

The Fifth Carbon Budget - Call for Evidence

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Question and Response form

This response is submitted on behalf of the Sustainable Energy Association (SEA). The SEA represents a broad range of stakeholders: installers, manufacturer's merchants and suppliers of energy in buildings. We work with leading commercial organisations, trade associations and policymakers to promote sustainable energy in the built environment. Our approach is founded on integrating energy efficiency and generation of low carbon heat and power with the wider energy system.

The SEA has extensive analysis which demonstrates how putting buildings at the heart of delivering energy policy and using them to produce energy directly through low carbon and renewable sources can reduce carbon cost effectively. The SEA is happy to share this analysis with the Committee.

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Questions for consideration:

A. Climate Science and International Circumstances

Climate science and international circumstances are important criteria in setting carbon budgets.

- The science indicates the impacts associated with different levels of climate change and the limit on emissions globally if these risks are to be contained.
- International circumstances inform the prospects of future action to reduce emissions globally, potential requirements of the UK to contribute to those actions, and prospects for low-carbon technology development and carbon pricing.
- The EU places obligations on Member States to reduce emissions to contribute to reductions in the bloc as a whole. These imply a minimum level of effort for the UK's carbon budgets.

The Committee intends to draw primarily on the work of the IPCC, as published in the Fifth Assessment Report, in assessing the implications of climate science for the budget advice

The Committee's advice is based on a climate objective to limit central estimates of temperature rise to as close to 2°C as possible, with a very low chance of exceeding 4°C by 2100 (henceforth referred to as "the climate objective"). This is broadly similar to the UNFCCC climate objective, and that of the EU.

In order to achieve this objective, global emissions would have to peak around 2020, before decreasing to roughly half of recent levels by 2050 and falling further thereafter.

The UNFCCC is working toward a global deal consistent with such reductions. Individual parties are submitting pledges for effort beyond 2020, with the details of the agreement to be discussed in Paris late in 2015.

The EU has agreed a package that requires a reduction in emissions of at least 40% on 1990 levels by 2030, on the way to an 80-95% reduction by 2050. The UK Government supported this package, while arguing for an increase to 50% in the context of a global deal.

The US and China have jointly made pledges for the period beyond 2020. The US has pledged a reduction of 26-28% by 2025 versus 2005, requiring a doubling of the rate of carbon reduction compared to 2005-2020 and on a trajectory to economy-wide cuts of the order of 80% by 2050. China has pledged to peak CO₂ emissions around 2030, and to make best efforts to do so earlier.

Question 1 *The IPCC's Fifth Assessment Report will form the basis of the Committee's assessment of climate risks and global emissions pathways consistent with climate objectives. What further evidence should the Committee consider in this area?*

ANSWER: There is a wealth of scientific data available on the science of climate change and global emissions pathways. The SEA believes that the CCC should draw on as wide an evidence base as possible and that this should include but not be limited to the IPCC's fifth assessment report.

Question 2 *To what extent are the UN talks in Paris likely to have implications for the Committee's advice beyond the pledges and positions announced in advance of the talks?*

ANSWER:

Climate change is a crucial issue for this and future generations. The UK has taken a leading position on climate change in the past - 2008 saw the world's first ever Climate Change Act become law in the UK - and the UK should continue to seek a leading role in this important area at the UN talks in Paris. The Committee should seek to develop a justifiable, robust and evidence based position.

The Sustainable Energy Association (SEA) brings together a wide range of companies and has extensive analysis which demonstrates how putting buildings at the heart of delivering energy policy and using them to produce energy directly through low carbon and renewable sources can reduce carbon cost effectively. The SEA is happy to share this analysis with the Committee. The SEA would encourage the CCC to actively call for the government to lead this negotiation on the basis of having set a tangible, physical lead in delivering policies which limit greenhouse gas emissions.

Question 3 *Based on the available evidence, does the EU 2030 package reflect the best path to its stated 2050 ambition? How might this package change, specifically its targeted emissions reduction, either before the end of Paris or after Paris?*

ANSWER:

The Sustainable Energy Association welcomes the EU 2030 package. In particular the Commission's communication "COM (2015) 80 final" of 25.2.2015 states that the most important feature of the EU 2030 vision is :

"...an Energy Union with citizens at its core where citizens take ownership of the energy transition, benefit from new technologies to reduce their bills, participate actively in the market, and where vulnerable customers are protected". The vision then highlights the indicative target set by the European Council of a 27% energy efficiency improvement by 2030, and advocates treating energy efficiency as an energy source in its own right.

The SEA's own analysis adopts a similar approach by comparing the levelised cost of all energy measures, including energy efficiency and energy production from buildings, demonstrating that, generally, they are cheaper means of providing energy than large-scale electricity production options.

The SEA therefore considers that the EU 2030 vision is in line with its own thinking and that similar themes should apply to UK energy policy as a means of delivering the 5th carbon budget – namely to bring about a considerable scaling up of the political ambition for energy efficiency, the use of smart meters and other forms of integration technology and the proportion of energy produced in and from buildings.

In addition, European legislation will be enacted and enforced by member states, therefore it is important that the UK takes firm action to achieve the objectives of the EU 2030 package. The UK should lead by example and push for other members states to do the same.

Question 4 How does the UK's legislated 2050 target affect its ability to support international efforts to reduce emissions, including its position in negotiations? Does the level of UK carbon budgets have any additional impact (over-and-above the 2050 target) for the UK in international discussions?

ANSWER:

The establishment of a legislated 2050 UK target demonstrated the seriousness with which the UK took efforts to reduce emissions. By providing benchmarks towards the 2050 target, the carbon budgets are intended to show regular progress is being made and provide a level of predictability for UK firms and households to plan and invest for a low-carbon economy. However, it is important for UK credibility in negotiations and for investor confidence in the low carbon and energy efficiency markets that action towards

the 2050 target is not continually postponed or watered down.

An overarching plan for energy solutions in buildings which stretches across Government Departments and individual policies could make a significant contribution to the UK's carbon reduction efforts and supports its international discussions.

B. The cost-effective path to the 2050 target

The carbon budgets need to set a path that is achievable from today without being over-optimistic about what is achievable in later periods to prepare for the 2050 target.

The Committee has previously set out scenarios for 2030 that balance effort before 2030 with potential opportunities from 2030 to 2050. The scenarios aim to include ways of reducing emissions that are likely to be relatively low cost and actions that will develop options that may need to be deployed at scale by 2050.

These scenarios, reviewed in detail in the Committee's report *The Fourth Carbon Budget Review – the cost-effective path to the 2050 target*, include substantial investment in low-carbon power generation, roll-out of low-carbon heat (heat pumps and district heating), development of the markets for ultra-low emissions vehicles and a combination of energy efficiency measures and fuel switching in industrial sectors.

The scenarios also reflect detailed assessments of what is practically deliverable, and the Committee monitors progress towards them as part of its statutory duties. The *2014 Progress Report to Parliament* indicated that current policy would not be enough to meet the fourth carbon budget, but that the 'policy gap' could be closed at affordable cost.

The set of policy options required to close the gap include:

- Strengthening the EU Emissions Trading System.
- Setting a clear objective for Electricity Market Reform (EMR) beyond 2020.
- Focusing on low-cost residential energy efficiency.
- Simplifying policies targeting commercial energy efficiency.
- Tackling financial and non-financial barriers to low-carbon heat.
- Pushing for strong EU targets for new vehicle efficiency in 2030.

The Government has subsequently published various documents, including its formal response, as required under the Climate Change Act, and the National Infrastructure Plan. The Plan includes investments of around £100 billion in low-carbon power generation in the 2020s, in line with the scenarios from the EMR Delivery Plan that reach 100 gCO₂/kWh by 2030. It also has significant investments in offshore oil and gas and in the road network. This includes £15 billion of new spending on roads and around £50 billion on offshore oil and gas.

Question 5 *In the area(s) of your expertise, what are the opportunities and challenges in reducing emissions to 2032, and at what cost? What may be required by 2032 to prepare for the 2050 target, recognising that this may require that emissions in some areas are reduced close to zero?*

ANSWER:

As part of its commitment to reduce emissions, tackle climate change and ensure energy security and efficiency in the UK, the Government has introduced three key strategies: a Heat Strategy, an Energy Efficiency Strategy and a Microgeneration Strategy. In addition, the Zero Carbon Homes policy for new build covers many of the same objectives. The Sustainable Energy Association believes that in order to meet emissions targets these should be combined into a single Energy in Buildings Strategy to ensure joined-up thinking.

Combining Energy Efficiency, Heat, Microgeneration, and Zero Carbon Homes Strategies for an Energy in Buildings Strategy is the best way to meet emissions reduction targets in 2032 and in 2050. Such a Strategy would provide a simple mechanism to ensure cross-departmental co-operation and shared objectives to delivering low carbon buildings, a reduction in fuel bills and the eradication of fuel poverty. Creating a specific Government strategy would also send a clear message to industry that the Government both understands and is keen to promote demand side measures to meet the UK's energy, environmental, and social objectives.

Whilst all four strategies differ by definition there are several easily identifiable, cross-cutting policy areas across all four. Furthermore, a common theme is the identification of barriers; there is potential for more collaborative work to identify and deal with these. It is also sensible to align the objectives of Government departments when policy intent can overlap. An example would be that a Department for Communities and Local Government (DCLG) decision on Building Regulations will impact the UK's future buildings - potentially storing up legacy issues which would eventually require the kind of subsidy for retrofit which is DECC's prerogative.

The attached SEA infographic analysis uses the Government's own numbers to show that energy solutions in buildings can be a cost effective way of reducing emissions.

By placing buildings at the heart of delivering all our energy policy goals, making them efficient, and using them to produce energy directly through low carbon and renewable sources, we will deliver more affordable, secure and low carbon energy for the UK. Using the Government's own "Pathways" calculator, analysis shows that this will cost the economy around £12bn per annum less than the Government's current plan. This is equivalent to a £189 saving per year, every year, for every UK citizen.

The introduction of the Feed in Tariff has shown how government intervention can be successful (e.g. PV) and the world-first RHI policy has also been well received. It is crucial that this is protected at the next Spending Review; however the Government should consider regulation rather than subsidy as the mechanism to drive the future retrofit of low carbon, efficient and renewable heat. The regulation of condensing boilers ten years ago showed how this can work effectively. In the new build sector, the "zero carbon" trajectories should be adhered to or EU renewables and CO2 targets will be at risk.

Question 6 *What, if any, is the role of consumer, individual or household behaviour in delivering emissions reductions between now and 2032? And, separately, after 2032?*

ANSWER:

In the National Infrastructure Strategy for 2013, renewable energy technologies such as biomass or solar PV and demand reduction technologies such as smart meters were mentioned as in scope. Smart metering is an important part of encouraging customer engagement and behavioural change. However what is missing from the strategy is a clear narrative for the holistic deployment of these technologies into buildings. Treating building retrofit as a big infrastructure commitment will offer strategic clarity, prioritise a stable policy environment for the sector, and enable private investment and industry growth.

Another way of engaging customers and changing behaviour is the development of "smart" integrated control systems for heating systems. Manufacturers are already producing these types of controls. The lessons learned with the smart metering specification suggests that policy makers could do better at engaging with technology manufacturers and other key stakeholders, rather than designing complex hardware specifications, developing sophisticated IT systems which are capable of integrating and communicating with different technologies. Government's role should be to set clear objectives for these technologies, rather than necessarily to specify or restrict their design.

The Verco and Cambridge Econometrics report entitled *The economic and fiscal impacts of making homes energy efficient* (2014) sought to quantify the macro-economic benefits of

investing in energy efficiency in the UK building stock. A summary of the findings is shown in the response to question 13 of this call for evidence.

The previous governments Heat Strategy identified a key challenge as the supply of low carbon heat. It identified that energy efficiency and better informed consumers help to tackle the demand for heat, and market reforms are necessary to help to decarbonise the supply of electricity and heating. The strategy highlighted the need to change the way we generate, distribute and use heat in buildings and industry. Ten years ago the UK government made condensing boilers mandatory. This change demonstrated how regulation can effect behaviour in a very positive way. Progressively tightening standards is an effective way of ensuring that so that by the time we are in the period of the fifth carbon budget we have moved a long way forward on decarbonising heat.

The Committee on Climate Change's recommendations for the fourth carbon budget placed energy efficiency and progress towards renewable heating as priority items. Clearly we need to make substantial progress towards the fourth carbon budget as a precursor to meeting the fifth, and this strengthens the case for an Energy in Buildings Strategy.

Question 7 Is there evidence to suggest that actions to further reduce emissions after 2032 are likely to be more or less challenging to achieve than actions in the period up to 2032?

ANSWER:

It is important that we make the right decisions and take the right action now as this will impact carbon far into the future we need to reduce carbon emissions now and build the industry and supply chains that will continue to reduce carbon far into the future. If we do not take action now then by 2032 the task will be far more challenging as we will have a shorter timescale in which to achieve the target and unless we act now we won't have an industry capable of delivery.

In particular it will be important to ensure that high levels of investor confidence are maintained during the next decade through setting long-term clear direction and clarity with adequate specific staging posts in key areas of policy. If a clear vision for energy in buildings is established now, and consistently delivered, this will ensure investors maintain the appetite to invest in the next generation of technologies and measures to undertake the next phase of decarbonisation in the period 2030 – 2050.

Question 8 *Are there alternatives for closing the ‘policy gap’ to the fourth carbon budget that could be more effective? What evidence supports that?*

ANSWER:

The Sustainable Energy Association (SEA) believes that there are alternatives for closing the ‘policy gap’ to the fourth carbon budget that could be more effective and has evidence that supports this belief.

A large-scale investment in the retrofit of the UK’s building stock should be treated as a National Infrastructure Priority. The SEA has worked on retrofit policy across several Government administrations on schemes such as CERT or ECO. While significant numbers of measures have been installed, the inconsistent nature of policy means that challenges presented by our building stock still remain. The National Infrastructure Strategy lists investment in buildings as a possible infrastructure priority and the SEA is part of an industry coalition calling for this to be Government’s preferred approach to financing building improvements, targeting 1m deep retrofits each year by 2020. SEA has modelled this proposition using the Treasury’s Green Book principles.

The Government’s Pathway to CO₂ reduction can be achieved at less cost with more demand side technologies in the mix. Using the Department of Energy and Climate Change (DECC) Pathways calculator, SEA can show that energy security and 80% CO₂ reduction can be achieved by less reliance on large scale generation and greater reliance on demand side and small-scale measures; our analysis showed greater energy security and billions of pounds of additional savings for the UK. We are happy to share this analysis with the Committee on Climate Change.

The SEA infographic (attached to this submission) summarises merit order for the cost/savings per Megawatt hour (MWh) of a range of energy solutions. These can be captured in three broad groups: energy saving measures, low carbon and renewable production in buildings, and large-scale power generation. The analysis demonstrates that “demand-side” measures in buildings are a cheaper way of meeting our energy needs. We are not investing enough in these measures as policy makers generally look only to the supply side to meet our energy needs. It is unquestionable that large-scale power generation requires investment and attention. However, there is a huge opportunity for a step change in investment on the demand side. Doing this would mean warmer, more comfortable, more affordable homes and buildings and cleaner, more secure energy for the people and businesses of the United Kingdom.

The government has published four possible energy scenarios (or pathways) to 2015. SEA modelling shows that building based solutions would achieve CO2 reductions AND save over £12 billion per year compared to the Government's own preferred options.

Using DECCs own calculator tool the SEA has produced several Pathways scenarios. Our lead pathway entails £189 per capita of annual savings, amounting to an annual saving for UK PLC of £12.09 billion (assuming a population of 64 million).

Question 9 *Are the investments envisaged in the National Infrastructure Plan consistent with meeting legislated carbon budgets and following the cost-effective path to the 2050 target? Would they have wider implications for global emissions and the UK's position in international climate negotiations?*

ANSWER:

As detailed in question 8 there is a significant inconsistency in the National Infrastructure plan as a requirement for energy efficiency and distributed generation of renewable energies is not included.

Since the 2008 financial crash, the conversation around policies which are perceived to be "green" has changed; polling shows that public support for policy intervention depends on "value for money". The Sustainable Energy Association (SEA), alongside many of our colleagues in industry, believes that economic case alone justifies a set of policy initiatives which prioritise Government investment into energy solutions in buildings. We further believe that the benefits of investing in buildings, and then integrating these buildings together, far outweigh the cost of investment.

If value for money is central to Government policy decisions, then Government must either offer more support to demand-side technologies or justify their exclusion. The SEA Infographic analysis (attached to this response) which uses the Government's own numbers shows that energy solutions in buildings can be as cost effective as large scale solutions. The Government must invest in large scale infrastructure, but buildings could also improve energy security, reduce carbon, and cut consumer bills- and they stack up in terms of value for money.

C. Budgets and action

The UK's statutory 2050 target requires actions across the economy to reduce emissions. Many of these actions will be driven by (UK and devolved) Government policy and implemented by businesses and consumers. There will be an important role for Local Authorities in successful delivery.

Although the carbon budgets do not require specific actions, they provide an important indication of the overall direction that policy will take in future. Once set, carbon budgets can only be changed if there has been a significant change in the relevant circumstances set out in the Climate Change Act.

Feedback from businesses as part of the Committee's 2013 Call for Evidence for the review of the fourth carbon budget was that stability is an important and valuable characteristic of carbon budgets.

Question 10 *As a business, as a Local Authority, or as a consumer, how do carbon budgets affect your planning and decision-making?*

ANSWER:

Businesses need stability and therefore clear policy, preferably long term is best for business planning and decision making. Carbon budgets impact government policy and this in turn impacts business. Long term stability is crucial. Recent changes to the ECO policy demonstrate how policy changes can result in negative impacts on investor confidence which, in the long-run, will increase the costs of decarbonising the economy. Specific areas that we believe need to be addressed urgently are:

- Energy Efficiency policy beyond the end of the current ECO scheme. In particular it is important to set a clear direction for this for the next ten years as investor confidence is to be rebuilt following the recent short-term changes to ECO.
- The future of heating – in the short term this means ensuring adequate funding is provided in the forthcoming Comprehensive Spending Review for the Renewable Heat Incentive, but this has to be complemented with progressive and intelligent regulation to transform the market for renewable and low carbon heating from its current niche position to becoming the norm by the end of the next decade.

Question 11 *What challenges and opportunities do carbon budgets bring, including in relation to your ability to compete internationally? What evidence do you have for this from your experience of carbon budgets to date?*

ANSWER:

Provided policy is clear, stable and long term, businesses can plan and compete, and secure the necessary investment. With a clear vision and strategy through to 2030, and confidence that short-term interventions in policy will not happen, the capital markets will confidently provide the means to decarbonise the economy.

The report ; [*An analysis of the impact of low-carbon policies on households, businesses and the macro-economy*](#) published by Cambridge Econometrics in 2014 provides a rigorous model-based assessment of the macroeconomic costs and benefits that could occur as a result of the UK putting in place the measures and changes required to meet the emission reductions proposed by the CCC in the first four carbon budgets. Drawing on the CCC's independent technical analysis, the evidence in this report suggests that meeting, or exceeding, the fourth carbon budget will result in net economic benefits for the UK, as well as the stipulated reduction in greenhouse gas emissions.

Question 12 *What would you consider to be important characteristics of an effective carbon budget? What is the evidence for their importance?*

ANSWER:

Clear and stable long-term policy frameworks provide investors and business with the stability required to deliver low carbon investment. The carbon budgets so far have helped to do this. This needs to continue. An overarching plan for energy solutions in buildings which stretches across Government Departments and individual policies could make a significant contribution to the UK's carbon reduction efforts.

The government has published four possible energy scenarios (or pathways) to 2050. Using DECC's own calculator tool the Sustainable Energy Association has produced several Pathways scenarios. This modelling shows that building based solutions would achieve CO₂ reductions and save over £12 billion per year compared to the Government's own preferred options.

D. Other issues

The Climate Change Act requires that in designing the fifth carbon budget we consider impacts on competitiveness, fiscal circumstances, fuel poverty and security of energy supply, as well as differences in circumstances between UK nations. High-level conclusions on these from our advice on the fourth carbon budget were:

- **Competitiveness** risks for energy-intensive industries over the period to 2020 can be addressed under policies already announced by the Government. Incremental impacts of the fourth carbon budget are limited and manageable.
- **Fiscal impacts.** The order of magnitude of any fiscal impacts through the 2020s is likely to be small, and with adjusted VED banding and full auctioning of EU ETS allowances could be neutral or broadly positive.
- **Fuel poverty.** Energy policies are likely to have broadly neutral impacts on fuel poverty to 2020, with the impact of increases in electricity prices due to investment in low-carbon generation being offset by energy efficiency improvement delivered under the Energy Company Obligation. Incremental impacts through the 2020s are likely to be limited and manageable through a combination of further energy efficiency improvement, and possible income transfers or social tariffs.
- **Security of supply** risks due to increasing levels of intermittent power generation through the 2020s can be managed through a range of flexibility options including demand-side response, increased interconnection and flexible generation. Decarbonisation of the economy will reduce the reliance on fossil fuels through the 2020s and thus help mitigate any geopolitical risks of fuel supply interruption and price volatility.
- **Devolved administrations.** Significant abatement opportunities exist at the national level across all of the key options (i.e. renewable electricity, energy efficiency, low-carbon heat, more carbon-efficient vehicles, agriculture and land use)

Question 13 *What evidence should the Committee draw on in assessing the (incremental) impacts of the fifth carbon budget on competitiveness, the fiscal balance, fuel poverty and security of supply?*

ANSWER:

The Verco and Cambridge Econometrics report [*The economic and fiscal impacts of making homes energy efficient*](#) is a useful source of evidence. Its findings are summarised below.

- In terms of GDP (Gross Domestic Product), Cambridge Econometrics modelling estimates a return of £3.20 per £1 invested in energy efficiency measures by government. In relative terms, as a result of the energy efficiency investments, GDP will be 0.6% higher in 2030 (£13.9bn).
- The investment in funding and incentivising take-up of energy efficiency measures by governments is self-financing. The increased economic growth leads to higher tax intake, cumulatively £51.1bn by 2030 or £1.27 per £1 invested throughout the whole period (in discounted terms).
- Cambridge Econometrics estimate a net increase in annual employment of up to 108,000 over the period 2020-2030, with most jobs created in the services and the construction sectors.
- A reduction in fuel bills - £8.61 billion per annum in total energy bill savings across housing stock, after comfort take (including energy price inflation)
- A net benefit of £4.95 billion per annum from the total energy bill savings across the housing stock (after able-to-pay energy efficiency loans have been repaid)
- 23.6MtCO₂ reductions per annum by 2030, after accounting for direct, indirect, and economy-wide rebound effects. This is roughly equivalent to cutting the CO₂ emissions of the UK transport fleet by one third.
- Improved health and reduced healthcare expenditure, due to warmer and more comfortable homes, and improved air quality. For every £1 spent on reducing fuel poverty, a return of 42 pence is expected in National Health Service (NHS) savings. ^{5 6}
- A more resilient economy, less at risk of shock changes in gas prices, as the economy becomes less reliant on fossil fuels. Investment in energy efficiency in the domestic sector will result in a 26% reduction in imports of natural gas in 2030, worth £2.7bn in that year.

This, and other comprehensive assessments of energy efficiency products complete and full impact on the economy should be central to the manner in which the CCC considers potential means to alleviate the issue of greenhouse gas emissions.

The report ; [*An analysis of the impact of low-carbon policies on households, businesses and the macro-economy*](#) published by Cambridge Econometrics in 2014 provides a rigorous model-based assessment of the macroeconomic costs and benefits that could occur as a result of the UK putting in place the measures and changes required to meet the emission reductions proposed by the CCC in the first four carbon budgets. Drawing on the CCC's independent technical analysis, the evidence in this report suggests that meeting, or exceeding, the fourth carbon budget will result in net economic benefits for the UK, as well as the stipulated reduction in greenhouse gas emissions.

Question 14 What new evidence exists on differences in circumstances between England, Wales, Scotland and Northern Ireland that should be reflected in the Committee's advice on the fifth carbon budget?

ANSWER:

There are a number of varying circumstances between the home nations of the UK. For example, in Northern Ireland a far higher proportion of homes are off the gas grid, and reliant on heating oil. Northern Ireland has the largest percentage of domestic homes using oil in Western Europe – with 68 per cent of homes (82 per cent in rural areas) using oil as their primary heating source. *(It also has one of the highest fuel poverty levels with 42 per cent of households here in fuel poverty).*

Scotland equally, has an increased proportion of houses which are not gas-heated- over a quarter in some rural areas. Equally, in our northern neighbour there is a far higher proportion of renewable electricity supplied to the grid. DECC figures showed that, for example 46.4% of gross electricity consumption in Scotland in 2013 was catered for from renewable sources - up from 39.9% in 2012.

In 2014, the figure for renewable supply was yet higher, at 49.6 percent of total consumption.

These variations are in part, caused by the respective environmental, climatic and geographic contexts of the varying nations. Equally, the historic path of human and societal development has created small but noticeable disparities between their carbon emissions, green energy industries and which opportunities remain open to tackle climate change.

One example of how societal development has created differing opportunities for the countries would be transport. 83 percent of the Scottish population lives within an hours' drive of the 'central belt'- which means that public transport systems in these areas ought to be readily implementable.

The CCC should ensure its recommendations facilitate independent thinking and action where necessary, but equally encourage collaboration and cooperation wherever this will deliver reductions in carbon emissions.

Question 15 *Is there anything else not covered in your answers to previous questions that you would like to add?*

ANSWER: Nothing further.