Committee on Climate Change

Independent advice to government on building a low-carbon economy and preparing for climate change

The Sixth Carbon Budget and Welsh emissions targets – Call for Evidence

Background to the UK's sixth carbon budget

The UK Government and Parliament have adopted the Committee on Climate Change's (CCC) recommendation to target net-zero emissions of greenhouse gases (GHGs) in the UK by 2050 (i.e. at least a 100% reduction in emissions from 1990).

The Climate Change Act (2008, 'the Act') requires the Committee to provide advice to the Government about the appropriate level for each carbon budget (sequential five-year caps on GHGs) on the path to the long-term target. To date, in line with advice from the Committee, five carbon budgets have been legislated covering the period out to 2032.

The Committee must provide advice on the level of the sixth carbon budget (covering the period from 2033-37) before the end of 2020. The Committee intends to publish its advice early, in September 2020. This advice will set the path to net-zero GHG emissions for the UK, as the first time a carbon budget is set in law following that commitment.

Both the 2050 target and the carbon budgets guide the setting of policies to cut emissions across the economy (for example, as set out most recently in the 2017 Clean Growth Strategy).

The Act also specifies other factors the Committee must consider in our advice on carbon budgets – the advice should be based on the path to the UK's long-term target objective, consistent with international commitments and take into account considerations such as social circumstances (including fuel poverty), competitiveness, energy security and the Government's fiscal position.

The CCC will advise based on these considerations and a thorough assessment of the relevant evidence. This Call for Evidence will contribute to that advice.

Background to the Welsh third carbon budget and interim targets

Under the Environment (Wales) Act 2016, there is a duty on Welsh Ministers to set a maximum total amount for net Welsh greenhouse gas emissions (Welsh carbon budgets). The first budgetary period is 2016-20, and the remaining budgetary periods are each succeeding period of five years, ending with 2046-50.

The Committee is due to provide advice to the Welsh Government on the level of the third Welsh carbon budget (covering 2026-30) in 2020, and to provide updated advice on the levels of the second carbon budget (2021-25) and the interim targets for 2030 and 2040. Section D of this Call for Evidence (covering questions on Scotland, Wales and Northern Ireland) includes a set of questions to inform the Committee's advice to the Welsh Government.

Question and answer 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 answers to <u>400 words</u> per question and provide supporting evidence (e.g. academic literature, market assessments, policy reports, etc.) along with your responses.

Summary of FTA View

- Government need to lead on a definition of net zero, and provide guidance on how each sector can achieve it, and provide a central standard for Local Authorities to work towards
- Freight is governed by the consumer, carbon footprint information for each delivery option could help encourage consumers to choose greener options
- Industry need certainty over the real-world performance, investment in infrastructure and financial support to enable them to switch to alternatively fuelled vehicles

Background

The Freight Transport Association (FTA) is one of the UK's largest trade associations, and uniquely provides a voice for the entirety of the UK's logistics sector. Its role, on behalf of over 18,000 members, is to enhance the safety, efficiency and sustainability of freight movement across the supply chain, regardless of transport mode. FTA members operate over 200,000 goods vehicles - almost half the UK fleet - and some one million liveried vans. In addition, they consign over 90 per cent of the freight moved by rail and over 70 per cent of sea and air freight.

FTA's mission is to make logistics safer, cleaner and more efficient. We seek to ensure that our members can supply our towns and cities with the goods they require every day, whilst reducing any social impacts.

Logistics and Decarbonisation

Reducing carbon emissions is a priority for our members and FTA is committed to helping them make their operations greener. Transport is the most difficult sector to change due to the varied nature of its operation. Within transport the larger the vehicle, the more problematic decarbonising becomes, as heavier vehicles require more energy load to move, which makes many alternative power sources more difficult to use. However, heavier freight vehicles are vital to reducing emissions as they are the most energy and road space efficient way of moving freight on a per tonne basis.

A. Climate science and international circumstances

Question 1: The climate science considered in the CCC's 2019 Net Zero report, based on the IPCC Special Report on Global Warming of 1.5°C, will form the basis of this advice. What additional evidence on climate science, aside from the most recent IPCC Special Reports on Land and the Oceans and Cryosphere, should the CCC consider in setting the level of the sixth carbon budget?

ANSWER: n/a

Question 2: How relevant are estimates of the remaining global cumulative CO_2 budgets (consistent with the Paris Agreement long-term temperature goal) for constraining UK cumulative emissions on the pathway to reaching net-zero GHGs by 2050?

ANSWER: n/a

Question 3: How should emerging updated international commitments to reduce emissions by 2030 impact on the level of the sixth carbon budget for the UK? Are there other actions the UK should be taking alongside setting the sixth carbon budget, and taking the actions necessary to meet it, to support the global effort to implement the Paris Agreement?

ANSWER: n/a

Question 4: What is the international signalling value of a revised and strengthened UK NDC (for the period around 2030) as part of a package of action which includes setting the level of the sixth carbon budget?

ANSWER: n/a

B. The path to the 2050 target

Question 5: How big a role can consumer, individual or household behaviour play in delivering emissions reductions? How can this be credibly assessed and incentivised?

ANSWER:

Ultimately, the logistics industry delivers what the customer wants, when they want it so, if we are going to change what we do, we also need customers to be willing to change; this includes businesses and consumers alike. Some deliveries are difficult to put through a consolidation centre or retime: newspapers, for example, are the most time-sensitive product of all, and there is no point in delivering sandwiches after lunch – but we might be able to deliver them earlier to avoid the morning peak.

It may be possible for some business-to-business deliveries, such as office stationery, paper towels and non-perishable foods, to be made in fewer, larger deliveries, which would reduce vehicle movements, but this would depend on available storage space and cash-flow. Businesses could also consider setting up joint procurement networks with neighbouring businesses, perhaps through Business Improvement Districts. This could not only reduce the amount of vehicle movements but, through economies of scale, they could also get more competitive prices.

Retail has seen a huge shift to online ordering over the last few years and, whilst this is not the main cause of the rise in van traffic (fully trustworthy information is not available, but one report found less than 4% of the van parc and 10% of van traffic is related to package and grocery e-commerce deliveries), there are opportunities to signpost and enable more ‘click and collect’ options, particularly to reduce first-time delivery failures. By providing detailed information on the carbon impact of selected delivery and highlighting the savings of a ‘greener’ option, consumers could be encouraged to select an option which would enable operators to further optimise their fuel use.

Some businesses have actively discouraged or banned employees from having their personal deliveries sent to the office. Unfortunately, this has the unintended consequence of multiple failed deliveries to home addresses. Allowing employees to receive their deliveries at their work office or illustrating other convenient collection points may help reduce failed and reattempted deliveries.

Question 6: What are the most important uncertainties that policy needs to take into account in thinking about achieving Net Zero? How can government develop a strategy that helps to retain robustness to those uncertainties, for example low-regrets options and approaches that maintain optionality?

ANSWER: n/a

Question 7: The fourth and fifth carbon budgets (covering the periods of 2023-27 and 2028-32 respectively) have been set on the basis of the previous long-term target (at least 80% reduction in GHGs by 2050, relative to 1990 levels). Should the CCC revisit the level of these budgets in light of the net-zero target?

ANSWER: n/a

Question 8: What evidence do you have of the co-benefits of acting on climate change compatible with achieving Net Zero by 2050? What do these co-benefits mean for which emissions abatement should be prioritised and why?

ANSWER: n/a

C. Delivering carbon budgets

Question 9: Carbon targets are only credible if they are accompanied by policy action. We set out a range of delivery challenges/priorities for the 2050 net-zero target in our Net Zero advice. What else is important for the period out to 2030/2035?

ANSWER: n/a

Question 10: How should the Committee take into account targets/ambitions of UK local areas, cities, etc. in its advice on the sixth carbon budget?

ANSWER:

We have already started to see some Local Authorities set more ambitious emission standards which go beyond those set out within the Clean Air Zone framework. We are concerned that disparate local standards and fragmented regulation limits the potential for operators to change behavior. Therefore, we advise the government lead on this and agree on a central standard to ensure consistency and enable knowledge sharing. It is vital we are all working towards the same standard, to ensure the technologies are developed and to avoid a patchwork of schemes across the UK.

Question 11: Can impacts on competitiveness, the fiscal balance, fuel poverty and security of supply be managed regardless of the level of a budget, depending on how policy is designed and funded? What are the critical elements of policy design (including funding and delivery) which can help to manage these impacts?

ANSWER: n/a

Question 12: How can a just transition to Net Zero be delivered that fairly shares the costs and benefits between different income groups, industries and parts of the UK, and protects vulnerable workers and consumers?

ANSWER: n/a

D. Scotland, Wales and Northern Ireland

Question 13: What specific circumstances need to be considered when recommending an emissions pathway or emissions reduction targets for Scotland, Wales and/or Northern Ireland, and how could these be reflected in our advice on the UK-wide sixth carbon budget?

ANSWER:

Scotland- Scottish targets timescales are a lot shorter than the rest of the UK, multiplying the problems operators face in adapting, and also meaning that operators may in due course not focus just on the UK schemes with the best return but artificially focus efforts on Scotland, to the detriment to the goals of overall achievement and minimised cost. Scotland's interest in creating economic benefit from the global transition to net zero emissions could give rise to a policy that is focused on creating a 'green economy' and thus jobs for the country, rather than the best outcome for operators – specifically around the question of the potential role of hydrogen in road logistics. finally, we would note that Scotland has an inherently challenging geography for zero emission logistics as the country has relatively low populations density, thus increasing mileage per tonne of goods.

Ireland- *A*t present Northern Ireland has no public fuelling infrastructure for CNG or Hydrogen. There is also limited electric charging points. Progress must be made on public-private working together to provide this for potential users before they invest in such vehicles. Any plans should consider all-island methodology due to cross border road network and supply chains, commercial vehicles from each side routinely operate across the border. Before any plans are made regarding clean air zones in Northern Ireland, an independent study should be carried out. Any Northern Ireland clean air zone's must not put Northern Ireland businesses at a disadvantage to Republic of Ireland businesses.

The risk of Northern Ireland not adopting any emission standards on a par with Great Britain is that older less clean vehicles will end up being operated in Northern Ireland via used vehicle market in Great Britain.

Wales- There is a lack of public fueling infrastructure for CNG, Hydrogen and Electric, significant investment is needed to enable operators to transition to alternative fuels and power. There are multiple reasons for poor air quality on sections of the M$ and all of these must be addressed, not just the vehicles on the road.

Question 14: The Environment (Wales) Act 2016 includes a requirement that its targets and carbon budgets are set with regard to:

- The most recent report under section 8 on the State of Natural Resources in relation to Wales;
- The most recent Future Trends report under section 11 of the Well-Being of Future Generations (Wales) Act 2015;
- The most recent report (if any) under section 23 of that Act (Future Generations report).

a) What evidence should the Committee draw on in assessing impacts on sustainable management of natural resources, as assessed in the state of natural resources report?

b) What evidence do you have of the impact of acting on climate change on well-being? What are the opportunities to improve people's well-being, or potential risks, associated with activities to reduce emissions in Wales?

c) What evidence regarding future trends as identified and analysed in the future trends report should the Committee draw on in assessing the impacts of the targets?

d) Question 12 asks how a just transition to Net Zero can be achieved across the UK. Do you have any evidence on how delivery mechanisms to help meet the UK and Welsh targets may affect workers and consumers in Wales, and how to ensure the costs and benefits of this transition are fairly distributed?

ANSWER: n/a

Question 15: Do you have any further evidence on the appropriate level of Wales' third carbon budget (2026-30) and interim targets for 2030 and 2040, on the path to a reduction of at least 95% by 2050?

ANSWER: n/a

Question 16: Do you have any evidence on the appropriate level of Scotland's interim emissions reduction targets in 2030 and 2040?

ANSWER: n/a

Question 17: In what particular respects do devolved and UK decision making need to be coordinated? How can devolved and UK decision making be coordinated effectively to achieve the best outcomes for the UK as a whole?

ANSWER:

Scotland- Alternative power source infrastructure needs to be aligned. There is no point in running hydrogen from Scotland but not being able to fuel up further south. Any funding that is available needs to be co-ordinated across UK as a whole

Ireland- There must be support from Northern Ireland Executive for any transition to alternative fuelled vehicles, environmental laws and vehicle standards are both devolved matters to the Northern Ireland Assembly.

The Irish Protocol, as part of the EU Withdrawal Bill, stipulates level playing field access for Northern Ireland businesses in Republic of Ireland therefore likely Northern Ireland businesses will have to comply with EU rules on emission standards on vehicles and any state aid.

Any implementation of emission standards will have to consider both Great Britain and EU rules and guidance due to the unique circumstances of operators based in Northern Ireland who routinely operate vehicles across the UK and Ireland.

Wales- As transport frequently crosses country and county boundaries it is vital that the same infrastructure, rules and regulations are in place. Businesses need to purchase vehicles that can be used throughout the UK and funding made available to purchase greener but more expensive options.

E. Sector-specific questions

Question 18 (Surface transport): As laid out in Chapter 5 of the Net Zero Technical Report (see page 149), the CCC's Further Ambition scenario for transport assumed 10% of car miles could be shifted to walking, cycling and public transport by 2050 (corresponding to over 30% of trips in total):

a) What percentage of trips nationwide could be avoided (e.g. through car sharing, working from home etc.) or shifted to walking, cycling (including e-bikes) and public transport by 2030/35 and by 2050? What proportion of total UK car mileage does this correspond to?

b) What policies, measures or investment could incentivise this transition?

ANSWER: n/a

Question 19 (Surface transport): What could the potential impact of autonomous vehicles be on transport demand?

ANSWER: n/a

Question 20 (Surface transport): The CCC recommended in our Net Zero advice that the phase out of conventional car sales should occur by 2035 at the latest. What are the barriers to phasing out sales of conventional vehicles by 2030? How could these be addressed? Are the supply chains well placed to scale up? What might be the adverse consequences of a phase-out of conventional vehicles by 2030 and how could these be mitigated?

ANSWER: n/a

Question 21 (Surface transport): In our Net Zero advice, the CCC identified three potential options to switch to zero emission HGVs – hydrogen, electrification with very fast chargers and electrification with overhead wires on motorways. What evidence and steps would be required to enable an operator to switch their fleets to one of these options? How could this transition be facilitated?

ANSWER:

First, we would note that we believe this question refers to heavier HGVs. Lighter HGVs are more certain to just follow the van route through hybrid to full battery electric.

When deciding on which vehicle to purchase, it is not just a matter of cost, operators also need to ensure the vehicle is right for the operation. Diesel is a trusted technology, operators know its range, power, residual value, it makes business sense and has a supportive, reliable refueling network. For operators to transition to an alternative fuel, they need the certainty that the new power train will perform in the same way and be just as reliable.

Operators desire will be to minimise well-to-wheel emissions, and therefore they will not just seek to achieve zero-tailpipe emissions but wish to be assured that the collective process will deliver holistic results. In this respect FTA currently has concerns over hydrogen as an option given the greater energy required to provide motive power. Hybrid zero-emission capable battery, moving to full zero via a mixture of increased battery capacity, dynamic charging and hydrogen where needed, would be our current optimal outcome for our members.

However, our members, as participants in a perfectly competitive defuse industry will possibly at the macro level be takers rather than makers of the technological decisions. Government, and through them manufacturers of vehicles will be the vital controllers of this process.

Further observations:

Infrastructure- significant investment in refuelling or recharging infrastructure across the Strategic Road Network would be required. HGV's travel nationwide delivering goods and services and they would need the certainty to know that wherever they were needed, they would be able to successfully and efficiently refuel or recharge their vehicle, with limited down time.

Grid capacity- Investment is also needed to upgrade the electrical grid to ensure there is enough supply. Some FTA members who have already invested a significant amount in electric vans and installing the relevant infrastructure have then also been required to pay for the upgrade to the grid. This is unacceptable and the supply should be there in order to support the early adaptors who have already spent lots investing in new vehicles.

Certainty- Operators need certainty in the vehicle's real-world environmental performance as well as the range achieved whilst loaded before investing a significant amount of money into the new vehicles. The vehicles would need to fulfil the same jobs as their diesel counterparts, to enable industry to continue to operate reliably and efficiently.

Cost- Alternatively fuelled vehicles are significantly more expensive than their diesel counterparts, and whilst the cost of vans is decreasing gradually, there is still a way to go before they are an affordable alternative. Financial grants and support for operators who

are transitioning to alternatively fuelled vehicles would help increase the uptake of these vehicles.

Question 22 (Industry): What policy mechanisms should be implemented to support decarbonisation of the sectors below? Please provide evidence to support this over alternative mechanisms.

a) Manufacturing sectors at risk of carbon leakage

b) Manufacturing sectors not at risk of carbon leakage

c) Fossil fuel production sectors

d) Off-road mobile machinery

ANSWER:

d) Off-road mobile machinery-

Industry needs a viable alternative to the standard diesel engines, taxation as a tool to reduce the use of red diesel in not expected to yield mass behaviour change and in addition would reduce the funds available to invest in newer cleaner equipment when they become available.

FTA participate in the Transport Refrigeration Unit working group, which has been tasked with developing a strategy to reduce the emissions from Transport Refrigeration Units. However, this is only one type of off-road mobile machinery, there are many other machines which are much harder to decarbonize and currently have no other alternative, for example cranes. No matter how expensive it becomes to use red diesel there will be some sub sectors that will need to continue using it until there is a viable alternative identified.

Operators should be encouraged and supported to invest in the cleaner alternatives that are now starting to become available and be given the chance to reduce emissions from red diesel themselves.

Question 23 (Industry): What would you highlight as international examples of good policy/practice on decarbonisation of manufacturing and fossil fuel supply emissions? Is there evidence to suggest that these policies or practices created economic opportunities (e.g. increased market shares, job creation) for the manufacturing and fossil fuel supply sectors?

ANSWER: n/a

Question 24 (Industry): How can the UK achieve a just transition in the fossil fuel supply sectors?

ANSWER: n/a

Question 25 (Industry): In our Net Zero advice, the CCC identified a range of resource efficiency measures that can reduce emissions (see Chapter 4 of the Net Zero Technical Report, page 115), but found little evidence relating to the costs/savings of these measures. What evidence is there on the costs/savings of these and other resource efficiency measures (ideally on a £/tCO2e basis)?

ANSWER: n/a

Question 26 (Buildings): For the majority of the housing stock in the CCC's Net Zero Further Ambition scenario, 2050 is assumed to be a realistic timeframe for full roll-out of energy efficiency and low-carbon heating.

a) What evidence can you point to about the potential for decarbonising heat in buildings more quickly?

b) What evidence do you have about the role behaviour change could play in driving forward more extensive decarbonisation of the building stock more quickly? What are the costs/levels of abatement that might be associated with a behaviour-led transition?

ANSWER: n/a

Question 27 (Buildings): Do we currently have the right skills in place to enable widespread retrofit and build of low-carbon buildings? If not, where are skills lacking and what are the gaps in the current training framework? To what extent are existing skill sets readily transferable to low-carbon skills requirements?

ANSWER: n/a

Question 28 (Buildings): How can local/regional and national decision making be coordinated effectively to achieve the best outcomes for the UK as a whole? Can you point to any case studies which illustrate successful local or regional governance models for decision making in heat decarbonisation?

ANSWER: n/a

Question 29 (Power): Think of a possible future power system without Government backed Contracts-for-Difference. What business models and/or policy instruments could be used to continue to decarbonise UK power emissions to close to zero by 2050, whilst minimising costs?

ANSWER: n/a

Question 30 (Power): In Chapter 2 of the Net Zero Technical Report we presented an illustrative power scenario for 2050 (see pages 40-41 in particular):

a) Which low-carbon technologies could play a greater/lesser role in the 2050 generation mix? What about in a generation mix in 2030/35?

b) Power from weather-dependent renewables is highly variable on both daily and seasonal scales. Modelling by Imperial College which informed the illustrative 2050 scenario suggested an important role for interconnection, battery storage and flexible demand in a future low-carbon power system:

i. What other technologies could play a role here?

ii. What evidence do you have for how much demand side flexibility might be realised?

ANSWER: n/a

Question 31 (Hydrogen): The Committee has recommended the Government support the delivery of at least one large-scale low-carbon hydrogen production facility in the 2020s. Beyond this initial facility, what mechanisms can be used to efficiently incentivise the production and use of low-carbon hydrogen? What are the most likely early applications for hydrogen?

ANSWER: n/a

Question 32 (Aviation and Shipping): In September 2019 the Committee published advice to Government on international aviation and shipping and Net Zero. The Committee recognises that the primary policy approach for reducing emissions in these sectors should be set at the international level (e.g. through the International Civil Aviation Organisation and International Maritime Organisation). However, there is still a role for supplementary domestic policies to complement the international approach, provided these do not lead to concerns about competitiveness or carbon leakage. What are the domestic measures the UK could take to reduce aviation and shipping emissions over the period to 2030/35 and longer-term to 2050, which would not create significant competitiveness or carbon leakage risks? How much could these reduce emissions?

ANSWER:

We welcome the Committee's conclusion that the most effective means to tackle aviation and maritime emissions is the UN bodies responsible for global regulation, i.e. ICAO and the IMO.

Steps that the UK government could take include:
Encourage greater engagement with the industry to ensure the Government is aware of the steps already being taken by industry in these areas.

Maintain a balanced approach to sustainable development.

After EU exit it will be important for the UK to have a strong voice in ICAO, not just on climate change but on all regulatory matters. Potential for DfT to establish a stakeholder liaison group across the supply chain to ensure views from across industry and civil society are addressed. This has worked well in the maritime sector where the equivalent DfT team established an industry stakeholder group to provide feedback in advance of discussions on climate policy at the IMO.

Looking forward, should aviation be subjected to much tighter carbon-constraints which limits overall growth, the UK government may have a role to play to ensure growth is distributed across the UK.

Support the production of alternative fuels, for example, energy from waste sites / biofuels. E.g. Velocys site. The proposed plant will take hundreds of thousands of tonnes of household and commercial solid waste and turn it into clean burning sustainable aviation fuel, reducing net greenhouse gases by 70% compared to the fossil fuel equivalent – equal to taking up to 40,000 cars per year off the road. One airline has called for a dedicated Office for Sustainable Aviation Fuels to provide the co-ordination necessary to progress development in the technology and improve fuel supply and resilience.

It should also be recognised that maritime shipping is the lowest-carbon form of freight transport, and on that basis the CCC could recommend that steps be taken to incentivise UK domestic maritime freight services (UK coastal and inland waterways).

Question 33 (Agriculture and Land use): In Chapter 7 of the Net Zero Technical Report we presented our Further Ambition scenario for agriculture and land use (see page 199). The scenario requires measures to release land currently used for food production for other uses, whilst maintaining current per-capita food production. This is achieved through:

- A 20% reduction in consumption of red meat and dairy
- A 20% reduction in food waste by 2025
- Moving 10% of horticulture indoors
- An increase in agriculture productivity:
  - Crop yields rising from the current average of 8 tonnes/hectare for wheat (and equivalent rates for other crops) to 10 tonnes/hectare
  - Livestock stocking density increasing from just over 1 livestock unit (LU)/hectare to 1.5 LU/hectare

Can this increase in productivity be delivered in a sustainable manner?

Do you agree that these are the right measures and with the broad level of ambition indicated? Are there additional measures you would suggest?

ANSWER: n/a

Question 34 (Agriculture and Land use): Land spared through the measures set out in question 33 is used in our Further Ambition scenario for: afforestation (30,000 hectares/year), bioenergy crops (23,000 hectares/year), agro-forestry and hedgerows (~10% of agricultural land) and peatland restoration (50% of upland peat, 25% lowland peat). We also assume the take-up of low-carbon farming practices for soils and livestock. Do you agree that these are the key measures and with the broad level of ambition of each? Are there additional measures you would suggest?

ANSWER: n/a

Question 35 (Greenhouse gas removals): What relevant evidence exists regarding constraints on the rate at which the deployment of engineered GHG removals in the UK (such as bioenergy with carbon capture and storage or direct air capture) could scale-up by 2035?

ANSWER: n/a

Question 36 (Greenhouse gas removals): Is there evidence regarding near-term expected learning curves for the cost of engineered GHG removal through technologies such as bioenergy with carbon capture and storage or direct air capture of CO_2?

ANSWER: n/a

Question 37 (Infrastructure): What will be the key factors that will determine whether decarbonisation of heat in a particular area will require investment in the electricity distribution network, the gas distribution network or a heat network?

ANSWER: n/a

Question 38 (Infrastructure): What scale of carbon capture and storage development is needed and what does that mean for development of CO_2 transport and storage infrastructure over the period to 2030?

ANSWER: n/a