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Consultation: Summary of responses

Achieving our low carbon pathway to 2030

Prepared by Miller Research Ltd

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Mae'r ddogfen yma hefyd ar gael yn Gymraeg.

This document is also available in Welsh.

Overview Summary of responses to the Welsh Government consultation 'Achieving our low-carbon pathway to 2030'

Action required None – for information only.

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Additional copies This document can be accessed from the Welsh Government's website at <https://beta.gov.wales/low-carbon-pathway-wales>

Related documents Achieving our low-carbon pathway to 2030 consultation (published 12 July 2018), available at <https://beta.gov.wales/low-carbon-pathway-wales>

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Executive summary

- i. The 2015 Paris Agreement has put in place a roadmap for decarbonisation of the global economy. The Environment (Wales) Act 2016 requires a reduction in greenhouse gas emissions of at least 80 per cent in 2050, against the baseline described in the Act. Later this year Welsh Ministers will lay regulations before the Assembly to set interim emissions reduction targets for 2020, 2030 and 2040, as well as setting the first two carbon budgets (2016-20 and 2021-25). Each time they publish a carbon budget, Welsh Ministers have to produce a report of policies and proposals setting out how they will meet the budget. The report for the first carbon budget will be published in March 2019.
- ii. The Welsh Government ran a public consultation between 12th July and 4th October 2018, entitled 'Achieving our low carbon pathway to 2030', with the aim of seeking views on potential actions to cut emissions in eight emission sectors (power, transport, buildings, agriculture, land-use and forestry, industry, public sector and waste). The consultation was seeking views on actions to reduce emissions to 2030. That is far enough away to give actions time to have an effect but not so far away that most societal and technological changes could be anticipated with a reasonable level of confidence. Through involving stakeholders early in the development of the ideas and policies, wider opportunities can be maximised. The potential actions are listed in [Annex A](#).
- iii. Alongside the main consultation document, the Welsh Government produced a consultation summary and a young people's version. A summary of responses to the young people's version is available at <https://beta.gov.wales/low-carbon-pathway-wales>

Consultation responses

- iv. A total of 247 responses were submitted to the consultation. There were 27 responses that were omitted from the analysis as they were duplicates or blanks. Therefore, 220 substantive responses remained for analysis in this Summary Report. The four responses received after the closing date have not been analysed in this Report but the Welsh

Government will consider them in developing actions to meet carbon budgets.

- v. Responses were received via the online form and email. Of the respondents, there was an equal distribution between organisational and individual responses (50 per cent of responses from each). Of those that answered the question about where they live, 86 per cent stated that they live in Wales (143 respondents stated that they did live in Wales and 24 stated that they did not).

General response to the potential actions

- vi. Overall 90 respondents said that they either completely agreed or agreed with the potential actions. The respondents believed the actions to be crucial in order to tackle the current problem of climate change facing both Wales and the world. However, a large proportion of the respondents, from all levels of agreement, believed that the actions needed to be developed further in order to achieve the 2030 emissions reduction target.
- vii. The greatest disagreement was with potential actions in the transport and power sectors where respondents believed more ambitious potential actions were needed if the carbon budgets are to be met. See [Section 3](#) for further details.

Specific responses and ideas to deliver the potential actions

- viii. Respondents gave ideas for the delivery of the potential actions. The most ideas were put forward for power and transport, which follows on from the sentiment in the previous section that these sectors needed to be developed further. In relation to power, ideas for renewable energy generation were the most frequent, including easing planning regulation and developing grid capacity.
- ix. Those that referenced the transport sector were most likely to propose ideas for greater electric vehicle infrastructure roll-out and encouragement of low emission travel. This included increasing cycling and walking infrastructure and improving public transport facilities. For

a full depiction of the ideas in relation to each potential action and within each sector see [Section 4](#).

- x. Alongside the emissions sectors, the consultation contained potential actions in several cross-cutting areas: planning, skills, innovation, enabling others to act and global responsibility. Respondents believed that planning was highly important and needed to do more to enable emissions reduction. Skills development was seen as a key area to increase focus, especially within the buildings sector. Innovation of low carbon technology and techniques were seen as a key area of investment, providing wider economic and employment benefit as well as competitive advantage on the world stage. Respondents also believed that the Welsh Government needed to enable others to act through regulation.

Other ideas

- xi. Respondents also gave ideas for reducing emissions that did not relate to the potential actions within each sector. The general themes of the most commonly referenced additional ideas are summarised here (for a full depiction of ideas see [Section 5](#)):
- invest in research to increase grid capacity
 - eliminate the use of fossil fuels
 - implement deterrents against car use
 - invest in public transport facilities
 - incorporate renewable energy sources into new buildings
 - encourage downsizing and house sharing
 - impose greater regulation of large industry players
 - encourage homeworking
 - launch a promotional / education campaign about the need to incorporate emissions saving behaviours
 - incorporate tree planting in any replacement of the Common Agricultural policy (CAP) in Wales
 - invest in waste research and innovation.

- xii. Other areas discussed by respondents included the role of the UK Government and EU, procurement, education and behaviour change.

Extent that sectors should be prioritised

- xiii. Power was the sector regarded as the highest priority by respondents. Within this sector, greater investment in, and deployment of, renewable energy over fossil fuels was seen as the most significant action to prioritise.
- xiv. Transport was regarded as a priority the second most frequently by respondents. Within this sector, the potential action to increase the rollout of electric vehicle charging infrastructure was regarded as a priority as well as a drive to lower emissions travel, through encouragement (such as improvement of cycling and walking infrastructure and public transport facilities) and behaviour change.
- xv. Buildings and industry were also regarded as sectors where actions should be prioritised over others. Key areas to prioritise were the reform of building regulations (Part L) and obtaining industry buy-in for the potential actions to prevent industry from leaving Wales.
- xvi. Though the remaining sectors (public sector, land use and forestry, agriculture and waste) were regarded as a priority less frequently, respondents did state specific areas within these sectors that were a priority. See [Section 6](#) for more detail.

Collaboration and innovation between sectors

- xvii. Respondents explored a range of themes when identifying how to encourage more collaboration and innovation between sectors. Predominant themes included: communication, support, incentives and funding and Welsh Government input. Respondents saw the role of Welsh Government as fundamental to increase collaboration and innovation among sectors. See [Section 7](#) for further detail.

Impact on individuals and organisations

- xviii. The majority of respondents stated that the potential actions would have a positive impact on both individuals and organisations. The key

areas where respondents felt the benefits would be most evident were in health, transport, environment and economy. On the other hand, many respondents discussed the disadvantages that could occur as a result of the potential actions proposed. For greater detail see [Section 8](#).

Wider impacts

- xix. The majority of consultation respondents saw the benefits of the potential actions in the five areas listed. Benefits focused on health, reducing air pollution and providing cleaner air for future generations, and the importance of access to green infrastructure for active travel and improved mental health. Benefits to communities focused on the provision of local energy that was community-owned. However, respondents acknowledged the limitations of the potential actions, as they were seen as vague and lacking the capacity to mitigate against the risks of climate change. Other wider impacts can be seen in [Section 9](#).

Contribution to the well-being goals

- xx. Respondents saw the relationship between the potential actions and their contribution to the well-being goals, especially a prosperous Wales and a resilient Wales. However, there was concern from a minority of respondents about the need for further detail and implementation plans to see if there would be any unintended impacts of the potential actions on the Well-being Goals. See [Section 10](#) for further detail.

Other comments

- xxi. Overall, there was support for the potential actions. However, respondents voiced the need for the Welsh Government to be more ambitious and go further to make Wales a world leader in this area. A wide range of additional comments were explored, that have been outlined in [Section 11](#).

Supporting evidence

- xxii. Respondents using the online form were given the opportunity to upload evidence to support their response and thirteen respondents did so.

1. Introduction and background

- 1.1 The 2015 Paris Agreement has put in place a roadmap for decarbonisation of the global economy. The Environment (Wales) Act 2016 requires a reduction in greenhouse gas emissions of at least 80 per cent in 2050, against the 1990 baseline. Later this year Welsh Ministers will lay regulations before the Assembly to set interim emissions reduction targets for 2020, 2030 and 2040, as well as setting the first two carbon budgets (2016-20 and 2021-25). Each time they publish a carbon budget, Welsh Ministers have to produce a report of policies and proposals setting out how they will meet the budget. The report for the first carbon budget will be published in March 2019.
- 1.2 The Welsh Government launched a public consultation on 12th July with the aim of seeking views on potential actions to cut emissions between now and 2030 in eight emission sectors (power, transport, buildings, agriculture, land-use and forestry, industry, public sector and waste). The consultation was seeking views on actions to reduce emissions to 2030. That is far enough away to give actions time to have an effect but not so far away that most societal and technological changes could be anticipated with a reasonable level of confidence. Through involving stakeholders early in the development of the ideas and policies, wider opportunities can be maximised. The consultation, which closed on the 4th October 2018, allowed organisations and the public to respond through three channels: online, by post and email.
- 1.3 The consultation document highlighted the emissions data, the opportunities and challenges, and presented potential actions in each sector. See [Annex A](#) for the proposed potential actions. Alongside the main document, the Welsh Government produced a consultation summary and a young people's version of the consultation.

- 1.4 The consultation asked for respondents' views on the potential actions, whether they had any ideas about the ways to encourage collaboration and innovation across sectors, and if they could provide additional evidence for Welsh Government consideration.
- 1.5 The consultation questions have been broken down into sections of this report to provide a comprehensive overview of responses. This is followed by annexes which contain a list of the potential actions proposed by each sector (as supplied within the consultation document), a summary of wider engagement efforts undertaken by the Welsh Government within the consultation period (including consultation events and social media engagement) and a list of the organisations that submitted a response to the consultation.

2. Consultation responses

- 2.1 A total of 247 responses were submitted to the consultation.
- 2.2 Twenty-seven responses were omitted from analysis as they were deemed invalid because they were either blank or duplicate. Four responses were submitted after the closing date and have not been analysed in this Report. Of these, there were 23 duplicate responses which were removed from the substantive responses database in order to avoid duplication during analysis. Three blank responses were identified and also removed. There was also a single response submitted by a Welsh Government employee that related solely to tackling emissions at the Cathays Park office and was therefore removed. Therefore 220 substantive responses remained for analysis which are included in this report.
- 2.3 Of the 220 substantive responses, 136 were received online, 84 via email and none by post. Some of the respondents who submitted an email response did not follow the questionnaire in the consultation document. These views have been analysed and included in this report where appropriate.
- 2.4 Overall, there was an equal distribution of responses between organisations and individuals.
- 2.5 Almost all respondents that answered the question "Do you live in Wales?" stated that they did (143 respondents), although 14 per cent (24 respondents) did not live in Wales. One of these responses came from an organisation that stated they were representing their Welsh membership but were not based in Wales.
- 2.6 The number of substantive responses received for each question is shown in Table 2.1.

Table 2.1 Substantive consultation responses per question¹

Consultation question	Number of completed responses	Did not respond
Extent of agreement with the potential actions	167	28
Ideas for the delivery of potential actions	182	13
Additional ideas for emissions reduction	154	41
Extent that some sectors should be prioritised	154	41
Collaboration and innovation between sectors	152	43
Impact on respondent or their organisation	144	51
Wider Impacts – Public health	134	61
Wider Impacts – Communities	118	77
Wider Impacts – The Welsh language	99	96
Wider Impacts – Equality	100	95
Wider Impacts – Children's rights	87	108
Contributing to the well-being goals	121	74
Other comments	115	80
Other evidence	13	182

Approach to analysing consultation responses

2.7 All responses have been collated into a central database and logged by consultation question to draw out the dominant and alternative views in the responses. Analysis included use of NVivo software to code the responses in relation to the eight emission sectors. Additional themes emerged from the analysis of the consultation responses and these have been embedded within this summary document.

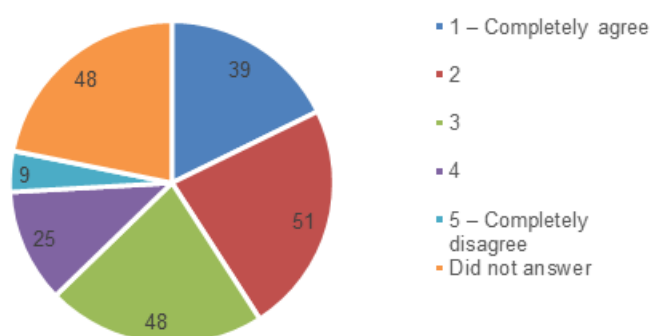
¹ Of the 220 substantive responses, 25 responses submitted a general response and did not directly answer the consultation questions.

3. General response to potential actions

3.1 The consultation asked respondents to what extent they agreed with the potential actions for reducing emissions as set out within the document (see [Annex A](#)). The response options were in the form of a scale from 1-5, 1 being “completely agree” and 5 being “completely disagree”. Consultation respondents had the option to select a single number from the scale and were asked to explain their answer.

3.2 Figure 3.1 provides an overview of the responses to this question. In total there were 172 responses to this question, whilst 48 respondents did not answer this question. Table 2.1 shows how many respondents submitted qualitative comments in response to this question.

Figure 3.1 Summary of responses for extent of agreement with the potential actions



3.3 The dominant views in relation to agreement, neutral feeling and disagreement with the potential actions have been summarised below.

Agreement with the potential actions

3.4 The respondents that chose options 1 and 2 (completely agree and agree) largely supported the approaches within the consultation. Some comments to this effect included that the actions were sensible, necessary, comprehensive, and achievable. A few commented that the actual implementation of actions required greater detail.

- 3.5 An area where respondents who agreed with the potential actions believed that further development was needed included energy efficiency and renewable energy, with respondents stating that Wales had great potential to enhance its renewable energy sector as it has rich natural resources (including wind, solar and hydro).
- 3.6 Overall, respondents reiterated the importance of the potential actions to tackle climate change. The impacts of climate change were believed to be of great significance by respondents, who pointed to its adverse weather, health and wellbeing implications. Respondents highlighted a responsibility to act before it was “too late” and preserve the planet for future generations. This was regarded as the “most important issue of this century and will not only affect Wales but the planet” by one consultation respondent. Furthermore, a respondent stated that by investing in this area, Wales could become a world leader, which may provide a source of “competitive edge” for the country as climate change mitigation becomes increasingly higher up on other countries’ agendas.

Neutral feeling towards the potential actions

- 3.7 The consultation respondents that chose option 3 (48 respondents), reflecting neutral feelings towards the potential actions, stated that the actions did not go far enough and needed to be built upon to meet the emission targets. These respondents felt that although the consultation represented a good starting point, the actions needed to be developed further.
- 3.8 Respondents also stated that though the sectoral breakdown of actions was necessary, more understanding on how the actions might complement one another and the ways that sectors could work together was needed.

Disagreement with the potential actions

- 3.9 Overall, the 34 respondents that either disagreed or disagreed completely with the potential actions were concerned that they were too vague, lacked ambition and needed to show more global

leadership based on evidence. They were unconvinced that the actions would deliver emission reductions targets and were concerned that the consultation was “inadequate to deliver the step-change we need in moving towards a zero-carbon economy and society”.

- 3.10 One respondent noted “it is a serious concern that the potential actions have not yet been assessed for their economic and emission reduction potential”, perceiving a need to ensure the proposals could deliver what is required. Several respondents thought the consultation offered a series of ideas rather than evidence-based proposals.

Other comments

- 3.11 One of the respondents who did not answer this question said that they had left the scoring blank as it was “not clear what the benefit of scoring the actions collectively or individually would be”. They believed that some of the potential actions were not actions but aspirations, therefore it was difficult to provide an overall score.
- 3.12 Though the respondents chose differing levels of agreement with the potential actions, a large proportion of respondents suggested areas that needed to be improved and developed further. A general theme throughout responses was that the potential actions were not ambitious enough and needed to be extended further if the carbon budgets were to be achieved.

Wider comments that did not directly relate to the potential actions included the need to acknowledge health implications as a key driver for a low carbon transition (with positive air quality, asthma and wellbeing implications). Other issues included the need to acknowledge consumption and consumer behaviour as an area where change is needed to allow emissions reduction and for greater consideration of the role of the government (and regulation), such as its influence on education. This is explored in greater detail within [Section 5](#).

4. Specific responses and ideas to deliver the potential actions

4.1 This section explores the level of agreement and how the potential actions could be delivered by each sector. Each potential action is outlined below in bold with the summary of consultation responses below.

Power

Support the development of regional and local energy planning to address the supply, distribution, and use of energy

4.2 There were a range of ideas for delivering this potential action.

- Amend planning systems so that they favours shorter energy supply chains.
- Incorporate education policies into local planning so that households are aware of how to use energy more efficiently and incorporate energy usage behaviour changes.
- Ensure that local energy planning is supportive of renewable energy schemes.
- Provision of engagement, training and information to local planners, so they are well informed to make decisions.
- Reform the Renewable Energy Assessment Process so that it is less restrictive.
- Reform the Supplementary Planning Guidance (SPG) so that it considers the need to transition to a low-carbon economy and greater numbers of renewable energy schemes are permitted.
- Consider how Natural Resources Wales' remit could be modified so that it is more proactive in enabling low carbon development.

Support innovation and commercialisation of new products, processes and services in the energy system

4.3 Respondents were in agreement that innovation and commercialisation in the energy system should be supported. Ideas to deliver this potential action are outlined below.

- Encourage sectors to work together to innovate as this will be likely to achieve the greatest benefit and spread costs.
- Hold competitions for innovation. For example, the Scottish Government has an Energy Challenge Fund that supports innovative low carbon energy projects.
- Encourage innovation in less visually-intrusive energy generation.
- Incentivise the decarbonisation of the thermal power sector.

Develop and implement Wales's policy position around the extraction and combustion of fossil fuels in power generation

4.4 Respondents stated that they would agree with a moratorium on gas generation. However, others stated that they did not agree with this policy as it would mean having to use more emissions-intensive sources of energy from elsewhere before the transition to other, less polluting sources. Wider possible impacts on the economy included an increase of consumer bills and loss of jobs in Wales. Furthermore, some respondents believed that this could reduce the amount of inward investment within the energy sector.

4.5 The ideas relating to this potential action included:

- impose taxes on the burning of fossil fuels to make them more expensive
- promote the policy position to make investors in renewables more confident
- eliminate the use of diesel, coal, and methane as power sources.

Accelerate the deployment of renewable generation whilst encouraging local ownership

4.6 Ideas for developing renewable generation deployment and encouraging local ownership were the main source of discussion amongst consultation respondents.

- Improve grid capacity to overcome thermal and voltage constraints (this was a dominant view within responses).
- Work more closely with District Network Operators (DNOs) to harness opportunities for investment and demonstration of smaller electricity systems.
- Work with DNOs to create closed loops so that local community renewable generation schemes see the benefits - electricity generated in an area is used in that area.
- Identify areas where there is grid capacity for renewable generation and encourage projects in these areas.
- Re-purpose water mills to generate electricity.
- Build solar farms over reservoirs to mitigate water loss through evaporation.
- Burn rubbish and vegetation for power.
- Drive and support renewable energy projects through promotion, policy support and financial support, e.g. interest free finance.
- Increase all types of renewable energy (wind, solar, hydro, tidal).
- Implement and guarantee Feed in Tariffs (FITs) for community renewable energy schemes or fiscal "one-off" incentives that will reduce pay-back periods for consumers.
- Extend the FITs scheme for properties in Wales with systems under 6-10Kw.
- Promote community renewable energy schemes.
- Allow consumers to choose their own source of electricity to encourage a market pull for renewable energy.
- Share learning from community energy developments so that greater understanding within the sector is afforded.

- Continuation of the Contracts for Difference (CfD) framework funding in Wales so that developers in Wales have the certainty they need to bring forward renewable energy projects.
- Develop working groups between local authorities, registered social landlords and the private sector to enhance renewable projects.
- Identify new Strategic Search Areas (SSAs) for development in areas with good wind resource.
- Support the development of new investment vehicles.
- Explore the opportunity to manage energy more efficiently through distributed generation, with significant efficiency savings.
- Encourage flexibility markets in local areas so that localised renewable energy generation can be more effective.

Transport

Develop a charging network that encourages early take-up of electric vehicles (EVs) and explore the merits of other measures, including access to bus lanes and free municipal parking

- 4.7 Respondents supported the roll-out for EV charging stations, with one suggesting the activity needed to be centralised to the Welsh Government as local authorities often do not prioritise their deployment. Some respondents stated that greater encouragement and provision for EVs through infrastructure roll out was flawed unless the electricity used was generated from renewable sources. Most respondents believed that EVs were the only way forward, with some calling for petrol stations to be banned.
- 4.8 There was disagreement among respondents on the use of priority access for EVs, such as allowing use of bus lanes. Some believed this to be a good incentive for increased uptake, however others stated that this could incentivise private car use over public transport and cycling.

4.9 With regard to EV charging infrastructure network development, respondents believed that this was a priority to encourage greater EV purchase and take-up. The ideas presented by respondents are summarised below.

- Deploy 'rapid' EV chargers as they reduce time spent charging and will reduce barriers to wider adoption.
- Regulate the provision of charging stations in cities, and incorporate charging stations in new homes, rural areas, residential streets and workplaces.
- Develop the EV charging network strategically. Prioritise charging stations near main roads (e.g. the M4, A470 and A55), railway stations, hospitals, schools, town centres and car parks. One respondent stated that there "is almost no charging infrastructure linking North and South Wales" – mid Wales risks being "left behind".
- Set targets for EV rollout (percentage of Wales covered).
- Encourage "EV tourism" through providing tourists who travel the country via electric vehicles with 'x' amount of free electric miles. "Brand it as Welsh and promote it".
- Prioritise the effective development of managed charging systems that reflect what amounts of energy a car is using and where so that owners can monitor their usage.
- Incentivise workplace charging stations.
- Subsidise technical support/ mechanic services for EV users.

4.10 Respondents also believed that methods for encouraging EV purchase were needed. Ideas presented to this effect are summarised below.

- Provide monetary incentives such as decreasing the price of EVs, providing tax breaks to those who purchase EVs (such as Benefit in Kind), grants, free parking and charges against petrol and diesel vehicles (such as tax increases) to deter use.

- Promote EV purchase through encouraging test drives, communicating benefits and the launch of a national advertising campaign to tackle the “myths” around electric cars.

Reduce the carbon footprint of taxis and buses to zero within 10 years to achieve the aim in the Economic Action Plan

4.11 Some respondents believed that this potential action was not realistic, failed to consider that electricity is not necessarily zero carbon, would require high upfront costs and would be difficult to achieve at current levels of EV charging infrastructure.

4.12 Ideas presented by respondents to deliver this potential action are listed below.

- Retrofit vehicles with abatement technology. A Defra study showed it was more cost effective than the diesel scrappage scheme.
- Consider other low-emission (and lower cost) fuel options, including Liquefied Petroleum Gas (LPG) and BioLPG.
- Introduce a grant scheme for taxi drivers to upgrade vehicles
- Promote emissions-saving methods and initiatives through local authorities.

Double the percentage of adults making cycling journeys at least once a week and increase the percentage of people making walking journeys at least once a week by 25% from the 2016 baseline

4.13 The most commonly cited idea was to increase cycle and pedestrian infrastructure. Respondents also commented that walking and cycling was particularly problematic in rural areas, which represents a large proportion of Wales.

4.14 The ideas to increase the amount of walking and cycling are outlined below.

- Increase the amount of cycle and pedestrian lanes and consider creating “cycle networks” and pedestrian crossings on all main roads.
- Implement congestion charges in all major towns and cities and consider banning cars from all cities in the future.

- Increase provisions for bicycles on trains and buses.
- Build housing developments that promote active transport and efficient living.
- Incentivise e-bikes through loans and incentive schemes. Deregulate electric bicycles, skateboards and scooters and allow them to be used on the roads.
- Implement a “costed, prioritised and timetabled strategy”.
- Consider methods of travel for individuals with mobility issues such as ultra-light electric vehicles (bicycles, skateboards and scooters).

Explore the relationship between speed limits and greenhouse gas emissions, with a view to considering environmental factors in speed limit reviews

- 4.15 This was considered as a positive policy idea by respondents. Some believed that more 20mph speed limits needed to be in place, with benefits including better air quality and well-being.

Buildings

Set higher energy efficiency standards for new builds through reviewing Building Regulations Part L (Conservation of Fuel and Power)

- 4.16 Ideas from respondents relating to this potential action are outlined below.
- Only grant planning permission for buildings that have solar panels or are powered by renewable energy sources.
 - Incentivise solar panels on buildings through grants, tax breaks and other financial support.
 - Increase the roll-out of pre-warming heating pipes on roofs
 - Modify the BREEAM standard so that energy efficiency is a maximised.
 - Investigate how to close the performance gap between design and actual built performance of both new buildings and retrofit

by requiring certified inspection of all properties rather than the current approach of just inspecting a sub-sample.

- Incorporate a compulsory zero carbon policy for new build homes, aiming for all buildings to be zero carbon in the future.
- Focus on off-grid and new homes first to realise carbon savings quickly.
- Consider complementing regulation with commercial enablers/ incentives (discounted public land, loans, incentivise home buyers).
- Develop the planning and consenting powers needed to achieve this, including Local Development Plans, Local Well-being Planning and Area Statements.
- Consider favouring local materials in planning regulations.
- Implement higher standards of insulation, air tightness and steps to minimise heating over summer.
- Update the Standard Assessment Procedure to include dynamic modelling to help tackle issues such as overheating.
- Make it compulsory to install sprinkler systems in domestic properties.
- Incorporate roof gardens into new builds.
- Regulate low-carbon design/ material selection stages in building development.
- Plan a trajectory of building regulations up to 2050, to set a clear path for delivery.

4.17 Areas that were deemed priorities amongst respondents included the development of heating and cooling systems so that they are more energy efficient. Wider comments were made about the costs that are likely to be incurred by increased regulation and the difficulty of implementing some regulation in rural areas. For example, a minority of respondents believed that oil was an essential source of energy for heating rural and off-grid homes. Concern was expressed about the expense of low-carbon energy sources for these homes and the risk of greater fuel poverty in Wales as a result.

Develop a long-term residential retrofit programme based on evidence

4.18 Comments included that the action to retrofit buildings was important yet required a large amount of funding to be achieved. Respondents' ideas for delivering this potential action are outlined below.

- Offer loans against house equity to carry out renovations to improve air-tightness, insulation and use of fuel for heating.
- Impose regular building maintenance checks.
- Provide financial support for landlords, as the private rented accommodation was referred to as the worst polluter in the building sector.
- Encourage installation of electric combi boilers instead of oil powered boilers.
- Launch an education and skills programme in retrofitting and building pathology.
- Consider a more radical, demolition approach.
- Continue to support of the Arbed retrofit programme.

4.19 Wider comments included the positive impact on public health that higher buildings and retrofit standards would allow. The private rental sector was considered as the area that needed to be targeted the most. Respondents believed retrofitting to be an important action that should be applied to "every building".

Establish the baseline of energy use and associated emissions from business sector buildings

4.20 One respondent highlighted data and the 2018 report of Building a Picture of Energy Demand in Wales. This report estimates the energy demand of Welsh domestic and non-domestic buildings in half-hourly intervals for electricity and heating in 2016, and the report provides wider evidence for consideration.

Deliver buildings that are more sustainable by using innovative construction techniques to reduce and meet the energy demand within buildings and increase the use of sustainable materials, such as timber

4.21 Respondents were divided in their opinions around the use of timber as a building material. Some agreed that it was a preferable material to use and could help develop more affordable housing. However, other respondents disagreed with this potential action and claimed that timber is often imported and concrete may be the lower carbon option when the full lifecycle of the building is considered. They also expressed concern that favouring a single material could stifle innovation. Respondents were also concerned that the benefits of concrete and masonry were overlooked within this potential action, for example its thermal mass may help to cool buildings.

4.22 Ideas for encouraging greater innovation within the sector are outlined below.

- Begin with widespread data collection on existing buildings' energy use.
- Look at locally sourced materials first.
- Provide incentives and funding for innovation projects to de-risk them.
- Continue SPECIFIC, Active Building Centre and Innovative Housing Programme projects and invest in similar projects like this.
- Investigate the use of other materials such as bio-based materials and green concrete.
- Consider re-using structural components e.g. steel.

Scope out the challenges and opportunities around low-carbon heat

4.23 Respondents believed this to be a key potential action to be explored, as it was a large source of emissions. However, some expressed doubt about the ability to decarbonise heat in homes, pointing to the

difficulty in achieving this and the concern of fuel poverty levels in Wales, which might increase if more expensive heat techniques were used.

4.24 Ideas to deliver this potential action are outlined below.

- Consider the electrification of heat.
- Expand heat networks for buildings.
- Launch an education campaign for heat pumps. Air source Heat Pumps can be hard to understand/ incorporate into domestic usage; therefore, to learn from experiences and share knowledge.
- Explore potential geothermal sources.
- Prioritise energy efficiency of buildings over low carbon heat.
- Development and expansion of heat networks to connect homes and buildings.
- Undertake a cost-benefit analysis of retrofitting all households that are living in fuel poverty.

4.25 Heat pumps were believed to be the main method to decarbonise heat. However, some respondents believed that there were issues that needed to be addressed before their widespread deployment. This included their cost, use of electricity and the difficulty of deploying them in rural areas. Other respondents referred to a “hybrid” approach, where a home could have different fuel sources and switch between them at different times of day (depending on times of peak demand). Similarly, a respondent stated that it was likely that a range of solutions would be required and that it would depend on factors such as “the age of the property, the ability to change the property’s inherent characteristics, its rural location as well as the cost to the home owner”.

Agriculture

Provide post-Brexit support in the form of a land management programme that contains a public goods scheme and an economic resilience scheme, replacing the Common Agricultural Policy (CAP) with a framework that also links support to emissions reduction and removals

Ensure that emissions reduction is considered in any regulatory reform proposals arising from the land management programme consultation

- 4.26 The majority of respondents that discussed the land management programme disagreed with the potential actions within the agricultural sector. The respondents believed that relying on a replacement of the Common Agricultural Policy was insufficient as it had been previously failing to deliver on the Environment Act and the Well-being of Future Generations Wales Act. Other respondents believed that the potential actions lacked vision and ambition.
- 4.27 Respondents raised a number of ideas for the delivery of the programme, which are outlined below.
- Focus subsidies on sustainable management of land in Wales to promote the benefits of preserving wildlife, supporting wild spaces, reforestation, carbon capture, reducing fertiliser / pesticide use, and to provide food locally.
 - Combine the two schemes, as all farm payments should work within the five principles and farmers should have to carry out public goods services to be able to be awarded productivity grants.
 - Reward farmers that sell locally, employ locally and are energy efficient.
 - Focus on horticulture, reducing meat consumption /production, and encourage more efficient food sources.
 - Address the Climate Smart Agriculture project's recommendations.

- Concentrate efforts on finding carbon-friendly solutions for agriculture and food production, such as vertical farming.
- Consider the wider social, economic and cultural benefits of farming to Wales.
- Set a target to increase organic farmland, as per Plaid Cymru's proposal.
- Explore food production alternatives that emit less methane and carbon dioxide than dairy. Cannot rely on grass-fed as droughts are becoming increasingly frequent.
- Develop a circular economy approach where all waste is utilised to help mitigate greenhouse gas emissions.
- Research and development is required to understand where reductions can be achieved (methane reducing diets, methane capture technology and other novel emission reducing options).
- Recognition of existing actions within the agriculture sector will be important to showcase the success in reducing emissions.

4.28 A number of points for further consideration were raised by one respondent.

- Encourage small farm cooperation with other farmers to buy in bulk.
- Offer assistance to farms (small and large farms): sustainability tool for an on-farm assessment (for free), incentives for farms to be more self-sufficient, advice on growing home-grown feeds and encourage feed businesses to support local farms / small farms.
- Reduce emissions from transport of livestock: support local abattoirs (financial incentive), encourage farms to use local abattoirs, change market variability to encourage farmers to go to nearest livestock market rather than travel further for better price at auction, and support livestock markets to stay open.
- Provide more efficient vehicles for livestock transport.

Land use and forestry

4.29 Respondents were in support of the potential actions presented within the land use and forestry sector, though some believed they required more ambition. There was some concern about the impact of more tree planting on food production.

Revise our regulatory and support regimes to increase tree planting to at least 2,000 hectares per year, aiming to increase this to 4,000 hectares

Identify preferred areas for tree planting, including commercial woodlands and planting at medium and large scale

4.30 Respondents broadly agreed with the need to increase tree planting, due to the multiple benefits that can be seen. In addition to the three potential actions, a respondent noted the following considerations for delivery. These included: forests that produce high-value timber should be favoured, capital grants should be available for planting, test other land-use support for carbon costs and collaborate with the private sector. However, respondents outlined a wide range of further considerations for the delivery of the potential action, as listed below.

- Create a regulation system which stops the blocking of new woodland planting.
- Re-consider the target number of tree planting.
- Learn from other countries such as Scotland who have increased their target to 15,000 hectares per year by 2024.
- Drive the planting of softwood to guarantee the future of the forestry sector and ensure trees have many uses and commercial value.
- Plant trees sympathetically, so as not to displace people from the land.
- Carry out research to aid full understanding of the ecological opportunities and costs of woodland expansion, at a UK, country and regional level (could be undertaken by Forest

Research). Until then, a precautionary approach is required in order to avoid repeating past mistakes.

- Create further regulation, advice and guidance on how to deliver sustainable woodland management.
- Address the barriers to planting trees on land, by reducing the amount of complex processes to allow smaller farm-scale planting.
- Consider the potential negative and unintended effects of woodland development in Wales.

Ensure that all peatlands supporting semi natural habitats are under active management by 2030 by supporting, enabling and co-ordinating the restoration and sustainable management of peatland, as well as utilising and maximising associated funding opportunities

- 4.31 One respondent suggested the target in the Wales Peatland Strategy for 95 per cent of Wales' peatland being in good condition should be brought forward from 2040 to 2030.

Industry

- 4.32 Several respondents stated that it is important to ensure the actions to reduce carbon emissions do not negatively impact competitiveness and lead to industry leaving Wales. Respondents believed that industry must be fully engaged if a low carbon transition is to be achieved.

Commission an independent economic and technical feasibility study on carbon capture use and storage (CCUS)

- 4.33 Respondents were firmly in support of this potential action, although one respondent commented that this is particularly ambitious and unlikely to be a realistic potential solution for emissions reduction. Ideas to deliver this action given by respondents are outlined below.
- Commit to a CCUS demonstrator in Wales so that industry can build upon the example.

- Concentrate on methods to make it cost effective, it could provide a source of firm and flexible generation alongside renewables and nuclear in the future if it is cost effective.
- Create a working group to share the costs of CCUS development.
- Explore CCUS techniques that convert carbon monoxide in our process gases to precursor chemicals such as ethanol.

Consider the further development of our Environment Protection Scheme (EPS) beyond 2020 to support the most carbon-intensive industries

4.34 A few respondents supported the potential action as they highlighted government support will be crucial to ensure marginal schemes can progress. Other ideas to achieve the decarbonisation of carbon-intensive industries were as follows.

- Fine the biggest industrial polluters.
- Implement energy efficiency surveys so that industries know where they can make steps to be more efficient.
- Charge industries for their own waste products and runoff.
- Launch an educational and promotion campaign to encourage the industry's re-use of waste materials.
- Explore life cycle assessments.

Consider waste heat recovery and use as part of the approach to heat policy

4.35 The "bold" ambition to explore waste heat recovery was commended. One respondent proposed the idea of exploring the usage of large point sources of heat, including Tata Steel and the proposed Wylfa-B nuclear power station, in the delivery of a waste heat recovery policy.

Establish an industry-led working group on decarbonisation

4.36 There was strong support for Welsh Government engaging with businesses and communities, so that they understand why a low carbon transition is needed. How to achieve it was an area of concern

for a minority of respondents. One respondent commented on the difficulty of gaining a commitment from stakeholders through all of the potential actions listed, with particular reference to implications for industry. They stated that measures and structures need to be put in place to improve engagement with industry and communities on their ideas, especially as businesses could choose to relocate or invest elsewhere if they believed these actions to negatively impact profits. A respondent also believed that industry played a key role in “well-being, innovation and low-carbon processes”. One idea given by respondents was to incorporate academics within the working group.

- 4.37 One respondent believed that a “fundamental oversight” within the actions was that taxpayers seemed to carry the burden of low carbon initiatives and emissions-saving measures as opposed to industry where more of a focus was needed on emissions.

Public sector

Support the public sector to baseline, monitor and report progress towards carbon neutrality

- 4.38 There were no comments from respondents on this potential action.

Public sector buildings are supplied with renewable electricity by 2020 and, where practicably possible, are supplied with low-carbon heat by 2030

- 4.39 Ideas to enhance the efficiency of public sector buildings given by respondents are outlined below.
- Replace inefficient equipment such as lighting, air-conditioning and cooling.
 - Reform and refine guidelines for public sector building refurbishment.
 - Reduce the centralisation of services such as schools and hospitals which lengthens journeys - keep services local and preserve the vitality of world communities.

- Utilise innovative technologies and potentially the development of more heat networks.
- Undertake baseline assessments, monitor and report progress toward carbon neutrality of buildings.

All new cars and light goods vehicles in the public sector fleet are ultra-low emission by 2025 and where practicably possible, all heavy goods are ultra-low emission by 2030

4.40 This was deemed a priority by respondents who felt that it was important for the public sector to lead the way in this aspect. Concerns were raised about the expense of EVs, technological capabilities, grid capacity and the ability to develop an EV charging infrastructure.

Waste

Create new opportunities for resource efficient manufacturing through embedding resource efficiency within our programme of innovation support to SMEs and using public sector procurement to stimulate the market

- 4.41 Respondents agreed with the potential action and discussed wider ideas to support its delivery, as outlined below.
- Develop a system for encouraging companies to reduce their plastic packaging.
 - Focus on reducing waste rather than recycling.
 - Expand on Green Public Procurement to stimulate end markets to include other measures, such as fiscal incentives, tackle technical barriers to using recycled content through R&D funding, and bring academia and industry together.
 - Investigate ways to decrease embodied carbon as this will eventually represent a higher share of remaining emissions.
 - Acknowledge resource efficiency and the circular economy as two separate policy areas.

- Support businesses to realise resource efficient benefits to be more competitive on the international stage.

4.42 Respondents stated that there is a great opportunity for material reuse which needed to be focussed on more within the potential actions.

Cross-sector potential actions

Collaborate with business to further decarbonise their activities whilst at the same time improving their competitiveness and productivity to take advantage of the opportunities arising from the transition to a low-carbon economy

4.43 It was believed that efforts to decarbonise business would also have wider positive implications economically as this would improve the competitiveness of businesses. One respondent stated that “it is vital that government works with industry in order to move towards a low carbon future, to ensure policy is realistic and to give industry time and certainty in order for them to scale up as required”. Ideas to support and encourage the decarbonisation of businesses were as follows.

- Incentivise / encourage competition for businesses to undertake low carbon strategies and measures.
- Require companies to evidence their awareness and activities to become more low-carbon.
- Develop incentives for companies to create innovative designs and technological advancements that support a low-carbon transition.
- Promote small industries that are efficient.
- Obtain buy-in for the potential actions from key businesses and stakeholders.
- Encourage behavioural and cultural changes in businesses that support the potential actions.
- Re-invigorate the Energy Efficiency Offices scheme.
- Incentivise businesses to promote working from home.

- Consider measuring industry's Scope 3 emissions so that they know what their emissions are.

Work with Regional Skills Partnerships to anticipate future skills needs, focusing on priority growth sectors identified within regions

Review all current skills and work-based learning programmes to explore whether they can respond more flexibly to emerging requirements such as those represented by decarbonisation, working closely with employers

4.44 A proportion of respondents stated that skills were needed in order to achieve emissions reduction. Of these responses, most referred to the greater skills and training that were needed in the building sector so that builders could understand the differences between older and newer buildings, and how they need to be treated differently to optimise energy efficiency. Particular suggestions to address skills gaps included those listed below.

- Upskill and add to the workforce in areas of trades, asset management and development.
- Engage with CITB and industry on the detail of the proposed energy efficiency programmes so that appropriate training and qualifications can be identified and up-scaled.
- Encourage collaboration between Welsh Government and Regional Skills Partnerships to anticipate future skills needs and develop mechanisms to embed these in academia and lifelong learning.
- Retrain and develop greater skills within the renewable energy sector as this could be a source of employment in the future.

4.45 Other respondents stressed the importance of education in schools. It was proposed that carbon literacy training becomes mandatory in schools.

Conduct a gap analysis of options where innovation can support the decarbonisation agenda and maximise the opportunities

- 4.46 Innovation was a common theme within responses, with many identifying it as a priority to stimulate the shift to a low carbon economy.
- 4.47 Innovation was discussed in relation to the energy sector the most frequently. The consensus from these respondents was that research, investment and innovation needed to be facilitated within the renewable energy sector. It was expressed that “innovation is a vital ingredient for opening up the energy efficiency market”. A wider comment stated that innovative solutions and co-ordinated investment needed to be made in order to support long-term energy efficiency breakthroughs, citing industry, power and transport as the sectors that required the greatest investment into innovation and development efforts.
- 4.48 Further areas suggested by respondents are listed below.
- Innovative materials such as new ways to use wood; to creatively think about a wider usage of wood fibre in all parts of the economy, such as wood-plastic composite and research into new wood materials.
 - Innovation in the bio-economy and investment into Welsh biorefining expertise.
 - Innovation for the decarbonisation of heat.
 - Innovation of tidal stream energy (one respondent cited the Swansea Bay Tidal Lagoon project as a flagship of innovation for Wales).
 - Innovation organisations such as Centre for Alternative Technology should be supported.
 - Battery research, innovation and technology.
- 4.49 One respondent warned against the current trade-off between investment in renewables and maintaining investment in fossil fuels, which “limits innovation and new approaches”. Another stated that

investment in innovation could make Wales a world leader in decarbonisation methods and create green jobs for the future.

Collaborate with organisations across all levels of society and involve citizens in achieving our low-carbon pathway

- 4.50 A few respondents referred to the need to develop approaches that would enable others to act. Regulation was regarded as key to encouraging emissions-saving behaviours.
- 4.51 Other suggestions included incentives or grants to enable individuals and organisations to reduce their emissions, such as grants for purchasing electric cars or remodelling homes.
- 4.52 Additionally, one respondent stated that sustained behaviour change could be achieved through greater awareness and community co-operation schemes.

Provide fruit, shade and fuel trees for the entire Mount Elgon region, Uganda by 2030

- 4.53 There were no comments about this potential action.

5. Other ideas

5.1 Further ideas from consultation responses are outlined below, split by sector.

Power

5.2 Other ideas for the power sector are outlined below.

- Encourage energy usage minimisation through behaviour change.
- Consider fuel alternatives including Nitrogen Oxide, Biomass and Liquefied Natural Gas (LNG).
- Invest in marine energy instead of other technologies.
- Have a publicly-owned energy company with low carbon energy and reasonably-priced fuels to tackle issues such as fuel poverty.
- Develop battery storage systems.
- Build pumped storage systems.
- Encourage training on Mechanical Ventilation with Heat Recovery (MHVR) and heat pumps in Wales.
- Reinvestigate solar-assisted district heating system (SADHS).
- Ease regulation on ground source heat pumps.
- Incentivise conversion to LED lighting.
- Turn off street lights at night.
- Research and develop methods for energy conservation and storage.
- Develop a relationship or liaison between the power sector and the DNOs to understand the technical issues with the electrical grid.
- Set up a task group to investigate how energy could be generated and maximised from the sea.
- Prohibit the importation of unsustainable fuel from overseas.
- Consider wood as a low-carbon fuel and deliver wood smart incentives.

- Invest in digital integration to enable better load matching.
- Consider personal carbon accounts which combine a “carbon tax (pollution charge) with a personal allowance which allows exemption from the pollution charge for energy consumption below the average”.
- Explore bioenergy.

5.3 Nuclear power sources were also seen as a key source of energy to be explored further, particularly Small Modular Reactors (SMR). However, other respondents expressed doubt about nuclear power sources, citing high expense, dealing with the waste and risk as reasons not to invest in this area.

5.4 Tidal energy was also seen as a key area to build energy generation as Wales was believed to have abundant opportunities in this area. Respondents expressed disappointment at the UK Government decision not to go ahead with the Swansea Bay Tidal Lagoon and urged the Welsh Government to go ahead with the project.

Transport

5.5 Other ideas for the transport sector are outlined below.

- Encourage behaviour change to adapt the ways that the public use transport (decrease car use, increase public transport use and travel via walking and cycling).
- Include transportation of heavy goods by rail as a potential action.
- Reconsider the M4 road development and reinvest funds in public transport should be considered.
- Reconsider speed humps and traffic lights to minimise the number of cars decelerating and accelerating.
- Encourage car manufacturers to work together (universal battery).
- Tax aviation.
- Replace roads with banks of trees.
- Introduce a congestion charge on HGVs entering cities.

- Encourage companies to employ local people.
- Establish regional low carbon not for profit organisations that promote low-carbon travel and behaviours.
- Improve education to increase awareness of the impact of travel decisions on the climate.
- Raise fuel duty for diesel and petrol cars.
- Only have electric buses.
- Encourage long distance trains at slower speeds.
- Introduce a high-speed North-South rail line to discourage flying.
- Incentivise private car parks to fit EV charging points.
- Explore tram use in cities.
- Remove traffic humps and give ways to reduce acceleration and deceleration.
- Transport freight via rail.
- Re-design waste lorries so that they can take multiple segregated waste streams and reduce trips.
- Make public transport free to Welsh citizens.
- Remove city centre parking.
- Introduce car borrowing schemes and clubs.
- Improve cycle safety and awareness.
- Reconsider hydrogen powered vehicles.
- Add a levy to petrol and diesels vehicles to subsidise hydrogen buses.
- Ensure that all buses have good Wi-Fi.
- Ensure that all ground operations at Cardiff airport are carbon neutral.
- Fit trackers to prevent wasted fuel on unauthorised use of vehicles.
- Use compressed methane for public transport and public service vehicles.
- Promote an active travel culture in schools.

- Consider vehicle scrappage schemes or swapping vehicles for “mobility credits” for free public transport.
- Prohibit manufacturing vehicles that go over 70mph.

5.6 Public transport improvement also featured highly within the responses. Respondents stated this to be important in order to increase usage of public transport over cars. One respondent stated that it was necessary to couple public transport improvement with measures to discourage private motoring. Ideas to achieve this are outlined below.

- Free EV charging stations for public transport, fuelled by burning rubbish.
- Make public transport cheaper or incentivise car sharing.
- Increase the frequency of services, expand the train network and suburban bus network and increase initiatives like TrawsCymru.
- Electrification of trains (the Valleys lines were mentioned specifically by a respondent).
- Promote use of public transport bus priority/ red routes like London.
- Public transport hubs integrated with walking and cycling infrastructure.
- Retrofit buses – take advantage of the funding available.

Buildings

5.7 Encouraging the installation of smart meters in homes was mentioned frequently by respondents, one stated that they can provide a “catalyst for empowering consumers” and spreading awareness about energy usage in homes. It was seen as crucial by respondents that both the power and buildings sector worked together in order to achieve collective goals.

5.8 Other ideas given by respondents that related to the Buildings sector were as follows.

- Heat pumps require greater consideration.
- Heating fuels should be explored to show the most feasible and cost-effective route for decarbonisation.
- Individuals should be incentivised to live in energy efficient homes.
- Adapt buildings for harsher weather.
- Consider encouraging bio LPG, bio-oil systems and connections to the gas grid for off grid properties, and lower EPC properties.
- Consider the impacts of transport within building planning policies.
- Invest in low-carbon and sustainability modules, skills and training within the buildings sector.
- Plan building developments so that they are in close proximity to jobs, communities and cycle and walking infrastructure. Incentivise older people to downsize through reducing stamp duty and building single bedroom homes near doctors and community assets.
- Reform building regulations so that they must have mechanical ventilation heat recovery (MVHR) and heat recovery systems.
- Encourage the sharing of homes by reviewing regulation to encourage house sharing.
- Reform the housing and rental sector to be more affordable so that money can be spent on retrofitting.
- Invest in research and innovation for buildings.
- Build and create attractive housing and communities near workplaces so that people are encouraged to live where they work.
- Review the emissions impacts of modern-day appliances/ equipment in homes and communicate advice on the best appliances to use.
- Consider switching all oil boilers to a [different] fuel source.
- Invest in best practice projects.

- Consider the whole life cycle of materials when regulating material use in buildings.
- Look into developing buildings that are fully self-sufficient.
- Undertake a cost benefit analysis for retrofitting all homes.
- Adapt the permissible transitional period length² so that regulations apply to homes currently being built.
- Consider implementing the Passivhaus low-energy standard on buildings in Wales (applicable to new buildings and as a retrofitting standard).
- Incentivise businesses, including a boiler scrappage scheme for SMEs.
- Impose tighter regulation on commercial buildings energy efficiency.
- Review TAN2 definition of affordability to include energy costs.
- Launch education programmes in schools about buildings and housing.

Agriculture

- 5.9 In reference to the agriculture sector, there was a perceived lack of cross-over between the 'Brexit and our Land' consultation and this consultation.
- 5.10 Other ideas to reduce carbon emissions within the sector are outlined below.
- Provide advice on home grown feeds, methane mitigation methods and co-operation efforts between farmers to reduce emissions.
 - Encourage diet change.
 - Invest in improvement projects such as the Environmental and Rural Affairs Monitoring and Modelling Project (ERRAMP) and Climate Smart Agriculture.

² The period of time where buildings which have already commenced work do not have to adhere to new regulations.

- Encourage renewable energy production on farms through minimising planning restrictions.
- Plan agricultural output so that Wales can become self-sufficient.
- Ensure that food security is safeguarded to protect against the “challenges to our global food production system over the same timescales”.
- Promote local produce and subsidising locally produced food so that prices could be more competitive.
- Incentivise farmers to reduce sheep grazing.
- Encourage sustainable, permaculture-based farming to improve the health of the general public.
- Tax processed food to subsidise fruits and vegetables.
- Reduce costs for organic farming.
- Extend permitting to large dairy farms to 2025.
- Produce an accurate tool for measuring carbon on farm that is user friendly.
- Implement breeding strategies / genetic changes to reduce carbon emissions.
- Invest in changing public perception of farms as carbon emitters.
- Create hubs of farms so they can learn from each other’s good practice.

Land use and forestry

5.11 Other ideas raised by respondents were as follows.

- Improve the Glastir Woodland Creation map as it lacks subtlety or the ability to deliver substantial tree planting, due to prioritising habitat preservation over tree planting.
- Stop cutting down established woodland.
- Incentivise renewable energy generation on public and private land.

- Adapt the strategy so that it goes further in supporting carbon sequestration initiatives including woodland planting and encourage diversification of farming practices away from livestock production to woodland planting.
- Engage with private land owners as their input and willing participation is required.
- Consider that land-based business can take years or even decades to see results or change direction, so this needs to be factored in to expectations.
- Promote the wider benefits of tree planting along the supply chain of producing goods locally (e.g. jobs, reduction of imports, improve carbon content of soil and timber for products).
- Support land management to prevent erosion (e.g. overgrazing, drainage, fire or footpath erosion).
- Identify a senior officer in Welsh Government responsible for ensuring the delivery of the proposals and targets for timber, forestry and land use.
- Plant trees in tropical areas (sub-Saharan Africa).
- Plant 'High Albedo Species' as these will have the biggest positive impact in Wales.
- Consider the uplands as an area for reforestation.
- Reduce the financial barriers to successful One Planet Development applications.
- Introduce measures to protect woodland and soil carbon.
- Restore areas of afforested peatlands within the Welsh Government's Woodland Estate.

Industry

- 5.12 Several comments were made about getting industry onboard with the potential actions. For instance, one respondent stated that SMEs were often confused about what energy products are the most efficient. Another stated that it was important to communicate the

business case that increased efficiency and sustainability can reduce costs and make economic sense for businesses.

5.13 Other ideas for the sector are outlined below.

- Legislate organisations' carbon outputs, imposing limits and minimum improvement measures.
- Encourage working from home through developing internet connectivity infrastructure, publicity campaigns and local working centres.
- Penalise big supermarkets for their packaging and encourage people to buy locally.
- Incentivise businesses to buy efficient and energy minimising IT and telecommunications equipment.
- Encourage businesses to relocate to the periphery of cities.

Public sector

5.14 The following additional ideas for emissions reduction were given by respondents in relation to the public sector.

- Devote more time to encouragement activity and public awareness-raising endeavours.
- Reduce the amount of public sector workers travelling long distances for meetings and encouraging homeworking.
- Encourage the use of video conferencing for Welsh Government meetings to reduce travel emissions.
- Re-organise the working day for government bodies to avoid peak loading infrastructure and alleviate traffic jams.
- Launch an educational programme for emissions reduction behaviours /techniques to increase awareness.
- Ensure that all new publicly funded buildings in Wales are "active buildings" and create their own energy.
- Establish greater collaboration between government bodies, including Ofgem, the UK Government and others to address critical market failures.
- Include e-bicycles and mopeds when investing in EVs.

- Consider adopting a 'Be the Change' movement which encourages public sector employees and the public to adopt sustainable practices.

Waste

5.15 The additional ideas for emissions reduction within the waste sector were as follows.

- More work on the mapping of and dealing with harmful waste in order to combat negative public health implications.
- Explore residual waste treatment.
- Explore the role of energy from waste (seen as a key area to reduce emissions).
- Consider the importance of the cement sector, which uses waste from other sectors.
- Prohibit the use of certain materials including carrier bags, plastic food packaging trays, single use bottles and other disposable items.
- Work in partnership with funded projects that already exist, such as Pembrokeshire Remakery.
- Make some waste materials valuable through deposit return schemes and payment for some waste types.
- Develop a uniformed approach to recycling policies across local authorities in Wales.
- Prohibit biomass and waste incinerators.
- Review residual waste treatment for waste that cannot be recycled.
- Support large scale anaerobic digestion to generate methane for domestic heating and support waste-heat schemes.
- Reconnect people with food to readdress food waste.
- Launch a zero-waste campaign.
- Work with supermarkets to readdress practices around multi-buys, date labels, 'wonky' fruit and vegetables, and to publish their annual food waste so that is it accessible to consumers.

- To offer a composter to every house in Wales.
- Invest in waste utilisation technology and research.
- Add the cost of recycling into new products to encourage re-use.
- Create landfill sites in Wales and stop exporting household recycling abroad.
- Encourage consumption reduction rather than recycling targets.
- Develop an industry of plastic reprocessing in Wales.
- Improve recycling collection bins and collection services.
- Offer learning and repair skills to the general public.
- Develop the waste hierarchy and use of wood so that it regulates the use of wood biomass for energy production.
- Target waste streams that disproportionately contribute to GHG emissions, such as food waste, textiles, waste electrical and electronic equipment and metals.

Cross-sector themes

- 5.16 Additional cross-sector themes than those outlined within the potential actions were discussed by respondents. This included planning, procurement, education and behaviour change, the role of the UK and EU government and regulation.

Planning

- 5.17 Respondents perceived planning to be highly important in delivering decarbonisation. Two respondents stated that Planning Policy Wales and the National Development Framework will be critical in driving forward a planning system which is capable of enabling the low carbon transition. Another respondent believed that the consultation “lacks proposals for using the planning system more effectively”. Though respondents were supportive of developing regional and local energy, building and transport planning, one respondent expressed scepticism at the knowledge and skills differences across Wales, and

the ability for all areas to be equipped to take on local planning (specifically energy planning).

5.18 Other areas which respondents found to be essential to the planning and delivery of decarbonisation are outlined below.

- Make planning more localised to ensure that the most vulnerable communities are supported with low carbon fuel sources.
- Educate local authorities so that they are aware of the different options available to them e.g. in terms of housing construction.
- Refine planning methods so that they favour acceleration towards the Circular Economy model.
- Provide planning departments with large amounts of support (financial and other).

Procurement

5.19 Respondents commented on a lack of exploration of public procurement within the consultation, with many calling for a much greater focus in this area. Respondents noted that effective links were needed between Welsh public sector procurement and decarbonisation. Reasons for advocating the use of public procurement processes included taking greater public sector leadership, utilising procurement to stimulate the market and leveraging growth of low carbon goods, including those from smaller suppliers across Wales. Respondents stated that Welsh Government procurement frameworks must ensure utilities and waste management efficiencies, with environmental criteria being specified.

Education and behaviour change

5.20 Respondents highlighted the importance of education in driving change. The increased education of young people was deemed crucial to grow awareness and understanding of climate change, emissions, energy use, and waste generation and ultimately influence future behaviours. One respondent states that by providing people with information and support they will be able to make the necessary

emissions changes to their lifestyles. An additional suggested action put forward by a few respondents was a programme of community engagement, in order to mobilise communities to become advocates of low carbon living.

Role of UK and EU government and regulation

- 5.21 Respondents regarded Wales' need for the UK Government to adopt certain measures, actions and regulations as a potential threat to reaching emissions reduction targets. A key source of contention was the Swansea Bay Tidal Lagoon, in which context respondents urged for devolution of powers so that the decision to reject the proposal could be reversed.
- 5.22 It was cited by some that the Welsh Government had statutory powers which are not presently active such as the power to make a carbon trading scheme under Sections 44 and 45 of the Climate Change Act 2008. Others recognised legislation and taxation as key levers in driving progress toward the low carbon economy. Specific suggestions made by respondents included:
- ecocide laws
 - green grants
 - funding
 - carbon tax or quota for each person
 - measurement of emissions at consumption
 - low carbon electricity network
 - behaviour change, with the possible use of penalties.
- 5.23 Despite the view that Welsh Government has considerable powers to implement change, a few respondents recognised the limited policy levels available to the Welsh Government. The fact that many policies and regulation implemented currently at a UK or EU level was seen as a barrier to emissions reduction. This is exacerbated by the fact that respondents saw regulatory reform as key to reach the 2030 emissions target. The ideas for regulatory reform were as follows.

- Develop laws to support renewable energy technology and installation.
- Introduce a carbon tax.
- Introduce legal accountability for senior officers / members that run sectors and businesses to evidence what they are doing to reduce their environmental impact.
- Nationalise carbon intensive industries so that the public sector has greater control.

Other ideas

5.24 Respondents also believed there are other sectors to consider, such as the NHS, where low emissions policies should be implemented. In particular, a respondent suggested the promotion of low-carbon inhalers and inhaler recycling support. Another area to consider included Blue Carbon, which is the carbon stored and sequestered through coastal ecosystems and marine conservation.

6. Extent that sectors should be prioritised

- 6.1 The consultation asked respondents to consider whether there is a sector or sectors in particular where actions should be prioritised, in light of the challenges and opportunities within each sector.
- 6.2 The consensus from respondents was that power and transport were the sectors that should be prioritised. Other sectors which were seen as a priority included industry and buildings, followed by the public sector and waste. Agriculture, land use and forestry were mentioned as a priority the least.
- 6.3 A small number of respondents did not identify a single priority single sector, believing that all sectors needed to prioritise emissions reduction. One respondent suggested that decarbonisation should be a shared national project under the framework of the Well-being and Future Generations (Wales) Act, as it is not something that can be ignored within certain sectors. Education was also seen as a key priority for respondents: a small number pointed to learning best practice from other countries in order to prioritise actions that will have the biggest emissions reduction impact.
- 6.4 Respondents suggested ways of determining priorities as outlined below.
- Invest in areas which achieve the highest returns.
 - Use multi-criteria analysis.
 - Calculate whole system cost / tonne carbon dioxide abated.
 - Develop a robust evidence-based approach for considering the costs and benefits of different routes and options.

Power

- 6.5 Renewable energy was the most likely area within power that respondents stated should be prioritised. Priorities within renewable generation included planning reform, encouragement of community energy projects, wind energy development and smart grids. Other

areas that were seen as a priority included energy efficiency, closure of fossil fuel plants and investment in Small Modular Reactors.

Transport

- 6.6 As for the power sector, statements were about the complexity of the sector and the need for a strategic plan. The particular areas of transport that were deemed a priority included car use reduction, cancelling the M4 bypass, developing walking and cycling infrastructure (and make these more attractive means of travel), and deployment of EV charging stations (especially rapid chargers).

Buildings

- 6.7 Respondents believed the buildings sector to be a priority, though none suggested that this sector should be given precedence over others. The specific action of retrofitting existing buildings was deemed a priority by four respondents with one commenting that it was the “most sustainable way to reduce energy bills”.

Industry

- 6.8 Several respondents stated that action to deal with the greatest polluters, including big businesses, needed to be prioritised. The point was made that industry was a difficult sector to reform, but there were actions available such as taxing certain behaviours and holding businesses financially accountable for their environmental impact and emissions.

Public sector

- 6.9 Though it was not mentioned that this sector should be a priority over others, respondents agreed that the public sector should be leading the way.

Land use and forestry

- 6.10 Respondents stated that afforestation needed to be prioritised by the Welsh Government, with benefits in terms of future materials, carbon capture and flood control.

Agriculture

- 6.11 One respondent noted the immediate importance of influencing the UK Government's replacement of the Common Agricultural Policy (CAP). Another comment was made about encouraging farmers to diversify into solar farms and other forms of renewable energy.

Waste

- 6.12 One respondent suggested that the local collection and use of waste products should be prioritised, placing emphasis on recycling in Wales rather than sending materials elsewhere. Two respondents stated that research and education about waste was needed, focussing on educating the public on the benefits of re-use. There were also calls for developing sustainable product design qualifications, where manufacturers make items repairable so that products have longevity, replacing the likelihood of replacements.

7. Collaboration and innovation between sectors

- 7.1 The consultation asked how more collaboration and innovation between sectors could be encouraged.
- 7.2 Suggestions were varied, however, the predominant themes included communication, support, incentives/ funding, and Welsh Government input.

Communication

- 7.3 Respondents felt that communication between different sectors was essential. It was proposed by many that the establishment of a committee (or regional Low Carbon group) would greatly improve collaboration and innovation between sectors. By bringing key individuals from each sector together, discussions could be undertaken, affording transparency on the actions being undertaken. This mutual understanding could lead to collaborative approaches within sectors to tackle cross-sector issues.
- 7.4 Increased communication could be achieved by holding events, lectures or informal meetings. When face to face meetings cannot be achieved an online approach such as a survey or forum was proposed, which asks individuals for ideas of the best course of action. A respondent suggested setting up a forum "like the previous Climate Change Commission for Wales to provide a platform for national strategic experts' advice and engagement".
- 7.5 The development of sector networks or clusters or the use of current networks to establish greater links between sectors was recommended. For example, several respondents discussed cross-sector industry-led groups to "provide support and funding for R&D on solutions that support synergies and decarbonisation across sectors". Another response stated that they "believe a network approach (networks at the heart of an integrated energy system) is a way of promoting collaboration". Projects such as the Freedom Project, Pathfinder 2050 simulator and Green City Vision were cited as good examples of networks establishing sector collaboration.

7.6 One respondent acknowledged the importance of the South Wales Industrial Cluster, which is examining innovative options for decarbonising power generation and industry in South Wales. They stated that the “South Wales Industrial Cluster could be used as a template for greater collaboration amongst businesses and academia based in Wales to promote innovation, shared learning and finding solutions to the challenges posed by decarbonising the Welsh economy”.

Support, incentives and funding

7.7 Many respondents suggested that an incentive-based strategy would help improve collaboration and innovation between sectors. For example, they suggested the use of financial incentives for participating in carbon reduction schemes or rewards for cooperation.

7.8 One respondent noted that “grants and funding opportunities can be used for collaboration between large organisations and SMEs/start-ups that work cross-sector” an opinion shared by many other respondents. In addition, a suggestion proposed by one respondent was that more funding for the renewable energy sector was needed to allow individuals and companies to be more innovative and try different techniques, which would indirectly increase sectoral collaboration.

7.9 Respondents acknowledged the need for research and development within industry with the appropriate match funding from government to support the long-term investment in research, development and innovation.

7.10 A few respondents suggested encouraging large organisations to support others, such as community groups to produce low carbon electricity locally. However, other forms of encouragement included third sector organisations getting involved in renewable energy, small independent businesses innovating on a small scale and support for the establishment of regional task groups.

7.11 On the other hand, it was suggested by a few respondents that “simply encouraging achieves very little”. Therefore, enforcement, accountability and consequences must be considered to increase cross-sector collaboration and innovation. For example, a few respondents stated, “there must be binding, enforceable targets” and the government should legislate if they fail to cooperate efficiently.

Welsh Government input

7.12 Many respondents stressed the role of Welsh Government in innovation and collaboration between sectors. One respondent suggested that “Welsh Government should draw upon evidence provided by organisations to comply with existing legislation, such as Environment (Wales) Act 2016³ and Well-being of Future Generations (Wales) Act 2015”.⁴

Alternative viewpoints

7.13 Other suggestions put forward by respondents are listed below.

- Strategic action plan / schemes
 - Show where there is synergy.
 - Publish a white paper showing what is planned and encourage local users to get together to share views and experience.
 - Set priorities based on what is best for society, not what will make private companies the most profit.
 - Consider a carbon trading scheme would mean that sectors would have to collaborate to trade permits as required.
- Closer work between industry and academia
 - Industry working groups.
 - Academic research.
 - Tax breaks for carbon negative organisations.

³ http://www.legislation.gov.uk/anaw/2016/3/pdfs/anaw_20160003_en.pdf

⁴ <https://gov.wales/docs/dsjlg/publications/150623-guide-to-the-fg-act-en.pdf>

- Mandatory reduction plans for businesses and wider society.
- Education and awareness
 - Influence environmental and renewable sectors to educate others and other sectors.
- Creating opportunities
 - Highlight and create opportunities for different sectors to meet.
- Expert (external)
 - Seek advice from individuals who know more when it comes to cycle networks. One respondent described the Netherlands and Denmark as “masters” in this area.

8. Impact on individuals and organisations

- 8.1 The consultation asked the respondents how they thought the potential actions to reduce emissions might affect them or the organisation that they worked for.
- 8.2 The majority of the respondents stated that the potential actions would have a positive impact on both individuals and organisations. Many felt that benefits would be seen in key areas such as health and wellbeing, transport, environment and economy. One respondent suggested that a regulatory impact assessment should be conducted to assess the economic, environment, social and cultural impacts that the potential actions would have on Wales.

Transport

- 8.3 Public transportation, cycling and walking were felt to be cultural norms of the future and beneficial for future generations. Drivers of electric vehicles would also benefit because “increasing the number of rapid chargers will enable me to travel further in my electric car both for work and leisure activities”. In addition, a respondent stated that they do not own a car, therefore, with better public transportation, it would mean they would shop more locally, instead of having to order online, which has more negative impacts on the environment.

Natural resources

- 8.4 There were several respondents that stated the environment would benefit from the potential actions and this was an obvious reason for reducing carbon emissions. However, one respondent did question “Why is the impact on nature – biodiversity and our natural resources not considered?” in the consultation. They further elaborated that the Welsh Government’s Memorandum of Understanding on Nature-Based Solutions only referenced the agriculture and land use sectors, however they argued it should be a key component throughout the consultation. The respondent further highlighted the importance of aligning with key government policies in Wales, especially adopting

the Sustainable Management of Natural Resources (SMNR) principle in regard to resilient ecosystems.

Economy

- 8.5 Many respondents felt that the economy would also benefit from a growing renewable energy sector as it would provide more jobs or “green jobs”. This would therefore lead to the next generation acquiring the necessary skills for low carbon technologies of the future.

Buildings

- 8.6 One respondent quoted “that if the potential actions outlined are successful in cutting emissions, the impact would be very positive for people and communities living in Wales including those living within the Private Rented Sector”. It was highlighted by a few respondents that by improving residential energy sustainability, homes would be cheaper and more comfortable to live in.
- 8.7 The ‘timber first policy’ was highlighted by a few respondents, who disagreed with the policy and its potential impact on reducing carbon emissions and the construction industry. They felt it would directly impact the Welsh cement and concrete industry as a whole, affecting employment and the economy. They urged the Welsh Government to “set the targets and remain material- and system-agnostic”.

Business and Industry

- 8.8 The impacts on business were highlighted by a few respondents. A few stated that emissions reduction methods would benefit businesses. For instance, a respondent stated that it would help grow their energy management business through the promotion of low carbon or hybrid heating solutions, and another mentioned that the potential actions “would create a huge amount of opportunity for social entrepreneurs”. On the other hand, one respondent had concerns about their business (within the energy sector) and their employees’ future job security, stating that “urgent talks and public debate need to be sought if any moratorium [on gas] is put forward”.

- 8.9 One respondent did note possible short-term disadvantages as a result of the potential actions, such as higher costs to industry, such as materials and logistics and increased food costs. However, these were deemed necessary in order to see the benefits in the long-term.
- 8.10 A couple of respondents stated that their distribution business may be negatively impacted "if heating oil was removed from the heating mix without a staged approach or inclusion of a biofuel".

Forestry

- 8.11 Many respondents quoted the forestry sector as a beneficiary of the potential actions.
- 8.12 One stated that "forestry is unique in producing a product made from stored atmospheric carbon. Mixed productive woodlands will result in new rural jobs and growth in this vital production and manufacturing sector. In forestry and timber production, the correlation between carbon benefit and economic benefit is a positive one".

Little / no effect and uncertainty

- 8.13 Few respondents felt that the potential actions would have little to no effect. They believed that the actions did not affect their business or themselves personally. For example, "reducing emissions for my organisation will not have any effects to the operations we carryout daily" and (they will impact) "very little personally".
- 8.14 Several respondents expressed their uncertainty and requested further detail and clarification. One respondent stated that it was hard to say, with the actions described as "vague" and lacking in measurability and time constraints.
- 8.15 A few respondents felt strongly the potential actions were not enough and expressed their disappointment towards the actions and its effects. One respondent stated that the personal impacts were irrelevant as the wider environmental impact needed to be the main focus as this will ultimately "impact many millions of people around the world".

Negative impacts

8.16 Though a large proportion of respondents perceived positive impacts, several respondents felt that the potential actions to reduce emissions would have negative effects, these are listed below.

- Additional resource required to implement actions, causing strain on already overstretched resources.
- Additional cost implications.
- Lack of understanding to use new technologies.
- Changes in work practices may be required.
- Requirement to change organisational and individual attitudes and behaviours.
- Reducing emissions may not be perceived to be core business and become marginalised to being an 'energy' issue.
- Longer commuting times, longer working days which would lead to more unhappiness with daily life and work.
- Increased unemployment and redundancies.
- Visual pollution – less special landscapes used for renewable energy sites.
- Reduced speed limits – increased operating costs and traveling times.

8.17 Some respondents believed the potential actions would place a large burden on individuals and organisations, with a comment that the actions would be “initially, inconvenient costly and difficult” and could take attention away “from economic growth and job[s] could create a long-term detrimental impact on Wales and our future generations”. This reflects that both individuals and organisations were primarily concerned with economic issues. In opposition to this view, a respondent stated that emissions reduction was paramount and any “negative effects can be managed and weathered. People are ready to cope they just need someone to explain why”.

8.18 Other impacts discussed by respondents included the damage that emissions targets could do to certain industries and organisations;

with the ability to build homes impacted (due to higher costs incurred for more rigorous environmental standards). These concerns were reiterated by another respondent who stated that a 'one size fits all' approach may not be appropriate for every organisation. Rather, every organisation should be encouraged to improve, with an understanding that to embed emissions targets across all divisions will take time. One respondent stated that this may warrant interim emissions targets to ensure that organisations are on the right path to emissions reduction, reflecting a fear that the targets may not be met.

- 8.19 Another respondent felt fearful of emissions not being significantly reduced, with a key concern being the impact that this would have on food and farming.
- 8.20 One respondent explained that the potential actions would cause initial negative impacts but would be beneficial in the longer term.

9. Wider impacts

9.1 The consultation asked the respondents how they thought the potential actions to reduce emissions might affect the following factors:

- public health
- communities
- the Welsh language
- equality
- children's rights.

Public health

9.2 Respondents focused on an improvement to air quality due to reduced air pollution, citing benefits for individuals with health conditions such as asthma. A few respondents discussed that this would deliver financial savings for the NHS and local authority services. Other respondents acknowledged that air quality management is a public health priority and a key challenge, especially under the Wellbeing of Future Generations (Wales) Act. One respondent quoted Public Health Wales figures that demonstrated the significant adverse health impacts that cars have on public health, with a clear recommendation for Planning Policy Wales to take account of the impact on public health, to make healthy lifestyles a key element of public policy.

9.3 A response noted that the estimated costs to the UK of public health impacts would be over £1bn per annum by 2020 and nearly £2.5bn annually to 2030 (Defra / Public Health England). Respondents noted that air quality is a devolved policy area with different nations facing various challenges, but close partnership working between nations is essential, especially to strengthen the Wales' Clean Air Zones.

9.4 The benefits of active travel were also acknowledged to have a positive impact on public health, especially if cycle routes are promoted and if employers are encouraged to support cycling (e.g.

implement showers/changing facilities). A respondent noted the report, *Moving Forward* (2018), that argued health and well-being in our communities could be significantly improved if active travel for short journeys becomes more popular. One respondent noted the multiple benefits to air quality from the reduction of transport emissions by promoting active travel and specifically, to follow guidance developed by Public Health Wales and the Welsh Government.⁵

- 9.5 The wider benefits to mental health through access to and enjoyment of green spaces was raised by a few respondents, including the introduction of green infrastructure to absorb CO₂, which would have a positive impact on well-being and contribute to the Natural Resources Policy. Several responses specifically explored the benefits of woodlands on public health, citing research conducted by Kings College London in 2018 that reported individuals with access to forested areas are generally happier and calmer. One response reported that the *Valuation of Welsh Forest Resources* (2017) calculated that the annual value of air filtration by trees in Wales was £3bn.
- 9.6 Additional public health benefits were mentioned by a small number of respondents, including a decrease in fuel poverty and the impact of cold homes across Wales, especially for vulnerable individuals. Respondents acknowledged that low-carbon alternatives should be more cost efficient and avoid fatalities due to cold homes. One respondent discussed 'Healthy Homes, Healthy People' and the need to take a person-based approach to energy efficiency to bring people out of fuel poverty. However, another respondent noted that there might be an increase in energy costs, which could have a negative impact on health, especially for rural homes. A respondent noted that the National Institute for Clinical Excellence (NICE) published guidance on *Tackling Excess Winter Deaths, Morbidity and the Health*

⁵ <https://gov.wales/docs/dhss/publications/180425airpollutionen.pdf>

Risks Associated with Cold Homes, which should be considered when adopting future policies.

- 9.7 Ideas and wider benefits for public health explored by respondents.
- Women's Institute (WI) at 100 carried out a number of focus groups where WI members reflected on the mental health benefits of good public transport to make social interactions easier for those in rural areas.
 - We should enable communities to address the issues that matter most to them to expand opportunities for collective action. This will facilitate social engagement and support individuals to make a positive contribution to society.
 - Encourage networking between Health Boards and Trusts. One respondent stated that Health Boards need to lead by example to continue to implement practices that reduce emissions incurred by staff, services and infrastructure.
 - CAT's Zero Carbon Britain report highlighted the many co-benefits that action on climate change could bring, such as retrofit programmes, active travel, and air pollution.
- 9.8 One respondent stated that the "current actions will damage public health in the medium to long term as they are too weak to tackle climate change".

Communities

- 9.9 The majority of responses explored the positive impact on communities. Three central themes were discussed by respondents: increased community cohesion, the opportunity to develop local energy ownership and the benefits of the forestry sector.
- 9.10 Community cohesion was discussed in relation to individuals working together on environmental initiatives, encouraging local collaboration and innovation to re-invigorate communities across Wales. A respondent noted the importance of communities to be involved in discussions and the development of local measures to reduce carbon.

9.11 Local energy development was frequently discussed by respondents, with the benefits of community ownership offering increased resilience, communication and sustainability. A few respondents noted the importance of communities having the opportunity to own, generate and store their own energy to enable their social and economic resilience. One response explored CAT's Zero Carbon Britain: Making it Happen report, which highlighted the benefits of locally owned renewables – reduced energy bills, increased energy awareness and energy advice for those in fuel poverty. This response acknowledged the potential for substantial growth in community energy if ambition is increased, a framework developed and rolled out at scale. Wales would therefore be well-placed to showcase its positive experience to the rest of the world.

9.12 Additional ideas and community benefits were discussed, and our outlined below.

- Reduced adverse weather conditions, especially flooding.
- Better IT connectivity.
- Increased green spaces, especially in new housing developments.
- Place-based approach would be beneficial to monitor the impact of changes to communities to maximise the transition from fossil fuel production to 'green jobs'.
- Replicate the many benefits that were seen from the Arbed scheme. These included bringing communities together, improving interaction between households, jobs, apprenticeships and visual improvements to the local environment.
- Development of tidal stream energy could help revitalise economy of areas such as Holyhead, the Llŷn Peninsula and Pembrokeshire.
- Better mobility through transport sharing or public transport.

- 9.13 Negative effects explored by respondents included the fragile and challenging nature of rural and small communities. A concern raised was about how additional requirements or legislation might have a negative impact, but this was not expanded upon. A respondent noted that rural communities will need more support as they are reliant on fossil fuels for heating, especially as Wales has a large off-grid community. The respondent noted that it is important that the focus is not on Cardiff and Swansea, so that all communities are considered.
- 9.14 A minority of respondents highlighted that the impacts on communities are dependent upon how the actions are taken forward, as it could be detrimental if we get it wrong and follow models rather than realities. One respondent stated that misguided actions “could have severe life-threatening unintended consequences”.

Welsh language

- 9.15 A central benefit discussed by respondents was the provision of new industries and high-paid employment to keep Welsh speakers in communities across Wales. Responses explored the benefits of creating resilient communities to encourage young people to remain working in industries across Wales. Respondents acknowledged the role of the agriculture and forestry sectors in promoting the Welsh language, so there is a need to support these sectors to rapidly adapt.
- 9.16 Respondents identified a need to ensure Welsh companies benefitted from the low-carbon pathway, so that local businesses can provide services in Welsh.
- 9.17 One response suggested the development of centres of excellence for courses in Welsh in renewable technologies, potentially delivered in Bangor and Aberystwyth.
- 9.18 Another respondent stated that Welsh Government should ensure language is not a barrier for action on climate change by ensuring consultation events and training are offered to people in Welsh. However, two respondents acknowledged the potential impact of all materials being available bilingually as a duplication of limited

resources. Hence, there was a need to ensure people are asked their language preference.

Equality

- 9.19 Responses explored the potential improvements to equality including the universal benefits for everyone of healthier lifestyles and clean air. Especially the need to ensure there is equality of opportunities for everyone with equal access to energy, transport and education.
- 9.20 Respondents noted the importance of considering the implications of actions on equality, particularly regarding electric vehicles and ensuring any schemes do not discriminate against people on lower incomes. A respondent noted the need to ensure those less able to fund carbon-saving initiatives should not be excluded from opportunities to improve their homes or vehicles. Significantly, responses explored how climate change has the greatest impact on low income families that can exacerbate social inequality. A response noted that it would impact on poverty if no action at all is taken.
- 9.21 The Well-being of Future Generations (Wales) Act seeks to enable people to fulfil their potential no matter their background, and the reduction of emissions will improve society by establishing skills relevant for the future. As one respondent noted, equality and fairness need to be core principles when taking any actions forward to ensure the opportunities and benefits are for everyone in Wales.

Children's rights

- 9.22 The majority of consultation respondents acknowledged the positive outcomes for children's rights from implementing the potential actions. No responses envisaged any negative impacts. However, a few responses did not see how children would be affected by the potential actions.
- 9.23 The majority of responses explored the importance of providing a sustainable future for the next generation of Wales with clean air for healthy lifestyles and safe infrastructure for active travel. Children have a "right to a world that isn't polluted". As one respondent stated,

“The whole agenda around low carbon living is to secure a healthier and better future for children and future generations.” This is embodied within the Wellbeing of Future Generations Act, so the commissioner and her team must be fully supported and well-resourced to play an active part in the zero-carbon transition for Wales.

- 9.24 Active travel and healthy lifestyles were discussed by respondents so that children can have opportunities for outdoor activities.
- 9.25 In addition, aligned with the benefits to wider public health, responses explored the benefits for children’s health. They acknowledged the negative impacts that living in cold homes has on children’s health (in particular children under 5), including: well-being, sleep loss, personal development and increased change of expiring stress, anxiety and depression. One response stated that children living in disadvantaged household types are more at risk of living in cold homes.
- 9.26 Further elements discussed in relation to children’s rights included:
- Renewable energy is an important step towards producing a sustainable future. Low carbon energy and associated employment will support children’s futures by providing employment in the local area. A further respondent noted that carbon capture and storage could result in future generations having to deal with our stored carbon, which should be a last resort.
 - Some respondents felt that the clean air strategy and energy efficiency should be discussed in schools.
 - Potential actions should be applied against the Children’s Act, and allow children to take part in the decisions that affect them. The respondent also acknowledged the United Nations Conventions on the Rights of the Child, specifically all children have the right to life, right to good quality health care and clean water, nutritious food and a clean environment and children

should be protected from any activities that could harm their development.

- One respondent discussed Cardiff's Wellbeing Plan that identifies the percentage of children walking/cycling to school as one of the city-level outcomes.

10. Contribution to the well-being goals

- 10.1 The consultation asked, “How do you think the potential actions to reduce emissions might contribute to achieving the national well-being goals?”.⁶
- 10.2 The majority of respondents discussed the positive contribution of the potential actions to achieve the national well-being goals, although most responses did so holistically, stating that the actions would contribute to all of the goals. As one respondent put it, “All of the Well-being Goals are interconnected and interdependent, taking actions that reduce emissions will have an impact across all seven goals.” Respondents discussed that sustainable and long-term projects will need to be supported to allow for the Well-being of Future Generations (Wales) Act to be realised. “The Wellbeing of Future Generations Act provides the platform upon which Wales can lead by example, but it requires commitment, ambition and investment”.
- 10.3 In addition to discussing the holistic benefits of the goals, many respondents explored each of the seven goals in turn. A summary of responses for each well-being goal have been outlined below.
- A prosperous Wales: The economic contribution of the actions was discussed including investment into new industries, the provision of local employment via green jobs across sectors, increased tourism and Wales being a great place to work. In addition, the benefits of EVs, timber and other new emerging industries were discussed and especially the need to drive green growth to provide export and investment opportunities for Wales.
 - A more equal Wales: Respondents discussed energy efficiency and the potential of a national retrofit scheme to help support people in fuel poverty. In addition, community ownership of

⁶ <https://futuregenerations.wales/about-us/future-generations-act>

energy was discussed again as a benefit through reduced energy prices and more equitable access to energy generation.

- A resilient Wales: Several aspects of a resilient Wales were acknowledged within the consultation responses which are outlined below.
 - The potential to develop a strong and versatile economy with investment in new skills that are future proofed to allow our economy to adapt.
 - The need to generate, store and use energy locally to reduce the reliance on external energy markets.
Community energy ownership was discussed throughout the consultation responses to increase resilience.
 - The need to reduce reliance on cars to improve Wales' resilience.
 - Environmental resilience was also discussed in relation to this well-being goal, in terms of protecting communities from flooding, soil erosion and extreme weather conditions especially to address the decline of biodiversity.
 - Potential to learn from and integrate with other nations to learn best practice, for example, for Construction Wales Innovation Centre to work with Construction Scotland Innovation Centre to share knowledge, training and learning of carbon reduction techniques.
- A healthier Wales: Air quality, cold homes and active travel were all central themes that the potential actions could contribute towards a healthier Wales. In addition, changes to transport infrastructure were seen to facilitate an increase in active travel to enable more people to enjoy the natural environment and a reduction in diseases. Lastly, actions to reduce cold homes by retrofitting buildings to ensure lower levels of fuel poverty and the creation of jobs.
- A Wales of cohesive communities: Community energy ownership was discussed in relation this goal along with the

need for community empowerment and to develop intergenerational links to create new solutions. Another respondent stated that higher levels of local employment, leisure and shops would decrease the need to travel and create more cohesive communities.

- A Wales of vibrant culture and thriving Welsh Language: The contribution towards providing employment in rural areas where Welsh speakers can find jobs.
- A globally responsible Wales:
 - As part of our commitment to global citizenship, Wales can “show global leadership” by Wales contributing to global carbon targets by making a firm commitment to meet them.
 - Wales must consider the impact of its actions on others, for example, the reliance that we have on industries within other countries to deliver the potential actions.
 - A response stated the “promotion of a circular economy within Wales could bring economic development, skills and high-quality jobs within several sectors”, which would directly contribute to the goal of a globally responsible Wales.
 - Another response acknowledged that low carbon was a challenge to create innovative solutions to energy efficiency, as per projects such as SPECIFIC at Swansea University are doing to provide a platform to attract investment and reputation as a market leader.
 - A small number of responses discussed the relationship with food and the need to develop resilient domestic food systems that reduce international demand, and therefore review Wales’ food strategy to focus on sustainability and quality products.
 - The responsibility to the planet and future generations was seen as a priority by some respondents. One respondent

stated that the emissions target was above party politics and that decisions had to be made in mind of global responsibility and long-term impact, rather than the risk of losing elections. Others indicated that Wales should be leading the way and should put the actions into practice as soon as possible to fulfil the country's global responsibility to emissions reductions.

- One respondent advocated a Welsh Government commitment to be a net zero carbon emitter by 2050, something which they deemed necessary to meet the Paris Agreement.

- 10.4 Respondents acknowledged the challenge in responding to this question, due to the limited information on the potential actions, so it was difficult to know the potential impact on the well-being of future generations. One response stated there could be positive or negative effects for biodiversity and ecosystem resilience depending how the actions are implemented. The unintended effects of actions were discussed by respondents with a need to prevent any adverse effects, by ensuring any future decarbonisation policies should be assessed against the Act.
- 10.5 Respondents highlighted the need to ensure the Act is properly applied and enforced with the potential actions. Responses acknowledged the urgency for action to be taken, as one respondent stated, "as without rapid actions on emissions there is no life, let alone any well-being", describing emissions as a national and global emergency. One respondent stated that "The actions proposed in the consultation document are too weak and lacking in urgency to protect Wales' national well-being goals".
- 10.6 Other responses to this question included the following elements.
- The review of Wales' National Indicators should incorporate indicators on public transport provision.

- There is a need to budget and design funding schemes to take account of the carbon budgeting process and the well-being goals.
- There is a need to consider how public engagement can support the low-carbon energy transition, as this is not directly discussed within the consultation, unlike the Scottish Energy Plan. The respondent stated this was “a serious omission”.
- Wales needs to ensure that intrinsic value is placed on the natural resources, not just people’s use of them.
- Greater emphasis needs to be placed on the Well-being of Future Generations (Wales) Act, what it means and why it is significant within the consultation document.
- The five ways of working need to be involved in the consultation document and any plans for delivering emissions reduction.

11. Other comments

11.1 The consultation asked, "Do you have any other comments about this consultation?".

11.2 Overall, there was support for the potential actions and the consultation, although respondents voiced the need for more ambition and to make Wales a world leader in this area.

11.3 Further ideas were provided about the need to integrate decarbonisation into all areas of delivery in Wales, as outlined below.

- The need to support a whole systems approach to decarbonisation.
- Education for future skills is required and working with Regional Skills Partnership to anticipate future skills needs in priority sectors.
- One respondent noted there is a need to consider a wide range of additional factors, such as:
 - Value of energy efficiency (ISO 50001) as it is cheaper to save energy than to generate more.
 - Consider urban metabolism with a view to adopting more sustainable strategic urban plans, particularly in relation to food.
- Care needs to be taken about the regulatory divergence between different UK nations to prevent private sector businesses relocating outside of Wales where regulations do not apply.
- Engagement with organisations and consumers (especially consumers that are off grid) is crucial to ensure they are informed and supported through the required actions with clear guidance on how to achieve them in time for the interim targets.
- Important to keep land managers actively involved in sustainable management of their land. Concern was raised

about the detailed requirements around where to plant trees in Wales.

11.4 In addition, respondents discussed the need for “a clear vision, strong leadership...” to clearly showcase what Wales is trying to achieve through the carbon targets and potential actions.

11.5 A wide range of concerns were raised in relation to other comments, which are outlined below.

- The consultation is lacking in the specific detail required to demonstrate drastic reductions in emissions that are required. As there is a need to understand the scale of the actions prior to endorsing them and one respondent noted they were less actions rather than areas to explore further, which did not reflect the urgency with which action is needed.
- The actions are insufficient to deliver the emissions reductions we need and there is a significant concern about the strategy. Fundamental shifts are required across all sectors, which cannot be achieved through a silo mentality. It was stated the proposed actions fall very short of what is needed to improve Wales' performance and ensure the well-being of future generations.
- Timescale of 2030 seems very short given the challenges and required change, so it is important to think long-term to 2050 with decadal milestones to be updated with new innovations, evidence and government policy.
- A respondent noted that the actions are misguided, and severe life-threatening unintended consequences will arise.
- The actions need to be directly measurable and Welsh Government held to account for the delivery.
- Responses explored the lack of discussion about the human dimension of tackling emissions through behaviour change. There is a focus on technical solutions within the consultation

at the expense of any clear idea about how social and cultural change is going to be achieved.

- One respondent noted the consultation was a significant step back from the 2010 Climate Change Strategy in terms of evidence, stakeholder and expert engagement, ambition and a globally responsible approach. It was suggested that the proposals will be out of date within the next few years and the legal status of the current approach was questioned.
- It is important Wales does not undermine itself by imposing climate goals that are unrealistic with the resources available as we leave the European Union.

12. Other evidence

- 12.1 The final question in the Consultation asked respondents to upload any evidence to support their responses, which was provided by 13 respondents.

Annex A: List of potential actions to 2030

(Annex B of consultation document)

1. Collaborate with business to further decarbonise their activities whilst at the same time improving their competitiveness and productivity to take advantage of the opportunities arising from the transition to a low-carbon economy.
2. Work with Regional Skills Partnerships to anticipate future skills needs, focusing on priority growth sectors identified within regions.
3. Review all current skills and work-based learning programmes to explore whether they can respond more flexibly to emerging requirements such as those represented by decarbonisation, working closely with employers.
4. Conduct a gap analysis of options where innovation can support the decarbonisation agenda and maximise the opportunities.
5. Collaborate with organisations across all levels of society and involve citizens in achieving our low-carbon pathway.
6. Provide fruit, shade and fuel trees for the entire Mount Elgon region, Uganda by 2030.

Power

7. Support the development of regional and local energy planning to address the supply, distribution, and use of energy.
8. Support innovation and commercialisation of new products, processes and services in the energy system.
9. Develop and implement Wales's policy position around the extraction and combustion of fossil fuels in power generation.
10. Accelerate the deployment of renewable generation whilst encouraging local ownership.

Transport

11. Develop a charging network that encourages early take-up of electric vehicles (EVs) and explore the merits of other measures, including access to bus lanes and free municipal parking.
12. Reduce the carbon footprint of taxis and buses to zero within 10 years to achieve the aim in the Economic Action Plan.

13. Double the percentage of adults making cycling journeys at least once a week and increase the percentage of people making walking journeys at least once a week by 25% from the 2016 baseline.

14. Explore the relationship between speed limits and greenhouse gas emissions, with a view to considering environmental factors in speed limit reviews.

Buildings

15. Set higher energy efficiency standards for new builds through reviewing Building Regulations Part L (Conservation of Fuel and Power).

16. Develop a long-term residential retrofit programme based on evidence.

17. Establish the baseline of energy use and associated emissions from business sector buildings.

18. Deliver buildings that are more sustainable by using innovative construction techniques to reduce and meet the energy demand within buildings and increase the use of sustainable materials, such as timber.

19. Scope out the challenges and opportunities around low-carbon heat.

Agriculture

20. Provide post-Brexit support in the form of a land management programme that contains a public goods scheme and an economic resilience scheme, replacing the Common Agricultural Policy (CAP) with a framework that also links support to emissions reduction and removals.

21. Ensure that emissions reduction is considered in any regulatory reform proposals arising from the land management programme consultation.

Land use and forestry

22. Revise our regulatory and support regimes to increase tree planting to at least 2,000 hectares per year, aiming to increase this to 4,000 hectares.

23. Identify preferred areas for tree planting, including commercial woodlands and planting at medium and large scale.

24. Ensure that all peatlands supporting semi natural habitats are under active management by 2030 by supporting, enabling and co-ordinating the

restoration and sustainable management of peatland, as well as utilising and maximising associated funding opportunities.

Industry

25. Commission an independent economic and technical feasibility study on carbon capture use and storage (CCUS).

26. Consider the further development of our Environment Protection Scheme (EPS) beyond 2020 to support the most carbon-intensive industries.

27. Consider waste heat recovery and use as part of the approach to heat policy.

28. Establish an industry-led working group on decarbonisation.

Public sector

29. Support the public sector to baseline, monitor and report progress towards carbon neutrality.

30. Public sector buildings are supplied with renewable electricity by 2020 and, where practicably possible, are supplied with low-carbon heat by 2030.

31. All new cars and light goods vehicles in the public sector fleet are ultra-low emission by 2025 and where practicably possible, all heavy goods are ultra-low emission by 2030.

Waste

32. Create new opportunities for resource efficient manufacturing through embedding resource efficiency within our programme of innovation support to SMEs and using public sector procurement to stimulate the market.

Annex B: Summary of engagement

Events

- 12.2 The Welsh Government ran two consultation events in Cardiff on 5th September 2018 and Llandudno on 6th September 2018. In total, there were over 70 delegates representing various sectors. The discussions focused on the cross-sector questions in the consultation. Delegates were also asked to consider the opportunities and challenges associated with different emissions sectors.
- 12.3 A summary document was produced for each event and has been summarised below.

Prioritising sectors

- 12.4 Three messages came through in both consultation events:
- The forestry sector as it could provide mitigation and adaption through agroforestry.
 - Buildings with improved standards and regulations as this will provide cross-sectoral benefits and impact.
 - There should be a focus placed on the biggest emitters.
- 12.5 Further priorities discussed included to:
- Develop a Wales brand with the unique selling point of the environment
 - Utilise the Future Trends Report to identify priorities
 - Focus on areas that are devolved to Welsh Government
 - Support industry to shorten the payback of investing in renewable technology
 - Develop transport infrastructure and incentives for public transport and electric vehicles
- 12.6 Overall there was an acknowledgement for forward thinking, innovation and incentives required to deliver the required actions.

Encouraging collaboration and innovation between sectors

12.7 Ideas included the following:

- A clear strategy and vision, including an energy policy for Wales and a vision for Wellbeing of Future Generations Act for 2050. This could build upon the Future Trends Report.
- A need to support large schemes in Wales that embed long term thinking.
- The need for incentives across different sectors.
- To utilise existing forums to get carbon reduction higher up on existing agendas, such as Public Service Boards and City Regions.
- There is a need for a plan and clear vision for transport, which is one of the biggest emitters.
- Need a plan and approach to encourage collaboration at a local level.
- There is a need to learn from previous experience, so that we embed what works in practice.
- Need to share accountability and responsibility for emissions across sectors.

Opportunities and challenges

12.8 The overall opportunities discussed in the events explored:

- Water as a source of renewable energy.
- Public sector land and public procurement.
- Easy wins that can be achieved, such as insulating lofts or tree planting.
- Community involvement to understand and respond to regional differences (e.g. urban vs rural transport).
- Skills, training, awareness and job creation.
- Economic Action Plan as a template to deliver decarbonisation.
- New First Minister may be open to pushing ahead with decarbonisation.

12.9 Sector-specific opportunities included:

- Power sector: UK government policy, renewables, decentralised supply, technology and storage, world class legislation with the opportunity for localised energy production and consumption, large commercial buildings, SMART mediation of local consumption and sector clusters.
- Buildings sector: buildings as power stations could address fuel poverty, improve building materials, scale up what works (e.g. Freedom Project), communication around best practice, incentives for refit and opportunities with non-domestic building owners are more open to innovation and distributed energy solutions.
- Transport sector: workplace charging and hybrids as an immediate action.
- Industry sector: CCS and share knowledge from industries leading the way.
- Agriculture sector: better data and communication with farming sector would make action easier.

12.10 Challenges across all sectors discussed included:

- Welsh Government funding is not aligned to emissions sources or reduction potential with decisions based on cost not value. Lack of integration in policy and delivery.
- Public sector interest and funding (e.g. Salix has a seven year pay back which is too long and offers limited choice of technology).
- Limited grid ability to support transformation.
- Joining up communities with academia.
- Planning framework.
- Take consumers on the journey to develop their carbon literacy, as people want to do more, but the infrastructure is not there to support them.

12.11 There were specific challenges within sectors, which include:

- Power sector: cost of renewables, grid capacity and infrastructure, land use/competition, funding and subsidies, planning law, skills and power demand versus supply.
- Transport sector: electricity infrastructure, public transport and public perception.
- Buildings sector: councils have constrained budgets, procurement of products, decisions made on price rather than carbon and not considering whole life cycle.

Social media

12.12 The Welsh Government used Twitter to engage with its audience and make them aware of the consultation. A total of 62 tweets were posted (31 each in Welsh and English) during the consultation period. The tweets were primarily issued from the Cabinet Secretary for Energy, Planning and Rural Affairs and from the Welsh Government corporate account, although other Cabinet Secretaries and Ministers also promoted the consultation on Twitter.

12.13 In response, there were 236 retweets and 247 likes. There were over 90 responses to the tweets (some being from the same account) and 8 further, indirect responses (from accounts who had engaged with those who had responded to the tweets initially). A summary of those responses is provided below.

12.14 Renewable energy generation was mentioned frequently by Twitter respondents. A few called for the government to “scrap nuclear”, while the majority of respondents encouraged greater investment in renewable energy. This included requests for more support of community (renewable) energy projects, with specific prospective sites including Llanaelhaearn and Antur Aelhaearn mentioned in tweets. Others gave more holistic ideas for where renewables could be invested in more significantly, including mini hydro projects (for rivers and small watercourses), tidal lagoons (specifically the Swansea Bay Tidal Lagoon), and the possibility to use disused

quarries as solar farm sites. Twitter respondents also believed that planning permissions for renewables needed to be reformed, stating that it was key that planning encouraged renewable schemes to reduce the current reliance on fossil fuels. Comments were also made about the use of renewable energy in buildings.

- 12.15 Buildings were seen as an area where renewable energy deployment could be expanded greatly by mandating renewable energy generators (such as solar panels on roofs) into all new commercial and domestic properties. Other comments included refining the planning system so that a more holistic approach could be taken. Ideas included incorporating EV charging points into all new buildings, investigating cavity wall insulation to understand its emissions effects and retrofitting buildings to have higher efficiency standard. A wider comment was made about greater building efficiency and superior materials having positive health impacts on the population, ultimately reducing the strain and expenditure on the National Health Service. A Twitter respondent also referred to building premises and housing developments more closely to public transport networks.
- 12.16 Transport was also referred to frequently by online respondents. Respondents believed that the reliance on cars had to be minimised, ideas to encourage this included only allowing people to park and ride into cities (such as Cardiff), building safer, sheltered cycle lanes and ensuring that public transport is reliable, affordable and available in all areas. Deterrents for car use suggested included re-introducing road tolls, halting petrol station developments and increasing car parking charges (with the option to use the money to subsidise public transport). Despite this, others referred to increasing the viability of personal car use, by expanding the electric vehicle charging network to increase the viability of electric car travel, especially on key routes from North to South Wales.
- 12.17 Some Twitter respondents also believed that transport within the public sector was a key issue. They referred to high amounts of travel in private vehicles by public sector officials. Long-haul travel, including

air travel within the public sector was also seen to be an issue. Respondents believed that the public sector, and the Welsh Government should be leading the way with emissions saving measures and behaviours.

- 12.18 The agriculture industry was also referred to by Twitter respondents, with one tweet that stated that it was a sector that “gets off pretty lightly in the [consultation] document”, despite it being a sector with large emissions. Suggestions for improvement included greater regulation, promotion of productive agriculture and encouragement of grass growth, as it has carbon sequestration advantages.
- 12.19 Waste was also discussed by Twitter respondents. A reoccurring comment was made about the need to prohibit waste incinerators in Wales. Biomass energy from waste installations was also an area where respondents believed permits should be revoked or refused. One respondent believed that paper usage also needed to be limited, pointing to printing documents bilingually as a “huge waste of paper and energy”.
- 12.20 The need to plant more trees and prohibit felling of trees was requested by Twitter respondents. They suggested planting more native trees.
- 12.21 Respondents also requested that carbon-intensive industries were restricted, with calls to close Port Talbot steelworks and Aberthaw power station. One Twitter respondent stated that new technology should be supported over heavy industry.
- 12.22 Other carbon reduction methods suggested by Twitter respondents included the possibility to launch a carbon reward scheme that rewards individuals who reduce their carbon footprint. A request to promote short, local supply chains was also made.
- 12.23 Some respondents believed that greater action was needed, with one stating that the Welsh Government should focus on delivering the potential actions, rather than undertaking consultations. They stated that emissions reduction was a key issue facing the country, with

health and environment implications now, but also disastrous impacts for future generations if we do not act. Some Twitter users suggested that to enact meaningful change, the Welsh Government would need greater, devolved powers from the UK Government.

Annex C: Organisations that responded to the consultation

- Agriculture Industry Climate Change Forum
- Andrew Bronwin & Co Ltd
- Aneurin Bevan UHB
- Arup
- Association for Decentralised Energy
- Assura plc
- Autogas Ltd
- Auxillia Innovation and Design
- AvantiGas Ltd.
- BEACON, IBERS
- Brecon Beacons NPA
- BSW Timber Group
- Building Alliance CIC
- Calon Energy
- Calor Gas
- Cardiff and Vale UHB
- Cardiff Council Transport Policy
- Centre for Alternative Technology (CAT)
- Centrica
- CITB Cymru
- Citizens Advice
- CLA Cymru
- Clwydian Range and Dee Valley AONB
- Coed Cadw - Woodland Trust
- Community Carbon Link
- Community Energy Pembrokeshire
- Community Housing Cymru
- Confor
- Construction Products Association
- Cross-party group on the Active Travel Act
- Cynnal Cymru

- Drax Group plc
- Eco2 Ltd
- EDF Energy
- EEF The Manufacturers' organisation
- Ellergreen Hydro Ltd
- Energy Saving Trust
- Energy Systems Catapult
- Energy UK
- Energy Utilities Alliance
- Friends of the Earth Cymru
- FSB Wales
- Future Generations Commissioner
- FUW
- GlaxoSmithKline
- Greencore Construction
- Gwersyllt Community Council
- Hybu Cig Cymru
- ICE Wales
- IEMA
- Innogy UK
- IWA
- Kingspan insulation
- Menter Mon (Morlais project)
- Mineral Products Association
- Monmouthshire County Council
- National Federation of Women's Institutes-Wales
- National Parks Wales
- National Sheep Association
- NEA Cymru
- NFU Cymru
- NHS Wales Shared Services Partnership - Specialist Estates Services
- Natural Resources Wales

- Outdoor Alternative
- Passivhaus Trust
- PassivSystems
- Powys Council
- Public Health Wales
- Purolite
- RAC
- Remarc Cymru
- Renew Wales/DTA Wales
- Renewable Energy Association
- Residential Landlords Association
- Rounded Developments Enterprises
- Royal Town Planning Institute Cymru
- RPSB Cymru
- RWE
- Sero Homes
- Size of Wales
- Smart Energy GB
- Soil Association
- SP Energy Networks
- SPECIFIC Innovation Knowledge Centre
- Stop The "Aviva" Incinerator, Barry - DIAG
- Surple
- Sustainable Traditional Buildings Alliance (STBA)
- Swansea Council
- Tarmac
- Tata Steel UK Limited
- The Federation of Petroleum Suppliers (FPS)
- The Passivhaus Trust
- The Pembrokeshire Remakery cic
- The Renewable Energy Association
- The TYF Group Ltd

- UK Energy Research Centre
- UKLPG representing companies in Wales
- UK Power Reserve
- Uniper Energy
- Velindre University NHS Trust
- Wales & West Utilities
- Welsh Environmental Services Association
- Western Power Distribution
- Wheelrights
- WLGA
- Woodknowledge Wales
- Woodland Strategy Advisory Panel
- Wrexham Council
- WWF Cymru

Additional organisational consultation responses that were submitted after the consultation closed are outlined below. The responses have not been included in this consultation analysis, but the Welsh Government will take them into consideration when developing actions for meeting the carbon budgets.

- Abertawe Bro Morgannwg University Health Board
- Ceredigion Council
- National Grid
- Rhondda Cynon Taf County Borough Council Public Health and Protection
- Valero