

Response of the SMMT

The Fifth Carbon Budget - Call for Evidence

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Question and Response form

When responding please provide answers that are as specific and evidence-based as possible, providing data and references to the extent possible. Please limit your response to a maximum of 400 words per question.

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 sufficient evidence from IPCC to form the basis of the CCC assessment and it is important to consider the most likely pathways too.

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: It is widely expected that the EU 2030 targets will become more ambitious as a result of an agreement in Paris. It is important for industry that any international agreement (UN, EU or bilateral) is meaningful and ensures there is no competitive distortion between countries or sectors. This is important to ensure the UK makes its contribution but competitiveness of the UK manufacturing sector is not undermined.

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: Given the current level of knowledge the 2030 package seems to be reasonable.

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 certainty offered by the UK 2050 target and interim Carbon Budgets provide leadership and credibility that UK is committed to GHG reduction and the certainty that industry needs to invest.

However, they also lock the UK into a specific trajectory. It might be argued that this leaves the UK with little additional to offer in return for others' commitments in a (UN/EU/bilateral) negotiation. Furthermore, the most cost-effective or desirable trajectory to 2050 may change over time and the Carbon Budgets severely limit the flexibility to adjust.

For instance, while the Carbon Plan's vision is for new cars and vans to be near zero emission at the tailpipe by 2040 so that the vehicle parc is near zero emission by 2050, there are many scenarios for the 2020s and 2030s consistent with that. The Carbon Plan assumes 40-50% of new cars and vans are plug-in by 2030, but theoretically the mass market adoption of zero-emission/plug-in vehicles could come much later, well into the 2030s, and still deliver 100% of new vehicles in 2040.

Caution should be placed on such ambitious targets, which leave an enormous gap between most market expectations and the scenarios considered in the Carbon Budgets. Without a step-change in battery technology and efficiencies from economies of scale, it is highly unlikely that 40-50% of the market will be plug-in by 2030 and this may potentially only be achievable through sustained significant government incentives. Norway, until recently Europe's No.1 electric vehicle (EV) market, is now reviewing incentives because of the strain it puts on the national budget and the success of some of the softer incentives has also had adverse effects, for example the bus lanes now being over-crowded. The removal of government tax incentives in the Netherlands also saw EV sales surge in December 2013 and then drop dramatically in January 2014. Such peaks and troughs make it difficult for market supply.

The recent Air Quality infraction against the UK certainly illustrates the need for coherence between air quality and CO₂ policy. Diesel has and will continue to play a major role in reducing carbon emissions. But diesel is now widely criticised, which risks having a detrimental effect on climate change if, for example, drivers who regularly make long journeys begin to choose/are incentivised to choose more carbon intensive options. Policy messages need to be consistent, coherent and should remain technology neutral. Consumers should be encouraged to choose a vehicle which is fit for their purpose i.e. right customer, right car.

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: The pace of CO₂ reduction needs to be aligned with technology development, customer acceptance and market conditions. Attempting to reduce emissions too fast could lead to unnecessarily high costs, consumer resistance (sticking to older, higher polluting products) and negative technology image (with early technology generations not necessarily meeting all customer expectations).

As raised in previous questions, the Carbon Plan's vision of uptake of near zero emission vehicles by 2040 and 2050 could come about with various scenarios for the uptake of such vehicles in the 2020s and 2030s. The Carbon Plan assumes 40-50% of new cars and vans are plug-in by 2030, but theoretically the mass market adoption of plug-in vehicles could come much later, well into the 2030s, and still deliver 100% of new vehicles in 2040.

The market for alternatively fuelled vehicles (AFVs) has grown at an impressive rate in recent years, with 52,000 registrations in 2014, up 200% since 2007. However, this still only represents 2.1% of the market and includes a large proportion of conventional (non-plug-in) hybrids. It would be a total transformation of the market to achieve 40-50% uptake of plug-in vehicles by 2030. What is more, this only allows a decade to get from the widely accepted 2-8% expectations for the early 2020s to 40-50%.

CO₂ reduction from heavy duty vehicles (HDVs), especially long distance HDVs, is recognised as extremely challenging. For instance electrification of a 44t truck would require 52 tonnes of batteries (leaving nothing for payload) compared to 800kg for diesel. The prospects for fuels like natural gas or biomethane are good in the medium-long term, if the biomethane is not lost to other (non-transport) uses where other decarbonisation options exist. SMMT continues to sound a note of caution about the very ambitious CCC assumptions of hydrogen fuel cell trucks from 2030, which we have discussed with CCC in the past.

Developing sectoral emissions reductions and cost data is complex. We note that government has worked with eight manufacturing sectors to develop roadmaps, which show that the savings potential from process energy use is limited (circa 0.5% pa). Many of the major energy using processes in a vehicle production plant – the paint-shop and boiler/heating systems, typically last 20-30 years and cost tens of £millions to replace. Understanding the timing and challenges to investment to replace such processes would be beneficial. To give a sense check on the rate of progress the sector has made in industrial energy efficiency, energy per vehicle in the original Climate Change Agreements (CCAs) was cut by 50%, whilst the current target from 2008-2020 is for a further 15% reduction. Further cost-effective

efficiency gains are increasingly difficult to achieve.

We understand the government faces a tricky position of not picking winning technologies, but allowing the market to decide the right technology, but equally support, at both a national and international level, should be given to help identification of future low carbon technologies and acceleration of those through Government R&D funding and collaboration.

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: Consumers are paramount to the process. Without their actions – notably purchasing decisions and use of products - nothing will be accomplished.

Before and after 2032, vehicle buyers/users (private, fleet and companies) need to see Ultra-Low Emission Vehicles (ULEVs – defined as emitting 75g/km or less CO₂ at the tailpipe) as more attractive than conventional vehicles. This means financially, functionally and practically, or at least for the sum of those parts to be biased towards the ULEV.

Utilisation of SMART technology/SMART grids in and around the home/work to maximise micro-generation, vehicle hybrid battery interfacing, and energy generation could also help encourage the consumer to take a more holistic approach to their overall energy efficiency, and help encourage the take up of ULEVs.

As highlighted previously, it is important that the consumer chooses the vehicle most appropriate to their (typical) journey, so for example those driving long distances may find a diesel vehicle the most appropriate. Given that two thirds of mileage is driven outside urban areas, it is important that consumers are not persuaded out of particular vehicle types based on incorrect or misleading information.

There has been a significant improvement in uptake of ULEVs over the past four years but it still represents a small proportion of the car and light van markets. Public funding needs to be prioritised for incentives, infrastructure and R&D.

It is important to note that new vehicle registrations represent less than 10% of the total number in use, and vehicles typically last around 13 years, so it takes a number of years for the vehicle fleet to be replaced.

Furthermore the use of the vehicle is just as important, if not more important, than the efficiency of the vehicle. Use is affected by driving style, need, location and time of journey, road conditions, vehicle maintenance, etc. Demand management will be key, both for goods and personal travel. The automotive sector has continuously stressed the need to maintain integrated comprehensive approach, with all parties – industry, consumers, government and policy makers, fuel companies, media and other stakeholders to play their part to deliver the most cost effective measures to minimise the environmental impact of travel.

Whilst the EU's Post-2020 new vehicle CO₂ targets will play a vital role in achieving the 2030 target, consideration should be given to sharing the burden across the whole of the vehicle parc and not just focused on those people buying new vehicles. Fleet renewal is key to emission reductions, but if OEMs alone bear the whole responsibility then the additional cost of engineering could have an impact on demand for new vehicles if prices rise in line with costs. A more consolidated approach to road usage would mean all vehicle owners taking responsibility for the fuel they use, the miles they drive and the congestion they cause. Greater focus is needed to ensure that all sections of the car parc can make a difference to climate change, a comprehensive approach is needed with all parties effectively incentivised to make the more environmental friendly choices, from vehicle manufacturers to consumers and fuel providers. Responsibility should not stop with the choice of the car that is purchased.

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: In both manufacturing and the product itself, much action has already been taken. Delivering further emissions reductions is likely to be ever more challenging, as the low hanging fruit has already been taken. However, conversely as these new technologies mature, together with economy of scales, we could see some costs and resistance to technology switching diminish.

The development of traditional internal-combustion engines has been on-going, but efficiencies will become ever more difficult and costly to achieve. That does not mean that OEMs will stop trying to achieve these efficiencies, as it is an extremely competitive market. If ULEVs become more prevalent post-2030 (following step-changes in technology & engineering/production cost) then tailpipe emissions will reduce, but the overall reduction in emissions will then be dependent upon the

decarbonisation of the grid.

Given technology changes, monitoring driving styles or patterns is becoming more acceptable, particularly where the consumer can see a benefit - for example with car insurance, allowing the insurance provider to monitor driving styles can save money on insurance premiums.

As the roads become more and more congested, some form of road pricing may incentivise smarter journeys and help ease congestion. This does not have to mean increasing the cost of motoring, it could be revenue neutral. Increasing the cost of motoring which will likely attract consumer criticism, unless the reasons and corresponding benefits can be clearly conveyed and accepted.

As noted previously, efficiency gains in the manufacturing process are becoming ever more difficult and expensive to achieve. In addition, significant reductions are likely to revolve around significant investment in new plant, which may only take place once every 20-30 years. As the recent road-maps from other sectors suggest emissions reductions will increasingly come from external measures, such as grid decarbonisation.

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: Activity to improve the secure supply of cheap, low-carbon electricity will be beneficial across a number of different sectors and help with the electrification of the vehicle fleet.

It will not help to close the "policy gap" if a push for strong EU targets for new vehicle efficiency in 2030 is a policy isolated from a more comprehensive approach. It only focuses on the small part of transport CO₂ emissions that comes from new vehicles. Therefore the reduction of CO₂ emissions in the use phase of the vehicle from customers should be tackled by combining suitable measures for the parc with future CO₂ targets for new vehicles in a comprehensive approach. This will involve actively informing and encouraging change from consumers in their driving style, habits, journey planning, etc could have impacts across the whole fleet. The integration of the transport sector into the EU Emissions Trading Scheme could also be explored as a means to tackle CO₂ emissions from the in-use phase of vehicles.

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: It is welcome that the Roads Investment Strategy, part of the NIP, will see the trebling of spending on strategic roads – with £15 billion to be spent over 100 schemes. Years of underinvestment have left many roads in a poor state of repair and limited or insufficient signage. This can contribute to congestion and so increased emissions.

Spending needs to reflect vehicle use and ensure the network can cope with traffic levels. Better traffic flow means lower emissions. Increased use of connectivity could help ensure the roads network is better able to cope, and we welcome on-going investment in connected vehicles and infrastructure.

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: Carbon Budgets give welcome business certainty. However, it is unclear how many of our members and wider industry really find the carbon budgets impact

on their decision-making process. Regulations, taxation and scheme targets are the real drivers, as well as consumer preferences. Given the international aspect of the automotive industry, we would welcome greater harmonisation and ensuring the UK does not create measures to undermine the competitiveness of the sector.

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: As SMMT previously highlighted competitiveness in the global marketplace is key for the automotive sector, therefore ideally global harmonisation should be sought, with EU harmonisation a minimum.

Whilst we welcome measures to encourage additional levels of effort, by industry or consumers, and rewarding early adopters, measures which penalise industry should be avoided, eg the carbon price floor which adds to the cost of doing business in the UK.

In our response to the call for evidence on the 4th CB review we noted:

- *Investment certainty is a valuable cornerstone of business planning and noting the headroom, but retaining the existing ambition level of the 4CB, could offer more flexibility for policymakers to refocus objectively on the most cost effective sectors in which to deliver CO₂ reductions (using the marginal abatement cost curves).*
- *Equally important is the need for UK businesses to remain competitive compared to other EU Member States and the rest of the world, especially in a global sector like automotive. If UK policy were to go further, at an earlier date, than in other countries, then the UK traded sector would be net sellers of EUETS permits. Apart from the important fact that SMMT members' core business is vehicle manufacturing and not trading in carbon markets, the price at which UK industry can sell excess carbon permits (and price volatility) is critical to whether becoming a net seller is a viable investment or not.*
- *Furthermore, if UK industry invests to make deeper CO₂ cuts than in other countries, then it is critical that their early action is guaranteed to be rewarded when the baseline is set for any further carbon reductions in the 2030s.*

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

ANSWER: Certainty is important for business planning, but the 5CB must not lock the UK into assumptions that may not be the most effective route to delivering the 2050 target. Industry would also call for consideration of the competitiveness of the sector to ensure measures are not harmful to the auto sector in the UK.

Measures should ideally reward business/industry for continuous improvement and delivering upon appropriate targets. The 5CB should take into consideration that not everyone is starting from the same point i.e. easily achievable targets are as dis-incentivising as unachievable ones. Thriving business & industry will deliver targets and therefore they should be encouraged to do so – balancing environmental and industrial policies and objectives.

We have also found simplicity of implementation to be important. Ensuring the effort from government and industry to achieve the desired outcomes effectively, but without unnecessary monitoring, reporting and verification effort. Clear analysis of the priority areas to focus effort and resource on would enable a better reduction plan to be developed. For example targets for paint shops to reduce VOC emissions have been effective by having appropriate lead times, clear simple targets and not the multitude of UK measures and policies used to influence manufacturing industry's action on climate change.

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 Committee should compare international market development under different carbon regimes. They should also look at trends in the cost of 'in-house' manufacturing and ideally benchmark across Europe, to understand how policies will impact manufacturers' competitiveness.

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: Industry is already beginning to see different approaches in different countries (eg England and Wales), which is unwelcome. Industry would ideally like to see common approaches on policy and legislation across the whole of the UK and industry is increasingly involved in pan-European and global regulations and requirements. A level playing field would help ensure effort is similar and competitiveness is not unduly impacted.

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

ANSWER: SMMT would recommend CCC reviews the following reports to understand the automotive sector in the UK, it's role, importance, impact and effort:

- SMMT New Car CO2 Report www.smmt.co.uk/co2report
- SMMT Sustainability Report www.smmt.co.uk/sustainability
- Wright Review, www.smmt.co.uk/2014/06/cost-base-uk-supply-chain-perspectives-automotive-industry/