REA Members-Only Briefing on the Climate Change Committee's 6th Carbon Budget

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Climate Change Committee - Sixth Carbon Budget

Introduction and Key Messages

The Climate Change Committee's Sixth Carbon Budget, which is the legal limit for UK net emissions of greenhouse gases over the years 2033-37, was recently announced and set the level of 965 MtCO2e, implying a 78% reduction from 1990 to 2035. The Budget, as well as setting a legal target is an important political benchmark, one which will be considered by the Government as it continues its plans for its Presidency of COP26, as well as the G7. It highlights that this commitment would make the UK world leading, whilst a slower pathway would threaten the Net Zero target, mean the UK missed economic opportunities and undermine the UK's role in the upcoming UN climate talks.

Below you can find more detailed information on what the announcements meant for the bioenergy sector. You can also find the REA's response to the carbon budget here. The relevant CCC documents can be found here.

Progress So Far

UK greenhouse gas emissions in 2019 were 522 $MtCO_2e$, with emissions having fallen by 40% in the last three decades. Broken down this is:

- In the last three decades, UK GHG emissions have fallen at an average rate of 13 $MtCO_2e$ per year.
- Outside of the electricity supply sector, emissions have fallen at an average rate of 7 $MtCO_2e$ per year.
- Progress has been quicker in recent years, primarily led by the UK's transition away from coal-fired power generation. Since 2012, UK emissions have fallen on average by 19 $MtCO_2e$ per year. In the last five years emissions have fallen by 16 $MtCO_2e$ on average.

What is clear is that, if the UK is to meet the sixth carbon budget, emissions must fall more quickly, by around 21 $MtCO_2e$.

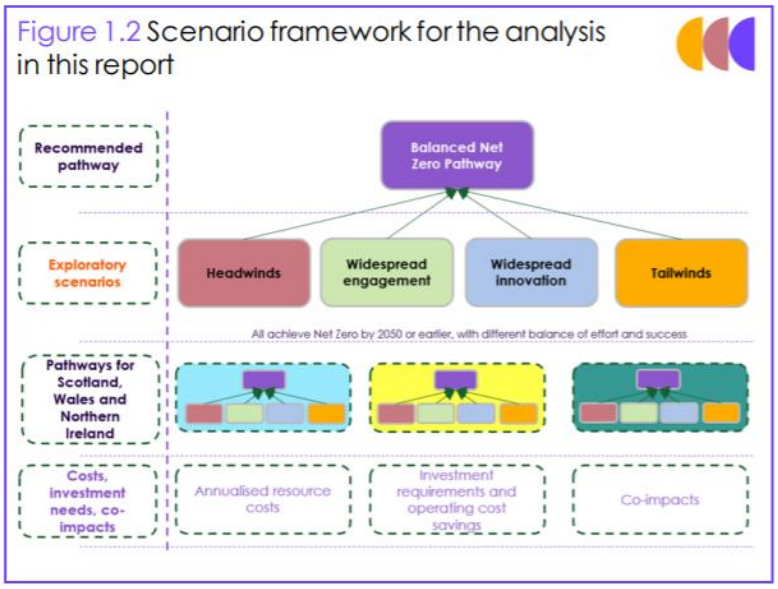
Key Messages

- **Buildings and Heat**
  - The scenarios are led by electrification via heat pumps of hybrid heat pumps, with hydrogen featuring in Headwinds scenario.
  - All scenarios include district heating.
  - Energy efficiency in over half of homes by 2035
- **Electricity Supply**
  - Wind and solar provides 75-90% of electricity.
  - BECCS included at scale (45-95 $MtCO_2$/year by 2050) in all scenarios.
  - Nuclear and power generation with CCS provide 10-25% of electricity.
- **Transport**
  - 2030 – 2035 switchover date for EVs.
  - Up to 5-11% of car-km switch to alternative modes of transport.
- **Agriculture & Land Use**
  - High ambition on tree planting across all scenarios, ranging from 30-70 kha per year.

The Scenarios

In this report, the CCC has been clear that its pathways contain a large amount of uncertainty, and it is particularly noted the impact behavioural change and societal attitudes will have on the pathways. As a result of this, they have presented a recommended pathway - the 'balanced Net Zero Pathway', as well as four explanatory scenarios which model how different scenarios may play out. The four explanatory scenarios are:

1. *Headwinds*
2. *Widespread Engagement*
3. *Widespread Innovation*
4. *Tailwinds*



Whilst they overlap, the purpose of these explanatory scenarios is to model how a different approach in one sector may have an impact on others. They are all considered in the recommended pathway, which can of course be changed, going forward to allow flexibility.

Headwinds

Least optimistic scenario, with a greater reliance on hydrogen and carbon capture and storage – resulting in emissions reductions happening less quickly than in other scenarios.

Widespread Engagement

Involves greater social shifts in behaviour, namely a 50% reduction in consumption of all meat and dairy by 2050, a reduction in flying of 10% compared to pre-COVID levels, and up to one third of all car journeys being replaced by walking, cycling or public transport.

Widespread Innovation

Sees the costs of low-carbon technology fall further than other scenarios, and technology efficiencies improve. This leads to a greater role for Direct Air Carbon Capture and Storage (DACCS), high temperature heat pumps and autonomous vehicles.

Tailwinds

Highly optimistic scenario, which stretches feasibility in a wide range of area and goes beyond the current evidence in others. In this scenario, the UK could reach Net Zero in 2042, with a reduction of 87% by 2035. Yet, for this to be achieved, the CCC is clear that everything would have to work first time, which is unlikely.

'Balanced Net Zero Pathway' – CCC Recommended Pathway

The recommended scenario, the 'balanced net zero pathway' highlights the measures that can be taken now to put the UK onto a Net Zero pathway, whilst allowing a range of options that could be taken in the medium to long-term. The key features of the pathway are:

- **Change must come sooner rather than later:** In this pathway, 60% of the necessary reduction to Net Zero will be achieved in the coming 15 years, with the fastest rate of decarbonisation occurring in the early 2030s.
    - Emissions under this pathway fall most rapidly for the electricity supply sector, owing to the mature decarbonisation options that already exist.
    - Other sectors, including buildings and transport, build up to peak rates of decarbonisation during the 2030s.
    - Market and supply chains for low-carbon technologies such as heat pumps and EVs will develop in the 2020s, reaching peak replacement rate in the 2030.
    - Emissions from manufacturing, construction, and fuel supply start to fall faster from the late 2020s as industry switches to low-carbon production, enabled by electrification, hydrogen and CCS.
- **Electricity will be 100% low-carbon by 2035:** This will cut UK emissions by 18% compared to the baseline.
- **Hydrogen scales up to 90 TWh by 2035:** This would represent nearly a third of the size of the current power sector and would be used mostly in areas less suited to electrification.
- **Tree Planting and Bioenergy:** The scenario involves planting of 440,000 hectares of mixed woodland, with a further 260,000 hectares of agricultural land shifting to bioenergy production (including short rotation forestry).
- **Energy efficiency and behavioural measures** deliver a 12% reduction in heat demand to 2050.
- **Behavioural Change and Societal Attitudes:** The CCC goes beyond its 2019 scenario, Further Ambition, by giving modelling greater societal shifts, including a 35% reduction from today's levels of meat consumption, up from 20%. It also models an accelerated shift towards reductions in waste. It is clear that it will not be possible to reach Net Zero without engaging people.
- **Emissions saving from low-carbon solutions:** Over half of the emissions saving in this scenario is from people and businesses adopting low-carbon solutions as high carbon options are phased out.
- **Models Lower Residual Emissions:** More ambitious assumptions on technology costs and innovation causes lower residual emissions in manufacturing, constructions, buildings and electricity. This in turn causes a lower use of fossil fuels.
- **Role of forestry carbon sink:** Emissions from agriculture and aviation do not reach zero and will need to be offset by tree planting.

Bioenergy

Balanced Net Zero Pathway

- Under the balanced net zero pathway, bioenergy is expected to grow modestly by 30% to 2050.
    - By 2050, 425 TWh of low-carbon hydrogen and bioenergy will be being produced, for sectors of the economy that are likely to use fuel, rather than electricity.
- Bioenergy resources increase in line with expanding UK production, with a wholesale shift to use with CCS during the 2030s.
- By 2050:
    - 425 TWh of low-carbon hydrogen and bioenergy will be being produced, for sectors of the economy that are likely to use fuel, rather than electricity.
    - 85% of bioenergy will need to be used with CCS, achieving negative emissions across electricity generation, industrial heating, biohydrogen production, biofuel production and waste incineration.
    - 21% of total bioenergy and waste supplies will be imported.

Comparison with Explanatory Scenarios

Across the scenarios, demand for bioenergy varies considerably, with a range in 2050 of 210 – 390 TWh/year. This variance is due to different mixes of feedstocks being pursued, conversion technologies as well as end-use solutions.

	How it differs from 'Balanced Net Zero Pathway'
Headwinds	Bioenergy demand is relatively high, owing to a smaller role for variable renewables than in other scenarios, allowing for a larger role for BECCS. Less waste prevention and recycling also leads to more use in energy from waste. By 2050, 42% of total supply is from biomass imports.
Widespread Engagement	Bioenergy demand is low, due to lower hydrogen demand there is no role for BECCS hydrogen. By 2050, 25% of total supply comes from biomass imports, with very limited uptake of domestically grown perennial energy crops.
Widespread Innovation	There is less hydrogen demand, and very high levels of low-cost renewable electricity resulting in a more modest role for BECCS. There is earlier use of biomass gasification to biomethane, but this transitions to biohydrogen and retrofit CCS from the mid-2030s. This scenario relies heavily on domestically grown perennial energy crops, making up 36% of total supply by 2050, and biomass imports phase out by 2050.
Tailwinds	Combines the most ambitious elements of the above three scenarios, with the high biomass imports, as well as high deployment of domestically grown perennial energy crops. Combined they result in significantly more biomass available for BECCS power and hydrogen.

CCC Policy Recommendations

- The UK's Biomass Strategy, due to be delivered by Government in 2022, should include:
    - Examination of the best-use of biomass and waste resources on the path to Net Zero that maximises GHG savings, in line with the CCC analysis.
    - Scaling up or creating new applications for bioenergy during the 2020s should already be aligned with long-term best use applications or be able to make sufficient GHG savings before transitioning at low cost to these best-use applications.
    - New support schemes should be developed, including for biogenic CO_2 capture and sequestration, sustainable aviation fuels, biohydrogen and UK production of biomass feedstocks.
    - Development of UK and international governance on sustainability criteria for bioenergy feedstocks, taking a global lead on their application to GHG removals in line with the CCC reports in 2018 on Biomass and 2020 on Land Use.
    - Clear dates beyond which new bioenergy and waste facilities should be build with CCS and not just CCS ready.
    - Explore potential for emerging uses of biomass in the wider bio-economy, such as bioplastics and bio-based chemicals.
    - Progress on some of these areas should not wait until the strategy is published during 2022, especially those sectors that require conversion technologies.

Agriculture and Land Use

Balanced Net Zero Pathway

Under this pathway, the agriculture and land use sectors could reduce its GHG emissions from 67 $MtCO_2$ in 2017 to 40 $MtCO_2$ by 2035. By 2050, residual emissions reach 16 $MtCO_2$ under the balanced pathway. Investment of £1.5 billion per year will be required by 2035 to implement the necessary changes. For these measures to happen, the CCC estimate 9% of land will need to be released from agriculture to measures that reduce emissions and sequester carbon by 2035, rising to a fifth by 2050.

The following is suggested for land use:

- Scaling up afforestation rates to 30,000 hectares a year by 2025, rising to 50,000 hectares annually by 2035.
    - This would increase woodland cover from 13% of UK land area to around 18% by 2050, with a mix of tree types that focus on broadleaves. This could deliver annual savings of over 2 MtCO2e in 2035 and 12 MtCO2e in 2050.
- Planting perennial energy crops (e.g. miscanthus and short rotation coppice) alongside short rotation forestry needs to accelerate quickly to at least 30,000 hectares a year by 2035, so that 700,000 hectares are planted by 2050.
    - It is modelled that 25% of the UK land area is forested or used for agro-forestry and energy crop production by 2050, compared to around 15% today.
    - This could sequester 2 MtCO2e by 2035 and over 6 MtCO2e by 2050.
    - When used with Carbon Capture and Storage (CCS) technologies this could displace a further 3 MtCO2e of GHG emissions elsewhere in the economy by 2035, increasing to 10 MtCO2e by 2050.

Comparison with Explanatory Scenarios

	How it differs from 'Balanced Net Zero Pathway'
Headwinds	Less progress on behavioural change leads to difficulty in releasing land. This causes lower ambition on afforestation, with 30,000 hectares per year in the 2030s.
Widespread Engagement	A high ambition on diet change and food waste reduction leads to greater woodland creation, reaching 70,000 hectares by 2035. This, however, would likely focus on biodiverse woodlands over productive forestry and energy crops. CCS will also play a smaller role in this scenario, meaning energy crops planting is just 10,000 hectares by 2035, with a greater emphasis on afforestation.
Widespread Innovation	Increased innovation leads to better yields, which results in a doubling of the planting of energy crops. In this scenario, more CCS is required, meaning energy crops are prioritised over standing forest, as the CCC notes they deliver greater GHG savings in this context. This scenario results in 4 MtCO2e additional emissions savings in 2035, compared to the balanced pathway.
Tailwinds	Predicts faster progress on behavioural change, technological improvements, and more ambition on converting agricultural land to the planting of all types of biomass. Emissions are 6 MtCO2e lower by 2035 compared to the balanced pathway.

CCC Policy Recommendations

- Create a comprehensive delivery mechanism to support planting of energy crops, woodland as well as peatland restoration.
- Whilst the UK transitions to ELM, existing funding, e.g. Countryside Stewardship, should be amended to incorporate measures that directly reduce emissions.

Buildings

Balanced Net Zero Pathway

The CCC outline four priorities over the coming decade:

- Deliver on the Government's energy efficiency plans to upgrade all buildings to EPC C over the next 10-15 years.
- Scale up the market for heat pumps as a critical technology for decarbonising space heating, while maintaining quality.
- Expand the rollout of low-carbon heat networks in heat dense areas like cities, using anchor loads such as hospitals and schools.
    - Prepare to shift away from using fossil fuel Combined Heat and Power (CHP) as a supply-source towards low-carbon and waste heat by preference from the mid-2020s.
- Prepare for a potential role for hydrogen in heat through a set of trials building on the current innovation programme.

For phase-out of gas boilers:

- Given boiler lifetimes of around 15 years, the CCC has looked at phasing out the installation of fossil fuel boilers, in advance of 2035. They adopt a central date of 2033 for gas boilers across buildings, with public buildings moving faster.

- For homes, they pick a central phase out date of 2028 for high-carbon fossil fuel boilers not connected to the gas grid, and a phase out date of 2033 for gas boilers.
- The key date of 2033 balances the need to scale up heat pump supply chains sustainably, while allowing for a small amount of headroom over a typical 15-year boiler stock turnover before 2050.

For low-carbon heat:

- By 2030, heat pump sales reach just over 1 million per year in new and existing homes. This is of a total market of 1.8 million boiler installations currently.
    - Under the balanced net zero pathway, there will be 5.5 million heat pumps installed in homes by 2030, of which 2.2 million are in new homes.
- Low-carbon heat networks are built through 2020-2050, with scaling up through to 2028. By 2050, around a fifth of heat is distributed through heat networks.
- By 2030, 37% of public and commercial heat demand is met by low-carbon sources – of this, 65% is met by heat pumps, 32% district heating and 3% biomass.
- By 2050, 52% is heat pumps, 42% is district heat, 5% is hydrogen boilers and around 1% is new direct electric heating.

Comparison with Explanatory Scenarios

	How it differs from 'Balanced Net Zero Pathway'
Headwinds	Makes the cautious assumption that there will be no technological innovation or shifts in behaviour, and predicts electrification, as well as hydrogen will play a stronger role.
Widespread Engagement	Households are prepared to undertake renovations at scale throughout the 2020s, with high levels of pre-heating and other behaviour change in homes
Widespread Innovation	Predicts that developments in technology as well as new business models will aid the decarbonisation of the sector.
Tailwinds	Also predicts increased behavioural change, which leads to energy use being minimised, as well as greater uptake of low-carbon heating and energy efficiency measures due to regulation and innovation.

CCC Policy Recommendations

- Bring forward the date to reach EPC C in social homes to 2028.
- Publish proposals for standards to phase out liquid and solid fossil fuels by 2028, and in-use standards in commercial buildings.
- Publish a robust definition of future standards for newbuild properties in the Future Homes Standard, including for low carbon heat.
- Ensure continuing support for non-residential heat pump installations beyond 2022, as well as creating a level-playing field for hybrid heat pumps.

Waste

Balanced Net Zero Pathway

Sector emissions can be reduced by 75% by 2050 to 7.8 MtCO2e/year by 2050 through greater waste prevention, recycling, higher landfill methane capture rates, improvements to wastewater treatment and

composting facilities, and adding CCS to energy from-waste plants. Around 80% of the abatement to 2035 is from waste prevention, increased recycling and banning biodegradable waste from landfill. By 2050, 30% of sector abatement comes from retrofitting CCS to the UK's fleet of energy-from-waste facilities. The additional 10% of emissions reductions comes from capturing more methane at landfills, reducing wastewater treatment emissions, and improving composting.

The following is modelled for waste:

- Edible food waste is reduced by 51% by 2030 (meeting UN SDG Target 12.3) and just over 61% by 2050, compared to 2007 levels.
    - A third of this is expected to be achieved by 2037 via product redesign, asset sharing and extended lifetimes.
    - It recognises the role of anaerobic digestion and composting in recycling food and garden wastes, particularly how that will aid the ban on biodegradable waste going to land fill by 2025.
    - In this scenario, landfill methane emissions will fall to 1.1 MtCO2e/year by 2050.
    - To improve composting, they suggest the use of pumped air to improve compost aeration and product quality as a third of sites by 2030, leading to a 23% improvement in methane and nitrous oxide emissions.

Comparison with Explanatory Scenarios

All the explanatory scenarios model a 51% fall in edible food waste by 2030, as well as a 23% improvement in composting by 2030. They differ on the ambition for reduction of waste, as well as how quickly edible food waste will fall after 2030.

	How it differs from 'Balanced Net Zero Pathway'
Headwinds	13% reduction in all waste by 2037, and a 2030 ban on biodegradable wastes. Less ambitious than balanced pathway.
Widespread Engagement	Same as balanced pathway but predicts a greater fall in edible food waste by 2050, as well as increased recycling rates by 2050, of 79%.
Widespread Innovation	A lower reduction in all waste by 2050, but very similar to balanced pathway. Predicts a 50% fall in inedible food waste by 2050.
Tailwinds	Broadly in line with the balanced pathway, except models that CCS will start to be implemented into EfW plants from late 2020s, compared with late 2040s.

CCC Policy Recommendations

- Develop further policies to accelerate the Resources and Waste Strategy for England, including mandatory business food waste reporting to be introduced by 2022, set a target of 68% recycling rate by 2030 covering all wastes in England via the Environment Bill.
- Composting facilities should be incentivised to install forced aeration as a method of reducing on-site emissions.
- Phase out exports of waste by 2030.
- Accelerate investment plans for local authorities to put in place universal municipal waste recycling collections, along with downstream recycling, composting and anaerobic digestion (AD) facilities.

- Ofwat should include decarbonisation as one of its core principles, to assist the water industry's goal of decarbonising by 2030, and the need to roll out advanced AD systems.

Electricity

Balanced Net Zero Pathway

There will be an increasing demand for electrification, with a doubling of demand from around 300 TWh today to 360TWh in 2030, 460 TWh in 2035 and 610 TWh in 2050. These figures excludes the production of hydrogen using surplus generation, which accounts for an additional 30 TWh of electricity generation in 2035 and 120 TWh in 2050. This will come as the carbon intensity of electricity generation decreases, to 220g CO_2/kWh in 2019, to around 50g CO_2/kWh in 2030, 10g CO_2/kWh in 2035 and 2g CO_2/kWh in 2050. This will be achieved through a phase out of unabated fossil fuel generation by 2035, as well as increasing variable renewables to 80% of generation by 2050. As discussed further below, solar fits into this scenario, with energy storage providing a more flexible electricity system.

Comparison with Explanatory Scenarios

	How it differs from 'Balanced Net Zero Pathway'
Headwinds	Has the least amount of electrification across the economy, and therefore the lowest demand level. This is partially due to only partial electrification of the heat and industrial processes part of manufacturing. This leads to 245 TWh of electricity demand by 2050.
Widespread Engagement	In this scenario, HGVs are also electrified, but a switch towards active travel and public transport moderates transport demand. A greater proportion of manufacturing is electrified. Together, this leads to 310 TWh of new electricity demand by 2050.
Widespread Innovation	This scenario has widespread electrification, because of low electricity costs. Heating, surface transport (inc. HGVs), and manufacturing and construction electricity extensively. DACCS also plays a role. This adds 375 TWh of electricity demand by 2050.
Tailwinds	Similar to Widespread Innovation, but with a lower degree of electrification of heating and surface transport. This adds 315 TWh of new demand by 2050.

CCC Policy Recommendations

- Fully decarbonise electricity generation by 2035, while meeting a 50% increase in demand, by:
    - Delivering variable renewables at scale.
    - Creating an increasingly flexible system, including from demand-side response (with 20% of demand being flexible in 2035), storage, hydrogen production, and interconnection.
- Commit to phasing-out unabated gas generation by 2035, subject to ensuring security of supply.

- Government should develop a clear long-term strategy as soon as possible, and certainly before 2025, on market design for a fully decarbonised electricity system.

Solar

Balanced Net Zero Pathway

- Solar generation will increase from 10 TWh in 2019 to 60 TWh in 2035 and 85 TWh in 2050. On average, 3 GW per year will need to be installed to reach this level of solar generation.

Comparison with Explanatory Scenarios

	How it differs from 'Balanced Net Zero Pathway'
Headwinds	85GW of solar by 2050. As with the balanced pathway, this excess variable generation (70 TWh) could be used to produce green hydrogen in 2050.
Widespread Engagement	80GW of solar by 2050. As with the balanced pathway, this additional variable generation when excess helps produce 95 TWh of green hydrogen in 2050.
Widespread Innovation	90GW of solar by 2050. This scenario has the highest share of variable renewable generation, reaching 90% in 2050. The excess variable generation from this could be used to produce 180 TWh of green hydrogen in 2050.
Tailwinds	75GW of solar by 2050. Very similar to widespread innovation, with variable renewables making up 90% of generation in 2050.

Energy Storage

Balanced Net Zero Pathway

- With an increasing share of variable renewables, storage can capture surplus energy when demand is low and provide backup generation when demand is particularly high.
    - The Balanced Pathway uses hydrogen as the primary source of storage. However, a similar role could also be performed by other medium-term storage technologies.
    - Pumped hydro storage offers dispatchable flexibility. The CCC analysis assumes capacity at similar levels to the currently installed 3 GW. However, there are already plans to develop new schemes and new sites have been identified which could provide an additional 7 GW.
    - Batteries can provide within-day flexibility. The Balanced Pathway assumes 18 GW of battery storage capacity by 2035.
- Pre-heating and storage in buildings, as well as smart charging in transport can provide flexibility to the power system.

Comparison with Explanatory Scenarios

In the Widespread Engagement scenario there is a greater emphasis on variable renewables and dispatchable low-carbon generation. Subsequently, storage solutions are particularly important in this scenario to ensure security of supply.

Surface Transport

Balanced Net Zero Pathway

- Options including take-up of zero-emission technologies and a reduction in travel demand, combine to reduce surface transport emissions by around 70% to 32 $MtCO_2$ by 2050.
- The sale of new conventional cars, vans and plug-in hybrids (PHEVs) should be done by 2032 at the latest, and a new regulatory framework should be in place from 2030 to limit use of fossil fuel car, van and motorbike use.
- It also suggests that an earlier phase out date would be possible – with electric cars and vans likely to be cost-saving from a social perspective during the 2020s, with upfront cost-parity reached by 2030.
- Charge points for EVs needs to be scaled up in 2020s, and the approach should focus on 22kW, 50kW, 150kW and 350kW chargers, which are the most cost effective according to the CCC.
    - Investment in vehicles and charging infrastructure must rise to £12 billion per year by 2035.
- Zero-emission HGVs will be nearly 100% of sales by 2040, but policy decisions and better understanding of the options needs to happen to achieve this.
- It also assumes that all sales of new buses are zero-carbon (largely hydrogen or BEV) by 2035.
- Improvements in the rail network, including half of the network being electrified and a mx of hydrogen, battery-electric and electric hybrid trains will result in emissions being reduced by around 55% by 2035.
- It is estimated that the cost saving to the economy of implementing these proposals will be £8 billion in 2035, compared with a theoretical counterfactual of no action on emissions.

Comparison with Explanatory Scenarios

	How it differs from 'Balanced Net Zero Pathway'
Headwinds	Limited level of behavioural change, with car demand falling slower than in the balanced pathway. It also models a later phase out for fossil fuel cars and vans of 2035, as well as a slower uptake on biofuel use in HGVs.
Widespread Engagement	Higher demand reduction and a modal shift towards ride sharing leads to 34% lower car demand and 11% higher rail demand by 2050. They also model a higher uptake for efficiency measures in HGVs and a 2030 phase out date.
Widespread Innovation	The introduction of connected and autonomous vehicles leads to a net 5% increase in total car demand by 2050. 80% of HGVs adopt efficiency measures and rail electrification leads to further GHG reductions. It models a 2030 phase out date.
Tailwinds	High levels of societal change lead to a 34% reduction in car demand by 2050. All HGVs adopt efficiency measures and there is a higher pace of rail electrification.

	There is also a higher uptake of EVs, with a 2030 phase out date and technological innovations aiding that.

CCC Policy Recommendations

- Develop a comprehensive policy package to deliver on the Government's commitment to phase out new petrol and diesel cars and vans by 2030. This will require:
    - Strong consumer incentives, including purchase subsidies, preferential company car tax, fuel duty exemption and lower vehicle excise duty. These can be scaled back when costs of EVs fall.
    - Introduce a zero-emission vehicle mandate requiring car manufacturers to sell a rising proportion of zero-emission vehicles.
    - Project Rapid for EV charging infrastructure should be developed into a full strategy for the 2020s and beyond.
    - Implement recommendations of the EV Energy Taskforce.
    - Set out ambitious UK regulations on new car and van CO_2 emissions to 2030.
- Implement large-scale trials of zero emission HGVs in the early 2020s and end new diesel HGV sales by 2040 at the latest, with support schemes to address financial and non-financial barriers.
- Government should set out a clear vision to deliver Net Zero rail, as well as ending new diesel bus and coach sales by 2040 at the latest.
- Strengthen schemes to support walking, cycling and public transport to reduce demand for higher carbon travel. The public sector should lead the shift, encouraging home working, facilitated through prioritising broadband investments over road network expansion.