communities where electric car clubs or community-led demand responsive transport could help to improve mobility for residents and reduce reliance on personal vehicles and so reduce emissions. The role ride sharing, whether through a formal platform or not, can play in reducing car kms, cost and emissions is often under-represented when we think about the future of mobility. [...] If approached strategically, community transport can support public transport by supporting gaps in accessible services rather than compete with them, creating a more integrated transport offering. [...]” (Organisation – Advice, advocacy, or campaigning)

Some respondents argued that the Scottish Government has a role to play in supporting community transport initiatives, both from a financial perspective and through providing information and expertise.

“[...] In addition to financial support, the Scottish Government can provide technical assistance to communities, such as training and expertise in project management, to help them successfully deliver community-led transport initiatives. [...]” (Organisation – Energy services)

The third most prevalent theme raised by respondents was the view that policymakers should engage with communities in the development of tailored solutions for decarbonising transport. These respondents generally argued that, by doing so, policymakers can ensure that the transport solutions proposed are contextually relevant and sensitive to local circumstances. Some respondents also suggested that tailored solutions will be more likely to be supported by communities, contributing to uptake and overall success.

“Behaviour change within communities is key to delivering the transport transition to net zero [...]. Engaging with the public early on in these intervention designs, and ensuring their values and needs are incorporated is needed for achieving this behaviour change. [...]” (Organisation – Advice, advocacy, or campaigning)

Q34. What, if anything, could be done to increase the reuse of electric vehicle batteries in the energy system?

This question was answered by 102 respondents.

The most prominent theme raised by respondents was the need for repurposing end-of-life EV batteries by finding alternative applications for them once they are no longer suitable for use in EVs. It was argued that these batteries, although they may have reduced capacity, can still retain a significant amount of energy storage capability. By repurposing them, respondents generally argued that their lifespans can be extended, for example through use in stationary energy storage applications.

Regarding repurposing, respondents typically suggested covering a wide range of applications, from local power storage systems during high-demand periods or power outages to supporting energy resilience in rural communities. Suggestions also included using batteries for solar energy storage, grid stabilisation, stationary storage applications, and community energy projects. Other suggestions included establishing supply chains for repurposing batteries, developing standardisation and testing procedures, providing incentives and financial support for battery reuse, addressing safety concerns, and promoting awareness and education about battery recycling and repurposing.

The respondents emphasised a range of measures that the Scottish Government can adopt or promote, including (in no particular order):

- Providing incentives for rural communities to install reused electric battery packs in tandem with their diesel generators and oil heating systems.
- Installing second-life batteries in schools, hospitals, community centres, and supplying them at cost to crofters and farmers to aid the transition in agriculture.
- Funding best practice guidance and providing clear guidelines on the safe and effective use of electric vehicle batteries to encourage their incorporation into energy systems.
- Supporting grant-funded demonstrator projects and innovation programmes to better understand reuse options and raise awareness.
- Supporting manufacturers in developing repurposing solutions for old batteries to reduce the financial burden.
- Incentivising the use of end-of-life EV batteries for home and neighbourhood energy storage to reduce demand on the national grid.
- Offering batteries to community projects at a reduced rate to encourage the installation of renewable energy generating facilities with battery storage.

The next most prominent theme was the need for the recycling of EV batteries, involving the process of breaking down the battery components to recover valuable materials and reduce environmental impact. The recycling was explained by respondents as including sorting, dismantling, and extracting valuable materials like

lithium, cobalt, nickel, and other metals from the batteries. It was argued that these materials can then be used to manufacture new batteries or other products. These respondents generally viewed recycling as essential for minimising waste, conserving valuable resources, and reducing the environmental impact associated with battery disposal.

While repurposing was explained as key for extending the usefulness of batteries in different applications, recycling was viewed as having a role in recovering valuable materials to create new products, including new batteries. Some respondents suggested the two approaches were not contradictory, given they can take place at different points through the life of a depleted battery.

“The second life battery market for home and commercial energy storage will push the need for recycle and eventual disposal back further for a number of years. A used battery that no longer has retained capacity for powering a vehicle still has a significant economic value for storage purposes. This also helps maximise the benefits of renewable energy by smoothing out the disconnect between generation time and use time. At eventual end of life the rare earth metals will still have an economic value for recycling. [...]” (Organisation – Energy services)

To promote the recycling of EV batteries, some respondents provided specific suggestions including:

- Establishing dedicated recycling facilities for EV batteries to ensure proper disposal and extract valuable materials.
- Standardising battery designs and labelling them to facilitate safe and easy opening, disassembly, separation, and extraction of materials during the recycling process.
- Introducing a minimum level of recycled content in new batteries which can incentivise manufacturers to pursue greater recycling.
- Promoting greater research and development efforts in battery recycling and extending the lifetime of EV batteries.

Energy for agriculture

Q35. 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? Please give us your views.

The question was answered by 112 respondents.

The most prevalent theme raised by respondents to this question was specific suggestions for aspects of the transition for which the agricultural sector would need additional support. The most prominent suggestions related to support for the transition to renewable energy sources, support for reducing the sector’s reliance on fertilisers and pesticides, and support for the decarbonisation of agricultural machinery, primarily vehicles.

“Tax relief on installation of renewable energy systems/storage. Incentives to increase bio energy from agricultural waste/by-products. Investment in agri-voltaics.” (Individual)

“The decarbonisation of fuel usage by agriculture machinery is a key area for action [...] Research must address the practical suitability for alternative fuelled vehicles to be fit for purpose [...]” (Organisation – Local authority)

The second most frequently raised theme was that the Scottish Government should provide technical expertise and advice to help the agricultural sector implement the transition. This was viewed as necessary given the time and financial resources needed to determine how best to decarbonise agricultural activities.

“The agricultural sector is already under significant pressure as costs increase and profits are squeezed. The resources available, both time and financial, may well be limited and we would therefore welcome continued and enhanced support to the sector to enable them to make changes towards the decarbonisation of their energy use. [...]” (Organisation – Local authority)

The third most commonly raised theme was that financial support should be targeted toward plant-based agriculture or agriculture supplying local markets, which were viewed as less carbon-intensive. It was generally argued by these respondents that Scotland’s emissions could be reduced by transitioning away from carbon-intensive agricultural modes such as livestock production. Supportive actions suggested by respondents to promote less carbon-intensive agriculture included financial support as well as government action to increase demand for products deriving from these modes, for example, through awareness campaigns.

“[...] We need a rapid shift from livestock production (cows, pigs, sheep) as these are agriculture’s main consumers and emitters of fossil fuels/greenhouse gases, including methane. [...]” (Individual)

“[...] Encourage local production and consumption of food. [...] Steps to make it easier for local produce to get to market and an awareness campaign on the benefits of local food will both be beneficial. [...]” (Organisation – Professional or representative body)

Energy for Industry

Q36. What are the key actions you would like to see the Scottish Government take in the next 5 years to support the development of carbon capture, utilisation and storage (CCUS) in Scotland? Please give us your views.

The question was answered by 127 respondents.

Respondents answering this question were balanced between approval and disapproval of the Scottish Government supporting CCUS in Scotland. Respondents in favour generally advocated for the Scottish Government promoting Scottish CCUS projects to the UK Government. This view was mainly held by respondents that answered for organisations, especially in the energy and power sectors. Some respondents also advocated for other actions by the Scottish Government, including

providing more explicit guidance on their ambitions for CCUS, as well as providing financial support for CCUS projects.

“[...] 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. [...]” (Organisation – Professional or representative body)

Respondents in opposition mainly consisted of individual respondents who advocated for the Scottish Government refraining from taking any action to support the development of CCUS in Scotland. The three main concerns regarding the promotion of CCUS were that it could be used as an excuse to delay decarbonisation efforts, the significant costs associated with the technology, and the lack of evidence of it being a viable tool to answer the climate crisis, especially at scale.

“[...] Given the overwhelming scientific evidence and a growing list of case studies of failed and underperforming CCUS projects, and its own admission that CCUS and other negative emissions technologies will not deliver in time to contribute to 2030 targets, the Scottish Government must urgently set out a plan B for emissions reduction. The Scottish Government should not be spending public money to support CCUS. The continued over-reliance on CCUS seriously risks Scotland’s ability to meet our climate targets.” (Organisation – Advice, advocacy, or campaigning)

“Drop it. This technology does not work at scale and has become a weaponised tool for the fossil fuel industry to delay actual decarbonisation.” (Individual)

A smaller group of respondents also viewed CCUS as part of the solution for decarbonisation, with these respondents typically advocating for any action from the Scottish Government being focused on creating and gathering further evidence and information regarding the performance of CCUS technology at scale.

“[...] CCS needs more research and development, demonstration and deployment, regulation, and public acceptance to become more widely available and effective. The key action over the next five years is to undertake an evidence-based assessment of the relative benefits and risks before undertaking significant investment in this technology.” (Organisation – Professional or representative body)

Q37. How can the Scottish Government and industry best work together to remove emissions from industry in Scotland? Please give us your views.

The question was answered by 116 respondents.

The most prevalent theme raised by respondents was the view that the Scottish Government should support or incentivise the transition to certain types of

technologies. The most frequently mentioned technologies to support were CCUS, green hydrogen, renewable sources (such as solar and wind), and the electrification of industry.

“Scottish Government needs to encourage industry to transition to inherently low carbon processes, such as heating by green hydrogen, as opposed to natural gas. Where this is not feasible, CCUS should be considered as an intermediate step. [...] Encouragement may require certain incentives, but also financial support, as there is likely a significant cost involved in transitioning, which many industries, particular SMES, will not be able to afford.” (Organisation – Energy services)

The second most commonly raised theme was the view that the Scottish Government should play a key role in coordinating and informing industry stakeholders. These respondents typically highlighted the importance of creating engagement between key stakeholders to coordinate the removal of emissions in industry. Some respondents also mentioned the need to support individual industries in creating specific roadmaps tailored to their characteristics and needs.

“We welcome existing Scottish Government initiatives for cross-stakeholder collaboration and knowledge but encourage the Scottish Government to work further with industry to develop an improved understanding of supply and demand scenarios, including industrial emissions data and incorporating real-world project pipelines, to understand in greater detail what infrastructure and funding for decarbonisation [...] will be required, and where, in order to deliver industrial emissions reductions targets. [...]” (Organisation – Academic, think tank or consultant)

Other themes raised by some respondents included the views that support should be provided for the development of new technologies, and that industry should be incentivised to reduce production and energy usage overall, either through market based mechanisms such as taxes or through tighter regulation such as caps on emissions.

“Scotland should explore and implement the full scope of environmental and emissions regulations and taxes within devolved powers [...] so that all externalities are taxed commensurate to the damage they cause to the planet. [...]” (Organisation – Academic, think tank or consultant)

Q38. What are the opportunities and challenges to CCUS deployment in Scotland? Please give us your views.

The question was answered by 109 respondents.

Respondents to this question most commonly flagged challenges of CCUS deployment in Scotland. The three main challenges mentioned were the need for more government and public support, the high costs associated with the technology, and the lack of evidence that the technology is viable at scale. The latter challenge was mainly raised by individuals, environmental organisations and local authorities, while organisations from the energy and power sectors generally viewed the lack of government and public support as the main challenge. Other challenges mentioned more than once were

issues regarding the distance between storage facilities and where emissions are generated, the risk of environmental damage caused by potential leakages, and the lack of a skilled workforce.

“[...] It does not work yet, and there are many indications that the storage aspects won't ever be sufficiently effective – the capture solutions are known to be insufficiently effective for the long term already. Therefore ccs should not be relied on, but at best pursued as a possible “nice-to-have” interim techno-option. [...]” (Organisation – Advice, advocacy, or campaigning)

“[...] The central challenge is the absence of policy support to enable viable business models.” (Organisation – Academic, think tank or consultant)

Regarding opportunities for CCUS deployment in Scotland, the theme mentioned most commonly was that Scotland has specific characteristics that give it a competitive advantage over other countries, including substantial geological storage resources and existing infrastructure and expertise that can be reused and transferred to help develop CCUS capabilities. A few respondents also highlighted the employment and investment opportunities created by CCUS in Scotland, and the ability of CCUS to support decarbonisation ambitions.

“The concentration of offshore engineering and geochemical expertise in the north east of Scotland, as well as an abundance of existing infrastructure, are rightly recognised in the strategy as key assets to enable CCUS deployment in Scotland.[...]” (Organisation – Academic, think tank or consultant)

Q39. 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? Please explain.

The question was answered by 116 respondents.

The opinions on this question were mixed, and typically varied depending on the type of respondent. Organisations were typically in favour of Scotland being at the centre of a European hub for importing and storing CO₂ from Europe, with many highlighting the characteristics that give Scotland a competitive advantage in CCUS, including a large storage capacity in the North Sea, existing pipeline infrastructure, and transferable skills from the gas and oil sector. Some of these respondents voiced the importance of moving quickly to achieve this ambition, supported by policy action and cooperation with the EU.

“This is worth investigating – the infrastructure, skills, and relationships (NECCUS) are already developed in ne Scotland, and this could be a key plank for a just transition for the oil and gas sector.” (Individual)

“[...] However, it will be crucial to resolve trade barriers that now exist (due to Brexit) that enable carbon to be moved from the EU to the UK. Failure to resolve this issue could limit the opportunity for the CCUS industry to flourish in the UK in general and Scotland in particular, something that is

already leading to the development of alternative sites such as INEOS's Greensands Project in Denmark, Porthos in Dutch offshore waters and northern lights in Norway." (Organisation – Property and housing)

Of respondents opposing Scotland being at the centre of a European hub of this sector, most were individual respondents and their main concern was that it would take the focus away from transitioning away from fossil fuels. Other reasons for opposing the proposal was that more evidence was needed regarding CCUS's effectiveness and costs, and that Scotland should not be used as a place to dump waste originating overseas.

"Absolute waste of time, energy and money. Designed only to kick the can down the road and delay the necessary rapid transition away from fossil fuels, and to keep money circulating between the accounts of the vested interests, who know full well that CCUS cannot be delivered, much less delivered effectively or in timely fashion. [...]." (Individual)

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

Q40. What additional action could the Scottish Government or UK Government take to support security of supply in a net zero energy system? Please give us your views.

The question was answered by 170 respondents.

The most prevalent theme raised by respondents to this question was calling for the Scottish Government to invest in infrastructure that will support the security of supply. This view was most prevalent amongst respondents from organisations in the energy and power sectors. The most common investment areas referenced in relation to this need concerned infrastructure for the transmission, distribution, and storage of energy.

“[...] Without urgent investment in the grid (both transmission and distribution) it will be impossible to realise renewable energy and wider decarbonisation targets. Investment is also needed in the storage technologies (including pumped hydro storage) which will absorb the demand fluctuations and it goes without saying that government (both SG and UK) need to support Scottish companies who are already advancing these technologies. [...]” (Organisation – Property and housing)

The second most prevalent theme raised by respondents was the view that the Scottish Government should provide a supportive policy environment, including a Scotland first policy when it comes to satisfying energy demand. Within this theme, the most common view raised by respondents was that Scotland should focus on fulfilling its own energy demand before exporting, and that the country should decrease its reliance on other countries to guarantee supply. Some respondents also acknowledged the need for a stable and efficient policy environment that supports investor confidence in relation to technologies critical for the transition of the energy system, a theme mainly raised by organisations in the energy and power sectors. Another sub-theme raised was that there should be more regulation and intervention by the Scottish Government to speed up the process for transitioning to a net zero energy system, both in the form of incentives and punishments if targets are not reached.

“A key aspect for the Scottish Government to consider is the extent that it would wish that Scotland develops a homegrown ability to deliver energy system security of supply within a net zero energy system, rather than potentially relying on others to support this outcome. [...] reliance on others as part of an overall solution is less expensive than developing Scotland’s own comprehensive solution in country. However, this also results in a lower level of control over the resilience offered to the Scottish populace. [...]” (Organisation – Academic, think tank or consultant)

“[...] We consider the main pillars required for a net-zero energy system are:
- A stable and predictable policy and regulatory environment, offering clarity and consistency for investors and developers. [...]” (Organisation – Energy services)

The third most prevalent theme raised by respondents concerned the energy mix required to support the security of supply. Most of these respondents agreed that a diverse portfolio of generation technologies will be required to ensure security of supply for Scotland, although opinions were typically divided on whether nuclear energy and fossil fuels should be included in the mix.

“Have a wide range of energy sources to ensure security of supply. Increase hydro schemes and give rational consideration to small nuclear reactors.” (Individual)

“Re-balance renewables production between wind, marine, solar, and hydro to produce a more stable supply.” (Organisation – Academic, think tank or consultant)

Another prevalent theme identified by respondents was the view that there is an important role for reducing energy demand to ensure security of energy supply. Respondents raising this theme generally highlighted that demand management and demand reduction will be critical to solving the supply issue. Specific actions proposed to achieve this included financial incentives, awareness campaigns, and investments in the insulation of buildings. This theme was mainly raised by individuals and organisations outside of the energy and power sectors.

“Demand management resulting in behavioural change is likely to be important, for example, by encouraging consumers to use less electricity at times when there is a shortfall in supply [...]” (Organisation – Professional or representative body)

The next most prevalent theme was that the Scottish Government could take action to incentivise investment into more local and small-scale integrated energy systems, such as micro-generation, to increase security of supply. This would include encouraging and incentivising the use of community energy schemes and assisting in the development of resilient community energy systems, moving away from a centralised energy market.

“Support the creation and implementation of community-owned renewable-powered local microgrids to run parallel to the national grid.” (Individual)

Q41. What other actions should the Scottish Government (or others) undertake to ensure our energy system is resilient to the impacts of climate change? Please give us your views.

The question was answered by 124 respondents.

Among the five most commonly mentioned themes, four were the same as for question 40, with respondents generally using the same arguments and rationales for their views.

The most common theme raised by respondents was the view that there should be investment in the upgrading and maintenance of transmission and storage infrastructure to ensure the energy system’s resilience to the impacts of climate change. Respondents advocated for financial support for general improvements to the

national grid and more specifically, highlighted the need to prepare existing and new infrastructure for changing weather and climate conditions. Specific examples mentioned frequently by respondents were the option of burying grid lines to make them less exposed to weather events, cutting trees near power lines, and mitigation measures to protect existing and new infrastructure from flooding. Regarding the latter, respondents generally argued that rising sea levels and flood events should be considered when deciding on new sites for energy production, and that there should be a focus on restoring natural habitats that function as natural flood defences.

“Bury electric grid lines, so that ice storms, high winds, etc wouldn't damage them.” (Individual)

“One area so far completely understated by the Scottish Government is the impact of sea level rise on Scotland – including its energy system. On current projections, Grangemouth is scheduled to go below sea level even if all climate goals are met. Similarly, coastal facilities like energy importing ports and pipelines along with large scale energy facilities like nuclear energy (current and future) will be threatened (even inshore nuclear, if built, will be threatened by changes to water demands). [...]” (Organisation – Academic, think tank or consultant)

The second most commonly raised theme was requests for government to provide a supportive policy environment (with references made to both the Scottish Government and UK Government, and sometimes government generally), encouraging investment in the maintenance and upgrading of infrastructure. In addition, some respondents advocated for public investment in research regarding the potential outcomes of climate change on the resilience of the energy system.

“The government must ensure that the energy infrastructure has the scope and capacity to create and manage demands as and when needed. This includes legislation / actions / business models to ensure a robust system. [...] We suggest that the Scottish government also considers a climate impact analysis and the benefit of applying mitigation solutions, such as improved flood defences or water provision during increased periods of drought. [...]” (Organisation – Academic, think tank or consultant)

“[...] Modelling the impacts of anticipated climate change on the security of supplies should be a high priority for both governments and regulators and SEAB, if not already in place. We recognise that tremendous work has been undertaken on mitigation of climate change in Scotland, but that adaptation probably remains an area where research is more limited and business and societal impacts are probably less well understood and, certainly, less recognised within the public discourse. [...]” (Organisation – Professional or representative body)

The third most prevalent theme was the view that a more diversified energy mix would be beneficial for the resilience of the energy system. Respondents who provided detail had varied views of what constitutes an appropriately diverse energy mix, with not all respondents agreeing on there being a role for fossil fuels and nuclear energy in this mix. Respondents did not specifically mention how this

would increase resilience specifically with regards to climate change, except for one respondent who raised concerns about the strain on the system due to increased electrification.

“Clearly, as we move into increased electrification of heat and transport, to add to existing systems that depend on electricity, our society’s exposure increases to risk associated with black start scenarios and it is likely that recovery times will be longer. While, thankfully, feared brown outs and even black starts did not materialise over the winter of 2022/23, safety margins are lower and a significant weather-related disruption to grid or generation capacity could have significant consequences. [...] For this reason, and many others relating to efficiency, a strategy for maintaining diverse energy sources would be sensible. [...]” (Organisation – Professional or representative body)

The next most prevalent theme raised by respondents was the view that there should be an increased focus on local energy production, as well as utilisation of microgrids, to promote the resilience of the energy system in the face of impacts of climate change.

“Moves to a more decentralised and low carbon energy system, whereby there are many small generation sites, operating on a smarter and flexible grid system, will mean that the system becomes less reliant on centralised large-scale sites that could go down if disrupted by extreme events caused by climate change.” (Organisation – Energy Services)

Chapter 6: Route map to 2045

Q42. Are there any changes you would make to the approach set out in this route map? Please give us your views.

The question was answered by 152 respondents.

The most commonly raised theme by respondents to this question was the view that more detailed information on the route map was needed. The most prevalent suggestion was for the addition of a comprehensive report on how to achieve the stated targets. For certain sections, people also argued that there was missing information on targets and dates, and that there was a need for more detail on what the transition will cost and how these costs will be funded.

“The energy and just transition plan needs to be a fully integrated plan with detailed steps to meet the ambitious targets set. It should also include assessments of scenarios, risks, alternatives, and why key decisions have been taken. - the route maps need to show when key decisions are being made, and what input is being used investment plan: - who’s going to pay for all this major infrastructure change in a few short years? [...]”

(Individual)

“The addition of a more detailed route-map with greater clarity of medium term goals and target milestones (particularly over the climate critical 2023-2030 period) would be helpful in promoting accountability and ensuring progress towards our energy system vision for 2045 remains on track.”

(Organisation – Advice, advocacy, or campaigning)

The second most commonly raised theme by respondents was the view that there should be a different energy mix than the one proposed by the route map.

Respondents raising this theme were typically divided into those that wanted to see fossil fuels included in the energy mix and respondents that wanted a clear focus on renewable energy. Some respondents suggested there should be less of a focus on hydrogen and CCUS.

“Remove restrictions on nuclear, thermal incineration, and North Sea oil and gas exploration. Dispatchable power to meet domestic demand is crucial to ensuring we (as part of the UK/EU energy market) are not reliant on imports from overseas, autocratic nations.” (Individual)

“I think £85b million invested in CCUS is a total waste of money. this is an untested and possible chimerical technology and a distraction from the task in hand.” (Individual)

The third most commonly raised theme was the view that the Scottish Government should commit to a stable and supportive policy environment that encourages investment in the transition. It was thought by respondents that this would help to promote engagement between key stakeholders and ensure that the route map remains flexible to changes in the future.

“There is the need for co-ordination, support, innovation and active management across the mix of energy solutions to ensure resources are targeted and emission reductions optimised. A co-ordinated approach is essential to connect the thread of national to local policy making and to ensure decisions around skills and the development of energy infrastructure are joined up. there are many interdependencies within an energy transition in regards to skills, infrastructure, connections, supply chains and energy security.” (Organisation – Local authority)

“The route map needs to be flexible to cater for unforeseen circumstances for example development of new green technologies. [...]” (Organisation – Professional or representative body)

The next most prevalent theme was the view that the dates included in the route map are too far in the future and that the process must be accelerated to create the necessary changes. This was a theme that was commonly raised by individuals and environmental organisations.

“Have all the low-carbon infrastructure and generation in place by 2026. Create a true wellbeing economy by 2030, and a degrowth economy by 2032. This would actually be world-leading, rather than the net-zero targets that are going unmet. The route map to 2045 has been called out as massively insufficient by the climate change committee - we need to be doing things now, urgently.” (Individual)

Q43. 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? Please give us your views.

The question was answered by 121 respondents.

The arguments and rationales for the views of respondents to this question were broadly similar to those for the previous question. The most common theme for this specific question was that respondents wanted the Scottish Government to foster a supportive environment for investment coupled with consultation with key stakeholders on implementation of the vision. It was often viewed that this engagement should particularly focus on consultation with local communities and local authorities.

“[...] The first minister made a commitment to the Scottish parliament that no-one would go against the wishes of the local community. This sentiment should be embedded in the draft energy strategy and more effort should be made to work with local communities. This way the maximum social, economic and environmental benefits will be achieved by the people of Scotland and not just the large corporations.” (Organisation – Community group)

“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.” (Organisation – Professional or representative body)

The second most common theme raised by respondents was the view that the Scottish Government should focus on how people will be affected by the transition, with a particular focus on ensuring that existing inequalities are not exacerbated. This theme was often raised by individual respondents and organisations outside of the energy and power sectors.

“Ensure that tackling injustice and inequality is at the heart of this. Without that the equality gap will only widen and this promising strategy will fall short.” (Individual)

The next most prevalent theme was the view that nuclear energy and fossil fuels should not be excluded entirely from the energy mix if Scotland wishes to capture maximum social, economic and environmental benefits from the transition.

“It should be acknowledged that we will need oil and gas for many decades to come whilst we move at pace to scale up low carbon opportunities such as offshore wind and hydrogen and other energy sources. developing these resources in the UK, where we can support thousands of jobs, pay taxes and manage our own environmental emissions is the right choice for Scotland’s economic growth. [...]” (Organisation - Energy services)

Impact assessment questions

Q44. Could any of the proposals set out in this strategy unfairly discriminate against any person in Scotland who shares a protected characteristic?

This question received a total of 91 responses.

The most prevalent theme across respondents was general agreement that the strategy does not exhibit unfair discrimination towards any specific protected characteristic groups in Scotland. This view was mainly held by individual respondents. Some respondents raising this theme emphasised the potential for a just transition to create new and improved opportunities for individuals who share protected characteristics, and that it is the lack of prompt action, rather than the strategy itself, that risks exacerbating existing discriminatory dynamics.

The second most commonly raised theme by respondents was the view that there are aspects of the strategy that risk discriminating against individuals with protected characteristics. The most frequently mentioned protected characteristics at risk of being discriminated against were gender, age, disability, and race. Many respondents highlighted the under-representation of people with protected characteristics in green sector employment, and the strategy's failure to adequately promote greater representation.

“[...] There has been very little attention paid to the potential impact of the growth in green jobs on women’s labour market equality in a just transition. This is despite evidence that ‘men’s jobs’ will disproportionately benefit from further investment in green jobs and sectors. [...] Increased policy focus on, and investment in, these male-dominated sectors, without action to tackle occupational segregation, will disbenefit women, worsen women’s unemployment and underemployment, widen the gender pay gap, while also exacerbating women’s poverty. [...]” (Organisation – Advice, advocacy, or campaigning)

“[...] The drive for green jobs and skills could actually entrench, rather than tackle, labour market inequality for groups who are under-represented in the designated priority green sectors. Unless our upskilling and reskilling support explicitly considers the needs of women, disabled people, and black and minority ethnic people, it is likely that these programmes will reinforce the under-representation of these groups in green jobs. This will have negative consequences for the gender, disability and ethnicity pay gap – ultimately reinforcing poverty for these groups.” (Organisation – Advice, advocacy, or campaigning)

The third most prevalent theme was the view that there is a need for a timely and comprehensive equality impact assessment to identify any potential risks of discrimination against people with protected characteristics.

“[...] Equalities analysis is not something to be tacked on at the end of the planning process but is critical throughout the planning process and on into the monitoring and evaluation processes. No equalities impact assessment

is publicly available as part of this strategy, so it is unclear how much equalities issues are being factored into decision making. Equality impact assessments should be conducted at an early stage in projects as well as when greater detail is being worked out. [...].” (Organisation – Advice, advocacy, or campaigning)

Q45. Could any of the proposals set out in this strategy have an adverse impact on children’s rights and wellbeing?

This question was answered by 91 respondents.

The most prevalent theme raised by respondents to this question was the view that there are no clear risks to children's rights and wellbeing in relation to the proposals set out in the strategy. This view was mainly held by individual respondents. Some of these respondents further argued that the proposals seek to decarbonise Scotland's energy sector in a fair and just way, which in turn will enhance the future prospects for Scotland's children.

The next most common theme was the view that there are risks to children’s wellbeing associated with the proposals outlined in the strategy. These respondents most frequently highlighted general risks related to specific elements of the strategy or potential negative consequences at the household level that may have an indirect effect on children's wellbeing. The most common specific risk factor was the risk of adverse health and wellbeing impacts from proposals for new infrastructure development on children living nearby. A few respondents were also concerned with the risk of reduced indoor air quality as a result of enhanced insulation measures implemented to improve energy efficiency in houses.

“[Large scale renewable energy and transmission schemes may affect health and wellbeing of children living nearby] for example, by exposing them to high magnetic fields, noise etc, by living in families whose physical and emotional wellbeing are adversely affected by these schemes, by living in families whose homes are reduced in value by these schemes, or by adversely affecting their opportunity to enjoy their local natural and cultural heritage due to the major negative impact caused by such schemes.”
(Individual)

“There needs to be a greater focus within the report on the negative implications for poor indoor air quality, particularly the impact on children. in 2020, a joint study from RCPCH and Royal College of Physicians reported on just how impactful poor indoor air quality can be for children. [...] We would urge the Scottish Government to review this report and ensure that indoor air quality provisions are included throughout this plan. As buildings and homes increase their insulation levels, these impacts will only increase unless ventilation upgrades are included alongside them. [...]”
(Organisation – Energy services)

The third most prevalent theme highlighted by respondents was the view that there is a need for more involvement of children in decision-making relating to the implementation of the proposals.

“The proposals set out in this strategy could have an adverse impact on young people’s rights and wellbeing if they are not a part of sustained public engagement to inform decision-making. To avoid this and to inform a just transition, the strategy should involve the young people of Scotland defining what a just transition is, for example: sustaining engagement with the Scottish Youth Parliament who were part of engagement events to support development of the draft strategy and plan. [...]” (Organisation – Advice, advocacy, or campaigning)

Q46. 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?

A total of 111 responses were received for this question.

The most commonly raised theme by respondents to this question was the view that there is a need for enhanced support to assist households in retrofitting their homes with energy-efficient solutions. Many respondents highlighted the importance of these improvements – including measures such as improved insulation or the transition from gas boilers to heat pumps – as they have the potential to reduce energy consumption, lower energy bills and reduce carbon footprint. These respondents argued that the upfront costs associated with retrofitting can impose a considerable financial burden on many households, particularly those already facing fuel poverty, creating an unjust situation where those least able to afford it bear the weight of transitioning towards a sustainable future. Some respondents therefore highlighted the need for targeted funding programs to help ensure household energy-efficiency improvements are financially viable for households.

“The most effective way for the Scottish Government to protect those at risk of fuel poverty would be to offer more support for households to install insulation measures. While the Scottish Government has already committed substantial resources towards this issue, the recent cost of living and energy crises has exacerbated the problem and highlighted the need to provide further support to struggling households [...]” (Organisation – Property and housing)

Some respondents raising this theme also suggested specific financial support measures, including the implementation of green finance packages and tailored solutions for properties that are off the gas grid.

“[...] Over 15 million homes in the UK are considered to be in fuel poverty by its classic definition. Nearly half of all homes are not EPC C or above. This signals a need to encourage home improvement investment and, for some, this could come from well-designed green finance packages which can improve the payback period whilst adding value to homes. [...]”
(Organisation - Energy services)

The second most frequently raised theme was the view that there is a need for measures that directly address the cost of energy for households. These respondents generally argued that implementing price caps and other interventions to reduce the unit price of electricity is crucial in ensuring affordability and preventing excessive price

hikes. Some respondents highlighted the particular need for this during the energy transition, given the shift towards cleaner and more sustainable energy sources could initially entail higher costs.

The third most commonly raised theme was agreement that generating robust evidence through data collection, analysis, and impact assessments is a key aspect of ensuring that individuals on lower incomes or at risk of fuel poverty are protected from any adverse cost impacts stemming from the net-zero transition. These respondents generally argued that adequate evidence serves as a critical foundation for designing effective and targeted policies that address the needs and vulnerabilities of specific groups, including, for example, rural and remote communities, people with disabilities, and unpaid carers.

“Rural proofing the forthcoming policy and legislation is important. The blanket application of regulation can negatively impact those who live in remote rural communities. Impact assessments should be undertaken to identify such communities and individuals that could be adversely affected and if exceptions being made are not an option, funding and support should be made available to aid transition and to compensate them for any additional costs incurred.” (Organisation – Property and housing)

The next most prevalent theme was the view that to effectively protect individuals on lower incomes or at risk of fuel poverty from any negative cost impact arising from the net-zero transition, there is a need to actively engage and include those who are most impacted by the strategy’s proposals. By involving these communities in shaping policies and strategies, it was argued that their unique perspectives, needs, and experiences would be taken into account, ensuring that solutions are tailored and responsive.

“The best action is to involve those who will be impacted to develop solutions. The lived-in element is vital at the early stages rather than the end stages of any plan. There will be the need to consider subsidies and alternative offering for those on low income who will have dated transport modes, heating and gas systems, or even their awareness and understanding of the full impact this will have on them. Community involvement and awareness will be vital at all stages for this to be adopted and successful - meaningful and equitable participation. Would recommend explaining the impact of fuel poverty across the protected characteristics within the documents, to understand that the impact is different for everyone.” (Organisation - Local authority)

Q47. Is there further action we can take to ensure the strategy best supports the development of more opportunities for young people?

This question received a total of 106 responses.

The most prevalent theme raised by respondents to this question was the view that there is a need to foster relevant skills by reforming education and training. Some respondents raising this theme suggested making changes to the school curricula, whilst others emphasised the need for training and apprenticeship opportunities for

young people entering the workforce, as well as for those who are already employed but in need of reskilling. It was viewed that these measures would help to provide the Scottish workforce with the necessary skills, knowledge, and qualifications to effectively implement the proposals included within the strategy.

“As young people, we would like to see a more holistic approach to green jobs with more thought put into education and training for future generations of workers. We need to educate and support more young people to enter our green energy industry, and make sure that there are well paid jobs with good working conditions waiting for them. [...] Education on climate change and green energy should be embedded early on in education to ensure we have a new generation of people passionate about this work and the wider vision of a better world that it represents.” (Organisation - Advice, advocacy, or campaigning)

A few respondents raising this theme specifically highlighted the role that key stakeholders in the energy sector can play in promoting the acquisition of relevant skills and qualifications and ensuring that young people are equipped with a comprehensive understanding of the evolving energy job market.

“There are key opportunities to capitalise on the role which Scottish renewable energy developers can play in providing education, apprenticeship, and job opportunities for young people in Scotland. This would make use of well-established businesses, supply chains, emerging development trends, and would ensure young people have a well-rounded understanding of climate change, green energy, and emerging job markets.” (Organisation - Advice, advocacy, or campaigning)

The next most frequently raised theme by respondents was the importance of maintaining ongoing engagement and dialogue with young people, to ensure that their needs and perspectives are consistently considered and incorporated into the policy-making process.

“Young people across Scotland are struggling with the rising cost of living crisis, compounded with a real lack of affordable housing and access to land. We recommend that their interests be at the heart of the just transition and subsequent interventions, and we would encourage those in government to work with young people on their ideas for the future. [...] We would encourage the Scottish Government, and any other public body, to consult and work with youth via a taskforce, appropriate consultation processes, etc.” (Organisation - Community group)

Just Transition energy outcomes

Q48. What are your views on the approach we have set out to monitor and evaluate the Energy Strategy and Just Transition Plan? Please give us your views.

This question was answered by 98 respondents.

Respondents broadly recognised the need to monitor and evaluate the Energy and Just Transition Plan, with many respondents providing specific recommendations and comments on what the monitoring and evaluation framework could include. Many respondents expressed broad agreement on the direction taken by the Scottish Government in its proposal for evaluating the plan, although other respondents indicated that the current proposal does not offer sufficient detail as to the exact approach, and outcomes measured in the evaluation.

The most commonly raised theme was general agreement with the Scottish Government's approach to monitoring and evaluating the Energy Strategy and Just Transition Plan. This theme was mostly raised by organisation respondents, more commonly among local authorities. The majority of respondents raising this theme did not elaborate on specific aspects of the current proposal with which they agreed. Some respondents in agreement still provided suggestions for how it could be improved, such as the suggestion of alignment of the monitoring and evaluation framework with the National Performance Framework.

“We welcome the approach suggested, to align with the national performance framework, impact assessments carried out in the development of the final plan, the wider just transition monitoring framework, energy transition taskforce, and climate change plan monitoring and evaluation framework. All of these plans and strategies should be working towards a set of shared goals. However, it is difficult to comment on a monitoring and evaluation framework that has not been developed yet. [...]”
(Organisation – Property and housing)

“The council is currently developing its own just transition report and recommendations and has taken account of the strong messages on this agenda already published by the Scottish government. It therefore supports and commends the close alignment of local and national approaches to outcomes and the assessment of progress and is in broad agreement with the proposals in the consultation on this.” (Organisation – Local authority)

The second most prevalent theme raised by respondents was providing recommendations for aspects of the existing framework that could be improved, and additional elements that should be considered both in the approach to the evaluation and outcomes to be assessed. Respondents commented that the monitoring and evaluation framework should consider the plan's effect on people and communities, particularly those affected by fuel poverty. Additionally, it was noted by some respondents that involving stakeholders such as local communities, trade unions and local authorities at various stages including the design and implementation of the monitoring and evaluation framework would benefit the evaluation. It was further

mentioned by respondents that outcomes should be assessed annually. Finally, some respondents suggested incorporating additional outcomes to account for other areas of interest.

“[...] Monitoring the financial impact on all households, with particular focus on those in or close to fuel poverty should be considered. Improved health outcomes. Assume a baseline for air quality will be established, and this will be monitored at key stages in the route map to demonstrate improvement. Environmental protection and restoration. Consideration needs to be given to managing / maintaining green spaces and nature so they can have a genuine long term positive impact. [...]” (Organisation – Local authority)

“Regular audits involving workplace voices, trade unions and community organisations both with direct and indirect relevance to the energy sector. These should be varied and organised periodically around different geographical and sectoral interests. The plan should have clear objectives and steps which can be measured and against which achievements and deficiencies can be clearly identified.” (Individual)

The next most commonly raised theme among respondents was the view that the current proposal for a monitoring and evaluation framework is lacking in detail. Respondents raising this theme typically argued that the outcomes presented were not specific enough, and that the timelines proposed were also unclear. Overall, respondents raising this theme argued that the current outcome framework is vague in specifying how and when outcomes will be achieved. Some respondents argued that the Energy Strategy and Just Transition Plan was also not clear as to how the outcomes would be evaluated. Among these respondents some offered specific recommendations for how to conduct monitoring and evaluation, including that the evaluation should be independent, and that outcomes should be measured and benchmarked annually.

“There are some good points, but it doesn't say who is responsible for driving and monitoring this strategy? It should be an independent and impartial body.” (Individual)

“A bit more clarity on ‘how’ these outcomes will be measured with tangible targets and figures would be helpful. Suggest that a breakdown of targets and measurements annually between 2030 and 2045 would be beneficial to monitor progress and give time to put in place any required changes or improvements in time to meet the 2045 targets. There needs to be smaller more achievable steps put in place to manage the process to net zero. [...] How the strategy and plan are monitored is critical because in the absence of steady and reliable funding streams for the work this agenda requires, the likelihood is that targets will be missed. Therefore, clear and defined targets are important.” (Organisation – Local authority)

Q49. What are your views on the draft Just Transition outcomes for the Energy Strategy and Just Transition plan? Please give us your views.

This question was answered by 114 respondents.

The majority of respondents agreed with the general premise of selecting a set of specific outcomes for the Energy Strategy and Just Transition Plan. Many respondents approved of the outcomes presented although suggested areas for improvement of the existing framework to provide more specificity of the defined outcomes, particularly linking them to specific actions, as well as incorporating more areas of impact. Some respondents did not agree with the outcomes presented, either because they felt they went too far, or because they were not comprehensive enough.

The most prevalent theme raised by respondents to this question, regardless of whether they were positive or negative towards the proposed outcomes, was the view that the overall proposal could be improved by being more specific and expanding to consider additional areas of impact. These respondents typically argued that the outcomes could be more specific, and that the presented draft lacked specificity as to how specific outcomes were linked to specific actions and activities. Furthermore, many respondents expressed the view that the outcomes framework could benefit from measuring additional impacts such as outcomes in specific communities and vulnerable groups, an indicator measuring overall progress towards net zero, and progress towards acquiring skills related to the green transition among the population, among others. Finally, some respondents expressed concerns as to the overall feasibility of achieving the outcomes as defined in the proposal.

“While we support the aspiration and sentiment of the document, more clarity on the exact targets, how to achieve them, and how they will be measured and monitored by the Scottish government would be very welcome.” (Organisation - Local authority)

“The just transition outcomes included in the plan are admirable [...] but the lack of detail on resourcing and funding, in particular for the planning and delivery of skills provision is a concern.” (Organisation – Academic, think tank or consultant)

The next most prevalent theme expressed by respondents was general agreement with the outcomes framework proposed by the Scottish Government. This theme included respondents who were in complete agreement and thus did not comment extensively, respondents who supported the proposal yet offered additional recommendations as discussed in the previous theme, and respondents who discussed specific elements of the outcomes framework that they were particularly positive about.

[...] ‘annex f - monitoring and evaluation’ rightly includes access to the natural environment, restoring biodiversity, avoiding potential negative impacts on climate and natural globally, resilience, improved health outcomes, affordable energy, community empowerment and ownership, and more and sustainable jobs in local communities. [...]” (Organisation – Advice, advocacy, or campaigning)

“we support the focus on the importance of a just transition – and the integration of the JT plan into the energy strategy, putting people front and

centre. [...] the outcomes that focus on access to decent jobs, skilled workforce, local content and job creation, empowered communities, support for communities most at risk of potential negative impacts of decarbonisation, access to clean affordable energy and biodiversity.” (Organisation – Energy services)

“We are broadly supportive of the proposed outcomes, however, note the need for more explicit mention of protection for vulnerable households who may not be directly linked to the fossil fuel industries [...]” (Organisation – Advice, advocacy, or campaigning)

The next most prevalent theme raised by respondents was disagreement with the proposed outcomes list. Some respondents felt the existing outcomes are too drastic, while others, on the contrary felt they are not ambitious enough.

“They look like a mechanism to delay rapid and deep cuts in decarbonisation and which ignores the reality that the ending of fossil fuel exploitation in Scotland will reduce national gross value add (GVA) and the take home pay for many in the north east. [...]” (Individual)

“The outcome needs to be a habitable and equitable planet, along with an equitable economic and social system. I don't think that's what your plan will achieve.” (Individual)

“It is weak on “transition”. We cannot just switch off the gas and oil taps until we have secured fully the alternatives. [...]” (Individual)

Q50. Do you have any views on appropriate indicators and relevant data sources to measure progress towards, and success of, these outcomes? Please explain your views

This question was answered by 88 respondents.

The most prevalent theme raised by respondents to this question was suggestions for the inclusion of specific environmental and socio-economic indicators. Suggestions for environmental indicators included: (i) an indicator for low carbon energy (renewable and alternative sources) generated and consumed annually, (ii) levels of energy consumption. Economic indicators recommended included: (i) an indicator for fuel poverty, (ii) quantity of jobs created by industry, and (iii) changes in household earnings or disposable income. Finally, some respondents also mentioned indicators to cover areas of interest such as individuals' health and wellbeing.

“We would welcome a combination of social, economic, and environmental indicators to track progress towards achieving a just transition in Scotland [...]” (Organisation – Local authority)

“It's essential that accurate measurements of output of alternative energy sources are published [...]” (Organisation – Community group)

The other prevalent theme raised by respondents to this question was emphasising the importance of disaggregated data collection and analysis, including by geographical area (i.e., across different regions and local authorities), as well as by protected

characteristics, such as gender and race. Some respondents noted regional and more local disaggregations of data were valuable to understand how different regions and areas are performing when implementing the plan, while disaggregations by protected characteristics could help the Scottish Government understand how potentially vulnerable groups are affected by the Just Transition Plan.

“It would be helpful to see national level goals and targets translated to at least, a regional level, even broadly, to allow local authorities to consider their own progress and potential to contribute to the national projects, going forward to 2030 and 2045.” (Organisation – Local authority)

Strategic Environmental Assessment

The following sub-section provides analysis of responses to consultation questions relating to the Strategic Environmental Assessment (SEA) for the draft Energy Strategy and Just Transition Plan.⁴ It should be noted that compared with previous chapters, questions 51 to 58 had a relatively low frequency of responses, with many of those who did respond only providing brief answers without significant elaboration. As such, this section summarises the main themes raised by respondents, but generally avoids summarising themes only raised by one respondent.

Q51. Do you have any comments on the environmental baseline information referred to in the Environmental Report?

38 respondents provided responses to this question.

The most prevalent theme raised by respondents was that the environmental baseline information should consider a wider range of factors, including the impact on landscapes, biodiversity, heritage and communities. Some respondents pointed out additional aspects of the environmental baseline which should be considered separately, including Scotland's greenfield, brownfield, and wild lands.

“It is remarkable that this report does not refer to the nature crisis, which is of equal importance to the climate crisis [...] the baselines need to be set appropriately for different environments: at a broad level, brownfield sites have already been impaired [...]” (Individual)

The next most prevalent theme was critiques of how the environmental baseline was measured, including the relevance of the evidence used to inform it and the potential for bias in the assessment.

Q52. Are you aware of further information that could be used to inform the assessment findings?

29 respondents provided responses to this question.

The most prevalent theme raised by respondents to this question was the view that the public should be consulted to inform the assessment findings, with respondents highlighting the importance of local knowledge. This was viewed as particularly important given Scotland's varied terrain and the value of local knowledge of local natural and cultural heritage.

“Local communities have a wealth of information about their local natural and cultural heritage [...] the methodology developed should give all these people the opportunity to contribute what they know [...]” (Individual)

⁴ Strategic Environmental Assessment of the Draft Energy Strategy and Just Transition Plan. See: <https://consult.gov.scot/energy-and-climate-change-directorate/energy-strategy-and-just-transition-plan/> This link takes you to the Scottish Government website and the draft Energy Strategy and Just Transition Plan consultation.

A few respondents also suggested evidence from specific sources, including a selection of books and reports.

Q53. What are your views on the assessment findings?

27 respondents provided responses to this question.

The most prevalent theme in response to this question was general criticism of the assessment findings. The most common reasons for criticising the assessment findings were on the basis of them being too high-level or generalised, lacking in independence, or being inaccessible to the public. Whilst the majority of respondents did not elaborate significantly on their answers, a few respondents highlighted the need for additional nuance and detail in the findings, such as how impacts might vary across different types of project, and greater clarity on the distinction between “minor” and “major” effects.

“The findings are too high level, qualitative, subjective, and do not take into account the wide range of settings, particularly onshore, that exist in Scotland. - there is no distinction between brownfield or greenfield sites, or wild areas. “Minor negative effects” in a brownfield site which has been developed is less important as it has already been damaged. In a greenfield or wild area any “minor negative effect” may mean the loss of key habitats which cannot be restored. the impacts are significant [...]” (Individual)

The next most prevalent theme was general approval of the assessment findings, although these respondents generally did not provide explanations for their answers.

Q54. Are there other environmental effects arising from the draft Energy Strategy and Just Transition Plan?

33 respondents provided responses to this question.

The most prevalent theme raised by respondents to this question was that there should be wider consideration of the impact of the draft Energy Strategy and Just Transition Plan on Scotland’s biodiversity and landscapes. These respondents most commonly highlighted the potentially detrimental impact of new infrastructure on Scotland’s ecosystems and landscapes, including both marine and upland habitats. An individual respondent also highlighted the need to consider the health and safety impacts of renewable energy infrastructure resulting from pollution or machine failure.

“Erosion of the integrity of - for example - seabed/marine ecosystem. protection of "important" ecosystems is inadequate if surrounding supporting ecosystems are not also protected. equally uplands - if so-called "high quality" landscapes and systems are protected in isolation, then they become degraded visually and ecologically.” (Individual)

The next most prevalent theme raised by respondents was that there should be greater consideration of the impact on other countries, including consideration of impacts which are “exported” to other countries as a result of evolving supply chains.

“Scotland's just transition should not adversely impact on other countries.”
(Organisation – Community group)

Q55. Do you agree with the justification for the approach to the alternatives?

26 respondents provided responses to this question.

Respondents most frequently disagreed with the justification for the approach to the alternatives included in the SEA. The most common reason given for disagreement was a perceived lack of clarity on the nature of the alternatives.

“The alternatives were not clear or discussed.” (Individual)

Some respondents indicated agreement with the justification for the approach to the alternatives included in the SEA, although these respondents generally did not provide clear justifications for their views.

Q56. What are the most significant environmental effects which should be taken into account as the draft Energy Strategy and Just Transition Plan is finalised?

38 respondents provided responses to this question.

The most frequent effect raised by respondents as significant to be considered was the impact on Scotland's biodiversity and landscapes, including its wildlife and marine life, peatlands, forests, oceans, and waterways (amongst other aspects). This type of impact was most commonly referenced in relation to the implementation of new energy generation, and in particular on- and offshore-wind projects.

“The impact to our natural carbon sinks, peatlands, forests, waterways, our oceans, our native wildlife and their habitats, the migratory species who spend time here, our delicate ecosystems land and marine, our rugged, natural environment that supports it all [...]” (Individual)

The second most prevalent effect raised by respondents was local socioeconomic impacts, again primarily raised in relation to new energy generation. The specific effects most commonly referenced included impacts on local employment and commercial interests, as well as on the health and wellbeing of local residents.

“The effects on the human environment - the damage to quality of life and liveability in the areas most affected by new infrastructure.” (Individual)

The next most prevalent effect highlighted by respondents was the impact of climate change more generally, including the perceived high costs of failure to mitigate it.

Q57. How can the draft Energy Strategy and Just Transition Plan be enhanced to maximise positive environmental effects?

36 respondents provided responses to this question.

The most frequently raised suggestion for maximising the positive environmental effects of the draft Energy Strategy and Just Transition Plan was that steps should be

taken to preserve Scotland's biodiversity and landscapes. Some respondents emphasised the need for mitigating actions to reduce the impact of new development, including minimising the scale of development in rural areas.

"To ensure Scotland's biodiversity starts to increase in the next decade, 'maximising' positive environmental effects from development will require protecting Scotland's wildest places, with their accompanying native habitats and species, from negative impacts [...]." (Organisation – Advice, advocacy, or campaigning)

The second most commonly cited theme was the view that the plan should be implemented in the interest of local communities. Some respondents raising this theme also advocated for greater consultation with local communities on the proposed plans.

"[...] The vision should be expanded to serve the countryside and communities, with guidance to deliver the requirements of npf4 with equal regard to communities, environment, nature, and tourism [...]." (Individual)

The next most frequently raised suggestion for maximising the environmental benefits was changing the approach to the draft Energy Strategy and Just Transition Plan to be more ambitious. Specific suggestions included accelerating the pace of action and minimising the use of energy, particularly that generated from fossil fuels.

"Faster, deeper changes driven by legislation and regulation." (Individual)

"Minimise, where possible, the use of fossil fuels during the construction phase." (Individual)

Q58. What do you think of the proposed approach to mitigation and monitoring?

31 respondents provided responses to this question.

The most frequent theme raised by respondents to this question was criticism of the outlined approach to mitigation and monitoring, with these respondents most frequently providing feedback on the approach to mitigation specifically. The most common critique was that there should be a greater emphasis on prevention over mitigation.

"Mitigation sounds nice, but prevention is better. mitigation may take the form of taking down old forest, then building and then putting in young trees, which is not a good way of saving our fragile eco systems." (Individual)

The next most prevalent theme raised by respondents was a need for greater clarity on the mitigation plan, including necessary regulatory and enforcement measures, as well as general doubts as to the overall feasibility of the plan.

"The monitoring seems to be quite comprehensive, but mitigation may require some legal teeth/framework to enforce. I would suggest that any company found deficient in meeting the environmental requirements should be removed from tendering for future projects." (Individual)

Summary of non-standard responses

This section presents the analysis of the 77 unstructured or partially structured responses submitted by email, which did not follow the consultation questionnaire format. As the non-standard responses do not map exactly to specific consultation questions, these responses have been summarised in a standalone section of the report with the resulting findings reflected in the executive summary and summary of overarching themes.

The majority of respondents (64 respondents or 83%) in this category were organisations, including in the energy and power sectors (19 respondents or 25%), other businesses, industry organisations, and trade unions (19 respondents or 25%), and environmental organisations (7 respondents or 9%).

The majority of respondents who provided unstructured responses raised themes similar to the ones identified in the structured responses summarised previously. The sections below present any new or original themes raised by these respondents, organised by consultation chapter.

One of the most frequently mentioned themes among the respondents commenting on the introduction and the vision of the Just Transition Plan was the need for a supportive policy environment. The respondents raising this theme were mostly in favour of the plan, but highlighted its effectiveness was conditional on the Scottish Government committing to policies and legislation to support it, which would align with existing policies. Other respondents commenting on Chapter 1 emphasised the importance of a collaborative approach to the energy transition, with most mentioning the need for collaboration between the Scottish and UK governments.

“Legislation must also be joined up, so that net zero is properly incentivized and embedded in policy-making across Scotland.” (Organisation – Advice, advocacy, or campaigning)

Respondents commenting on how to best prepare for a just energy transition (Chapter 2) most commonly highlighted the need to reskill and retrain oil and gas sector workers to facilitate a transition into green jobs. As a result, some requested a more detailed retraining plan, while others suggested investing in training and education centres. Other respondents commenting on Chapter 2 mentioned that the success of the plan will largely depend on public buy-in, thus they suggested awareness-raising campaigns.

“However, while reskilling is an option for some workers, it is not always a viable option for all. [...]. Reskilling also involves undertaking long periods of training without the incomes the workforce currently receives.” (Organisation – Professional or representative body)

“Public engagement and understanding can enable carbon reduction through behaviour change. The public’s willingness to engage, once they understand what is needed from them (and in some cases, once suitably incentivised and promoted) is typically underestimated but will be key.” (Organisation – Academic, think tank or consultant)

One of the most frequently raised themes among respondents commenting on energy supply (Chapter 3) was advocating for more offshore wind energy. The respondents raising this theme generally emphasised that offshore energy is the best renewable energy option because of its greater consistency, efficiency, and capacity in energy production, while also minimising the impact on the environment. Other respondents also advocated for solar power, suggesting it is a viable component of the future energy mix which should be supported by the Scottish Government.

“Assessing basic wind facts and engineering shows a transition built around offshore wind can be done faster, cheaper, with far less environmental impact. An onshore-led plan does not make sense.” (Individual)

“There is huge potential for both rooftop and ground-mounted solar to be deployed at scale across Scotland: planning regulations should be more supportive of this wherever possible, particularly given ground-mounted solar does not prevent land being used as grazing land for livestock.” (Organisation – Advice, advocacy, or campaigning)

Respondents offering their views on energy demand (Chapter 4) most commonly focused on the transport sector. While no theme was clearly prevalent, these respondents offered relevant suggestions for future policy action, such as a ban on internal combustion engines, investing in “Vehicle to Grid” technology, and researching the effective repurposing and recycling of batteries.

“[...] to unlock this new pool of battery supply, several challenges in repurposing the batteries must be overcome, including the current lack of standardisation of battery-pack designs.” (Organisation – Professional or representative body)

Regarding creating the conditions for a net zero energy system (Chapter 5), respondents most frequently emphasised the importance of a collaborative approach. The respondents raising this theme typically suggested that the Scottish Government should work closely with key stakeholders – including oil and gas workers, the UK Government, and private businesses – when working towards a net zero energy system.

“The workers affected and their trade unions must be fully engaged by Scottish Government in the development of Just Transition Plans for their industries.” (Organisation – Professional or representative body)

“Call on the UK government to join a coordinated withdrawal from the Energy Charter Treaty” (Organisation – Advice, advocacy, or campaigning)

Among respondents offering comments on the route map to 2045 (Chapter 6), one of the main emerging themes was requesting for additional clarifications. The respondents raising this theme often viewed the proposed map as too vague, outlining goals without any information on how these will be achieved.

“The transition plan is not a plan, but a target wish list, with no detail how to deliver.” (Individual)

Respondents offering views on the impact of the plan (impact assessment questions) most commonly expressed concerns regarding potential negative impacts on small businesses and communities. The respondents raising this theme typically mentioned that the plan would be likely to disproportionately affect those polluting the least – including individuals on low incomes, small businesses, and rural communities – whilst larger businesses and urban areas would be less impacted.

“Increasing energy prices adversely affects the poorest members of society but has much less effect on the others, who probably have much higher carbon footprints. Petrol prices are high but the amount of traffic at times when people are not commuting seems to be as high.” (Individual)

Summary of campaign responses

This section summarises the key themes raised by 1,233 near identical responses relating to a single organised campaign.

Q6 - 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? Please give us your views.

The campaign argued that government intervention would be required to support the development of high-quality jobs through the supply chain for renewable energy production, enabling a just transition for workers currently employed by sectors reliant on fossil fuels. Cited interventions included full or partial public ownership of key infrastructure, as well as a series of measures to improve the environmental sustainability of supply chains.

“The development of high quality jobs in the supply chain for renewable energy production is essential for achieving a just transition for workers in the industrial sectors currently reliant on fossil fuels. The Strategy frequently mentions "boosting our domestic supply chain", but the opportunities which it talks about have not materialised yet and will not without government intervention. A publicly owned energy company and public stakes in key transition infrastructure such as ports would help secure just transition objectives, including decent supply chain jobs. There are also important supply chain opportunities in wind turbine decommissioning. While a Scottish steel strategy could prioritise the development of an Electric Arc Furnace to ensure recycling of scrap steel into parts that could be used on new wind turbines. A huge amount of transition materials (sometimes known as critical minerals) will be needed to transition our energy system. The current supply chain for these materials has hugely damaging impacts on people and the environment. Scottish Government policies must be geared towards reducing overall demand for these materials, enhancing recycling as well as ensuring higher environmental, social and governance standards from the supply chain.” (Organisation – Advice, advocacy, or campaigning)

Q15 - Our ambition for at least 5GW of hydrogen production by 2030 and 25GW 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? Please give us your views.

The campaign argued that the Scottish Government should not support hydrogen production from fossil fuels or the blending of hydrogen into the gas grid, on the grounds that for most sectors it is costly, inefficient, and more suitable alternative options exist.

“Hydrogen for most sectors - including most methods of transportation, heating and as a by-product in power generation - is costly, inefficient and other more suitable options such as direct electrification exist. The Scottish Government should not support the production of hydrogen from fossil fuels

nor the blending of hydrogen into the gas grid. While hydrogen from renewables is preferable to that from fossil fuels, there are still big questions to be asked around the necessity of renewable hydrogen and the knock on effects renewable hydrogen could have on the pursuit of electrification and the diversion of renewable electricity. Direct electrification should be prioritised over renewable hydrogen wherever possible.” (Organisation – Advice, advocacy, or campaigning)

Q20 - 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? Please give us your views.

The campaign viewed that a Climate Compatibility Checkpoint test should not be used as part of the process for determining whether to proceed with new oil and gas production. It argued that testing would be unnecessary given any new oil and gas production would be incompatible with agreed limits on future temperature rises and thus should not be allowed.

“There should be no Climate Compatibility Checkpoint as there should be no new oil and gas production in addition to a constriction of existing oil and gas production in line with the UK's fair share of remaining global carbon budgets. There is no need for a Climate Compatibility Checkpoint to test each individual project because a vast array of evidence exists showing that any new oil and gas developments are incompatible with the agreed 1.5°C limit of temperature rises.” (Organisation – Advice, advocacy, or campaigning)

Q25 - Should there be a presumption against new exploration for oil and gas? Please give us your views.

The campaign argued that there should be a presumption against all oil and gas exploration and the permitting of new projects. The campaign encouraged the Scottish Government to withdraw any support for these activities through devolved means, including through funding, licensing, and planning regimes.

“Yes. The Scottish Government should not only adopt a presumption against new exploration for oil and gas, it should unconditionally oppose ALL oil and gas exploration and permitting of new projects. And support the phase out of existing licences in line with 1.5°C. This is likely to mean phasing out UK oil and gas extraction within this decade. While the power to phase out offshore oil and gas extraction lies with the UK Government, The Scottish Government must cease to support such activity through any devolved means such as funding, Crown Estate licensing and planning. It must also work towards ending the use of oil and gas in Scotland's energy system within this timeframe. That means rejecting new fossil fuel infrastructure, including the proposed new gas fired power station at Peterhead. It must also end over-reliance on speculative technologies such as carbon capture and storage and hydrogen which are demonstrably incapable of contributing to emissions reductions over the next decade, and serve only to prolong the life of the fossil fuel industry and distract from the

real solutions to the climate crisis.” (Organisation – Advice, advocacy, or campaigning)

Q26 - 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? Please explain your views.

The campaign reiterated their disagreement with any proposals for new extraction of oil and gas, given the view that this would be incompatible with agreed limits on future temperature rises..

“NO. The science is clear; no new oil or gas can be extracted if we are to limit warming to 1.5°C.” (Organisation – Advice, advocacy, or campaigning)

Q28 - What changes to the energy system, if any, will be required to decarbonise transport? Please give us your views.

The campaign proposed several changes to support the decarbonisation of transport, including (i) increased investment and public control over public transport (estimating £1.6 billion would be needed), (ii) implementing new fiscal measures, (iii) delivering the commitments of the Bute House Agreement, (iv) faster delivery of bus priority measures, and (v) accelerating the completion of planned public transport infrastructure projects to 2030.

The transport policy agenda for reduced overall demand and modal shift should include:- Significantly increased investment in, and public control over, public transport. We estimate public transport needs a further £1.6bn investment per annum, to justly reduce emissions and car traffic.- Implementing fiscal measures such as congestion charging, road user-charging and frequent flyer levy, which raise revenue for sustainable transport projects.- Delivering the commitments of the Bute House Agreement, including at least 10% of the transport budget going towards active travel.- Much faster delivery of bus priority measures such as bus lanes on trunk roads, and bus gates in built-up areas.- Bringing forward the completion of planned public transport infrastructure projects to 2030.” (Organisation – Advice, advocacy, or campaigning)

Q36 - What are the key actions you would like to see the Scottish Government take in the next 5 years to support the development of carbon capture, utilisation and storage (CCUS) in Scotland? Please give us your views.

The campaign advocated for the Scottish Government exploring other alternatives to CCUS projects when reducing carbon emissions, citing the existence of evidence of insufficient performance of CCUS technology.

Globally, the number of CCS projects that have failed or are underperforming significantly outnumber performing ones. Those that have reached scale have been in enhanced oil recovery, a devastating process which is used to pull every last drop of oil out of the ground. This process cannot be allowed to happen if we hope to meet our climate targets and prolong the life of our planet. Given the overwhelming scientific evidence

and a growing list of case studies of failed and underperforming CCUS projects, and its own admission that CCUS and other negative emissions technologies will not deliver in time to contribute to 2030 targets, the Scottish Government must urgently set out a Plan B for emissions reduction. The Scottish Government should not be spending public money to support CCUS. The continued over-reliance on CCUS seriously risks Scotland's ability to meet our climate targets." (Organisation – Advice, advocacy, or campaigning)

Appendix 1 – consultation questions

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?

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?
3. How can we ensure our approach to supporting community energy is inclusive and that the benefits flow to communities across Scotland?
4. What barriers, if any, do you/your organisation experience in accessing finance to deliver net zero compatible investments?
5. What barriers, if any, can you foresee that would prevent you/your business/organisation from making the changes set out in this Strategy?
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?
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?
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?

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

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?
16. What further government action is needed to drive the pace of renewable hydrogen development in Scotland?
17. Do you think there are any actions required from Scottish Government to support or steer the appropriate development of bioenergy?
18. What are the key areas for consideration that the Scottish Government should take into account in the development of a Bioenergy Action Plan?
19. How can we identify and sustainably secure the materials required to build the necessary infrastructure to deliver the energy strategy?

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?
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?
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].
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 *Scottish North Sea* specifically on the *global* 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?
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?
25. Should there be a presumption against new exploration for oil and gas?
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?

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?

Energy for transport

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

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?

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

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?

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?

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?

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?

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?

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?

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

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

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?

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?

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

Chapter 6: Route map to 2045

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

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.
- 45. Could any of the proposals set out in this strategy have an adverse impact on children's rights and wellbeing?
- 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?
- 47. Is there further action we can take to ensure the strategy best supports the development of more opportunities for young people?

Just Transition energy outcomes

- 48. What are your views on the approach we have set out to monitor and evaluate the Strategy and Plan?
- 49. What are your views on the draft Just Transition outcomes for the Energy Strategy and Just Transition Plan?
- 50. Do you have any views on appropriate indicators and relevant data sources to measure progress towards, and success of, these outcomes?

Strategic Environmental Assessment

- 51. Do you have any comments on the environmental baseline information referred to in the Environmental Report?
- 52. Are you aware of further information that could be used to inform the assessment findings?
- 53. What are your views on the assessment findings?
- 54. Are there other environmental effects arising from the draft Energy Strategy and Just Transition Plan?
- 55. Do you agree with the justification for the approach to the alternatives?
- 56. What are the most significant environmental effects which should be taken into account as the draft Energy Strategy and Just Transition Plan is finalised?
- 57. How can the draft Energy Strategy and Just Transition Plan be enhanced to maximise positive environmental effects?
- 58. What do you think of the proposed approach to mitigation and monitoring?

Appendix 2 – detailed response statistics

Frequency of responses by consultation question

Question number	Question text	Number of responses	Response rate (%)
Q1	What are your views on the vision set out for 2030 and 2045? Are there any changes you think should be made? - Please give us your views	259	84%
Q2	What more can be done to deliver benefits from the transition to net zero for households and businesses across Scotland?	211	69%
Q3	How can we ensure our approach to supporting community energy is inclusive and that the benefits flow to communities across Scotland? - Please give us your views	182	59%
Q4	What barriers, if any, do you/your organisation experience in accessing finance to deliver net zero compatible investments? - Please give us your views	149	48%
Q5	What barriers, if any, can you foresee that would prevent you/your business/organisation from making the changes set out in this Strategy? - Please give us your views	146	47%
Q6	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? - Please give us your views	183	59%
Q7	What more can be done to support the development of sustainable, high quality and local job opportunities across the breadth of Scotland as part of the energy transition? - Please give us your views	201	65%
Q8	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? - Please give us your views	153	50%
Q9	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. - Please give us your views	156	51%
Q10	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	140	45%
Q11	Should the Scottish Government set an ambition for marine energy and, if so, what would be an appropriate ambition? - Please explain your views	134	44%
Q12	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? - Please give us your views	118	38%
Q13	Do you agree the Scottish Government should set an ambition for solar deployment in Scotland? If so, what form	155	50%

	should the ambition take, and what level should it be set at? - Please explain your views		
Q14	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? - Please provide further details	172	56%
Q15	Our ambition for at least 5GW of hydrogen production by 2030 and 25GW 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? - Please give us your views	171	56%
Q16	What further government action is needed to drive the pace of renewable hydrogen development in Scotland? - Please give us your views	145	47%
Q17	Do you think there are any actions required from Scottish Government to support or steer the appropriate development of bioenergy? - Please give us your views	116	38%
Q18	What are the key areas for consideration that the Scottish Government should take into account in the development of a Bioenergy Action Plan? - Please give us your views	107	35%
Q19	How can we identify and sustainably secure the materials required to build the necessary infrastructure to deliver the energy strategy? - Please explain your views	132	43%
Q20	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? - Please give us your views	123	40%
Q21	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? - Please explain your views	99	32%
Q22a	If you do not think a CCC test should be applied to new production, is this because your view is that:	69	22%
Q22b	If you do not think a CCC test should be applied to new production, is this because your view is that:	86	28%
Q23a	If there is to be a rigorous CCC test, what criteria would you use within such a test? - Please select	75	24%
Q23b	If there is to be a rigorous CCC test, what criteria would you use within such a test? - Please explain your answer	88	29%
Q23c	If there is to be a rigorous CCC test, what criteria would you use within such a test? - 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?	79	26%
Q23d	If there is to be a rigorous CCC test, what criteria would you use within such a test? - 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?	74	24%
Q23e	If there is to be a rigorous CCC test, what criteria would you use within such a test? - In carrying out a CCC test, should oil be assessed separately to gas?	76	25%

Q24	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? - Please explain your views	106	34%
Q25	Should there be a presumption against new exploration for oil and gas? - Please give us your views	132	43%
Q26	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? - Please explain your views	101	33%
Q27	What further government action is needed to drive energy efficiency and zero emissions heat deployment across Scotland? - Please give us your views	193	63%
Q28	What changes to the energy system, if any, will be required to decarbonise transport? - Please give us your views	151	49%
Q29	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? - Please give us your views	125	41%
Q30	What can the Scottish Government do to increase the sustainable domestic production and use of low carbon fuels across all modes of transport? - Please give us your views	109	35%
Q31	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? - Please explain your views	111	36%
Q32	What action can the Scottish Government take to ensure that the transition to a net zero transport system supports those least able to pay? - Please give us your views	131	43%
Q33	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? - Please give us your views	99	32%
Q34	What, if anything, could be done to increase the reuse of electric vehicle batteries in the energy system? - Please give us your views	102	33%
Q35	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? - Please give us your views	112	36%
Q36	What are the key actions you would like to see the Scottish Government take in the next 5 years to support the development of carbon capture, utilisation and storage (CCUS) in Scotland? - Please give us your views	127	41%
Q37	How can the Scottish Government and industry best work together to remove emissions from industry in Scotland? - Please give us your views	116	38%
Q38	What are the opportunities and challenges to CCUS deployment in Scotland? - Please give us your views	109	35%

Q39	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? - Please explain	116	38%
Q40	What additional action could the Scottish Government or UK Government take to support security of supply in a net zero energy system? - Please give us your views	170	55%
Q41	What other actions should the Scottish Government (or others) undertake to ensure our energy system is resilient to the impacts of climate change? - Please give us your views	124	40%
Q42	Are there any changes you would make to the approach set out in this route map? - Please give us your views	152	49%
Q43	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? - Please give us your views	121	39%
Q44	Could any of the proposals set out in this strategy unfairly discriminate against any person in Scotland who shares a protected characteristic? - Please explain your views	91	30%
Q45	Could any of the proposals set out in this strategy have an adverse impact on children's rights and wellbeing? - Please explain your views	91	30%
Q46	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? - Please give us your views	111	36%
Q47	Is there further action we can take to ensure the strategy best supports the development of more opportunities for young people? - Please give us your views	106	34%
Q48	What are your views on the approach we have set out to monitor and evaluate the Energy Strategy and Just Transition Plan? - Please give us your views	98	32%
Q49	What are your views on the draft Just Transition outcomes for the Energy Strategy and Just Transition Plan? - Please give us your views	114	37%
Q50	Do you have any views on appropriate indicators and relevant data sources to measure progress towards, and success of, these outcomes? - Please explain your views	88	29%
Q51	Do you have any comments on the environmental baseline information referred to in the Environmental Report? - Please provide comments	38	12%
Q52	Are you aware of further information that could be used to inform the assessment findings? - Please explain	29	9%
Q53	What are your views on the assessment findings? - Please explain your views	27	9%
Q54	Are there other environmental effects arising from the draft Energy Strategy and Just Transition Plan? - Please explain	33	11%
Q55	Do you agree with the justification for the approach to the alternatives? - Please explain	26	8%

Q56	What are the most significant environmental effects which should be taken into account as the draft Energy Strategy and Just Transition Plan is finalised? - Please explain	38	12%
Q57	How can the draft Energy Strategy and Just Transition Plan be enhanced to maximise positive environmental effects? - Please explain	36	12%
Q58	What do you think of the proposed approach to mitigation and monitoring? - Please explain	31	10%

Note: Non-responses include blank responses as well as other signifiers of non-response e.g., “no comment”, “N/a”.

Frequency of responses by question by segment

Chapter	Question number	Respondent segment										Total responses
		Academic, think tank or consultant	Consumer Advice, advocacy, or	Community group	Energy services	Individual	Local authority	Not specified	Professional or representative body	Property and housing	Training and skills organisations	
Chapter 1: Introduction and Vision	Q1	6%	15%	3%	23%	31%	5%	1%	7%	7%	2%	259
Chapter 2: Preparing for a Just Energy Transition	Q2	5%	15%	3%	25%	28%	6%	1%	8%	9%	1%	211
	Q3	4%	16%	3%	20%	33%	7%	1%	7%	8%	2%	182
	Q4	5%	7%	3%	32%	25%	9%	1%	10%	8%	1%	149
	Q5	4%	6%	3%	30%	25%	9%	1%	10%	10%	2%	146
	Q6	4%	10%	1%	31%	29%	7%	1%	7%	8%	2%	183
	Q7	5%	11%	3%	25%	28%	6%	0%	6%	10%	3%	201
	Q8	5%	12%	3%	24%	27%	8%	1%	7%	8%	4%	153
Chapter 3: Energy supply - Scaling up renewable energy	Q9	4%	10%	3%	22%	36%	7%	1%	8%	6%	1%	156
	Q10	5%	11%	3%	25%	31%	8%	1%	8%	6%	1%	140
	Q11	7%	12%	4%	17%	36%	8%	1%	7%	7%	1%	134

Respondent segment

Chapter	Question number	Respondent segment										Total responses
		Academic, think tank or consultant	Consumer Advice, advocacy, or	Community group	Energy services	Individual	Local authority	Not specified	Professional or representative body	Property and housing	Training and skills organisations	
	Q12	5%	10%	5%	19%	36%	8%	1%	8%	6%	1%	118
	Q13	6%	13%	4%	21%	35%	8%	1%	6%	5%	1%	155
	Q14	5%	10%	3%	27%	31%	8%	1%	7%	6%	1%	172
	Q15	8%	11%	3%	26%	30%	7%	1%	7%	5%	1%	171
	Q16	6%	9%	3%	29%	30%	7%	1%	8%	6%	1%	145
	Q17	3%	13%	3%	18%	34%	10%	1%	9%	9%	0%	116
	Q18	5%	13%	4%	19%	34%	8%	1%	9%	7%	0%	107
	Q19	5%	11%	3%	26%	34%	8%	1%	8%	5%	0%	132
Chapter 3: Energy supply (North Sea Oil and Gas)	Q20	5%	14%	3%	16%	43%	6%	2%	6%	6%	0%	123
	Q21	5%	14%	3%	20%	37%	7%	1%	6%	6%	0%	99
	Q22a	4%	14%	1%	6%	61%	4%	3%	4%	1%	0%	69
	Q22b	6%	16%	2%	15%	42%	6%	2%	7%	3%	0%	86
	Q23a	5%	9%	3%	8%	56%	7%	0%	7%	4%	1%	75
	Q23b	6%	11%	2%	19%	40%	6%	1%	8%	6%	1%	88
	Q23c	6%	10%	3%	18%	43%	8%	1%	8%	4%	0%	79
Q23d	7%	11%	1%	18%	45%	5%	1%	7%	5%	0%	74	
Q23e	7%	11%	3%	18%	41%	7%	1%	7%	7%	0%	76	

Respondent segment

Chapter	Question number	Academic, think tank or consultant	Consumer Advice, advocacy, or	Community group	Energy services	Individual	Local authority	Not specified	Professional or representative body	Property and housing	Training and skills organisations	Total responses
	Q24	7%	15%	4%	14%	40%	7%	2%	7%	5%	1%	106
	Q25	6%	16%	3%	14%	43%	5%	2%	7%	5%	0%	132
	Q26	5%	17%	3%	15%	42%	5%	2%	6%	6%	0%	101
Chapter 4: Energy demand - Heat in buildings	Q27	6%	16%	3%	19%	30%	6%	1%	8%	11%	0%	193
Chapter 4: Energy demand - Energy for transport	Q28	5%	15%	3%	18%	33%	9%	1%	11%	6%	0%	151
	Q29	5%	10%	4%	18%	38%	10%	1%	10%	5%	0%	125
	Q30	6%	9%	3%	23%	32%	11%	1%	11%	5%	0%	109
	Q31	5%	12%	4%	23%	30%	10%	1%	12%	5%	1%	111
	Q32	5%	17%	4%	15%	35%	10%	1%	9%	5%	0%	131
	Q33	5%	15%	6%	15%	31%	12%	1%	8%	6%	0%	99
	Q34	4%	10%	5%	17%	38%	11%	1%	10%	5%	0%	102
Chapter 4: Energy demand - Energy for agriculture	Q35	3%	14%	3%	21%	35%	7%	1%	7%	9%	0%	112
Chapter 4: Energy demand - Energy for industry	Q36	9%	11%	2%	26%	31%	6%	1%	8%	6%	2%	127
	Q37	6%	8%	2%	32%	28%	8%	1%	10%	5%	0%	116
	Q38	9%	9%	2%	27%	28%	7%	1%	9%	6%	1%	109

Respondent segment

Chapter	Question number	Academic, think tank or consultant	Consumer Advice, advocacy, or	Community group	Energy services	Individual	Local authority	Not specified	Professional or representative body	Property and housing	Training and skills organisations	Total responses
	Q39	9%	10%	2%	22%	35%	6%	1%	9%	5%	0%	116
Chapter 5: Creating the conditions for a net zero energy system	Q40	5%	6%	3%	32%	30%	6%	1%	6%	8%	1%	170
	Q41	5%	10%	4%	19%	34%	9%	1%	9%	7%	2%	124
Chapter 6: Route map to 2045	Q42	5%	11%	4%	26%	28%	7%	1%	9%	9%	1%	152
	Q43	7%	12%	2%	19%	33%	5%	1%	10%	8%	2%	121
Impact assessment questions	Q44	3%	14%	2%	14%	38%	11%	1%	8%	7%	1%	91
	Q45	5%	9%	2%	14%	42%	11%	2%	8%	7%	0%	91
	Q46	4%	15%	4%	16%	32%	10%	2%	7%	9%	1%	111
	Q47	5%	10%	4%	17%	31%	10%	2%	10%	8%	3%	106
	Q48	7%	11%	4%	15%	33%	10%	1%	9%	9%	0%	98
	Q49	7%	13%	3%	17%	31%	9%	2%	9%	8%	3%	114
	Q50	6%	14%	3%	14%	34%	10%	1%	10%	8%	0%	88
Strategic Environmental Assessment	Q51	0%	11%	3%	9%	60%	3%	0%	6%	9%	0%	35
	Q52	0%	8%	0%	12%	62%	0%	0%	8%	12%	0%	26
	Q53	0%	8%	0%	12%	56%	4%	0%	8%	12%	0%	25
	Q54	0%	7%	7%	10%	57%	0%	0%	10%	10%	0%	30
	Q55	0%	9%	0%	13%	52%	4%	0%	9%	13%	0%	23

Respondent segment

Chapter	Question number	Academic, think tank or consultant	Consumer Advice, advocacy, or	Community group	Energy services	Individual	Local authority	Not specified	Professional or representative body	Property and housing	Training and skills organisations	Total responses
	Q56	0%	8%	6%	8%	61%	3%	0%	6%	8%	0%	36
	Q57	0%	9%	6%	9%	59%	3%	0%	6%	9%	0%	34
	Q58	0%	7%	0%	10%	62%	3%	0%	7%	10%	0%	29



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