

NET ZERO STRATEGY

ACE and EIC member briefing



Context

On Tuesday 19 October, the Government published four Net Zero policy documents. These were:

- [Net Zero strategy: Build back Greener](#): An overarching Net Zero Strategy
- [Heat & Buildings Strategy](#): A more detailed strategy for decarbonising heat and buildings
- [Greening Finance](#): A set of proposals for aligning the financial system better with Net Zero
- [Net Zero Cost Review](#): A report on possible distributional issues and impacts of the Net Zero transition

These documents have been released in the run-up to COP26 as part of the UK's attempts to 'lead by example', as it seeks to persuade other countries to match UK ambitions on carbon.

Three of these documents have been delayed since Spring and their tone bears all the hallmarks of internal governmental arguments. While most of the actual conclusions and decisions in the document are pretty much what would have been expected, a number of punches have been pulled in an attempt to shore up public support for Net Zero, especially among less affluent voters in 'red wall' seats.

The result is a broad front strategy which makes some progress on each of the main technologies deemed essential by the Committee on Climate Change (CCC) analysis: heat pumps; hydrogen; offshore wind; new nuclear; CCS; GHG removals. The aim is to put in enough funding and policy 'nudges' to pump prime private sector investment and innovation at scale, while keeping options open so that as a country we have the flexibility to exploit areas where falling costs and innovation allow big carbon cuts to be generated efficiently. Alongside this there are repeated pledges that households will not be forced into paying for expensive low carbon technology that they cannot afford, and planned sections on the need to reduce meat and dairy consumption have been dropped altogether.

Reaction to the documents have mostly been one of muted support, with a recognition that this is just the start of a challenging 10 to 15 years. The decision to back a range of technologies has been broadly welcomed, although commentators have pointed out that in areas such as heat pumps, the amount of new funding allocated combined with the pledge not to force homeowners to buy them, means that the pace of deployment envisaged (600,000 per year by 2028), still seems a long way off.

Lastly, there is a sense that the No10/BEIS vs Treasury tensions on Net Zero remain manageable for the moment but also unresolved. The Treasury Net Zero cost review has ended up being relatively low-key, making a series of observations about how certain types of household and business may end up exposed to Net Zero transition costs and emphasising the need for nuanced policy to address this. There is also a warning that a future pandemic alongside a Net Zero transition could put significant strain on public spending. At the same time the Greening Finance report contains a proposal that may turn out to be of the most significant across all the documents – a new Sustainability Disclosure Requirement covering corporates, asset owners and investment products. Together with the 'green taxonomy' (a way to decide which sorts of economic activity are 'green' and which are not) currently being developed, this is an area definitely worth watching.

Immediate reaction

ACE released a [comment](#) from Director of Policy Matthew Farrow:

“The four Net Zero policy documents just published represent the largest amount of Net Zero policy ever published in a single day by the UK Government and they contain a level of ambition that would have been unthinkable just three years ago. It is fair to say that both government and business activity on Net Zero is picking up speed, and the government’s approach of backing a range of technologies while seeking to bring down technology costs is broadly sensible. Likewise the attempt to balance maintaining public support while delivering regulatory clarity is clumsy but politically understandable.”

“The next few years really are make a break however and the hard work is only just beginning. The challenge is to convert to the broad outlines we now have for technology choices and rollouts into actual physical deployment across millions of households and thousands of communities. Furthermore this must be done in a joined up way. The engineering and consultancy sector will be crucial in delivering this. Only we have the combination of engineering and design expertise, systems thinking, data insights and cross sectoral experience to make a Net Zero society a reality.”

Proposals of interest to ACE/EIC members

Taken together the four documents cover a lot of ground much of which has potential impacts on members’ markets. Proposals which may be most relevant however include:

Main strategy

- Investment decision on a new nuclear plant by end of this Parliament, and a Future Nuclear Enabling Fund.
- CCS Clusters – starting with the Hynet and East Coast Clusters
- Further funding of £620 million for zero emission vehicle grants and EV Infrastructure, including further funding for local EV Infrastructure, with a focus on local on street residential charging.
- £2 billion investment which will help enable half of journeys in towns and cities to be cycled or walked by 2030.
- 4,000 new zero emission buses and the infrastructure to support them, and a Net Zero rail network by 2050, with the ambition to remove all diesel-only trains by 2040.
- Trials of clean maritime vessels and infrastructure to decarbonise the maritime sector.
- Significant investment in rail electrification and city rapid transit systems.
- Introduce a new Sustainability Disclosures Regime, including mandatory climate related financial disclosures and a UK green taxonomy.

Document summaries

Net Zero Strategy: Build Back Greener

The four key Net Zero principles:

1. The Government will use the concept of consumer choice to lower emission rates. For example, no one will be required to rip out their existing boiler or scrap their current car.
2. The Government will ensure the biggest polluters pay the most for the transition through fair carbon pricing.
3. The Government will ensure that the most vulnerable are protected through Government support in the form of energy bill discounts, energy efficiency upgrades, and more.
4. The Government will work with businesses to continue delivering deep cost reductions in low carbon tech through support for the latest state of the art kit to bring down costs for consumers and deliver benefits for businesses.

Net Zero Strategy for Power:

- Support for up to 59,000 jobs in 2024 and up to 120,000 jobs in 2030.
- Start to mobilise additional public and private investment of £150-270 billion, in line with the 2037 delivery pathway.
- Fully decarbonised power system by 2035.

Key policies:

- By 2035 the UK will be powered entirely by clean electricity, subject to security of supply.
- Secure a final investment decision on a large-scale nuclear plant by the end of this Parliament, and launch a new £120 million Future Nuclear Enabling Fund, retaining options for future nuclear technologies, including Small Modular Reactors, with a number of potential sites including Wylfa in North Wales.
- 40GW of offshore wind by 2030, with more onshore, solar, and other renewables.
- Moving towards 1GW of floating offshore wind by 2030. Utilise our North and Celtic Seas – backed by £380 million overall funding for our world-leading offshore wind sector.
- Deployment of new flexibility measures including storage to help smooth out future price spikes.

Net Zero Strategy for Fuel Supply & Hydrogen:

- Support up to 10,000 jobs in 2030 in fuel supply.
- Start to mobilise additional public and private investment of £20-30 billion, in line with the 2037 delivery pathway.
- Deliver 5 GW of hydrogen production capacity by 2030, whilst halving emissions from oil and gas.

Key policies:

- We have set up the Industrial Decarbonisation and Hydrogen Revenue Support (IDHRS) scheme to fund our new hydrogen and industrial carbon capture business models. Will provide up to £140 million to establish the scheme, including up to £100 million to award contracts of up to 250MW of electrolytic hydrogen production capacity in 2023 with further allocation in 2024.

- Introducing a new climate compatibility checkpoint for future licensing on the UK Continental Shelf and regulating the oil and gas sector in a way that minimises greenhouse gases through the revised Oil and Gas Authority strategy.

Net Zero Strategy for Industry:

- Support up to 54,000 jobs in 2030 in industry.
- Start to mobilise additional public and private investment of at least £14 billion in industry, in line with the 2037 delivery pathway.
- Deliver four carbon capture usage and storage (CCUS) clusters, capturing 20-30 MtCO₂ across the economy, including 6 MtCO₂ of industrial emissions, per year by 2030

Key policies:

- The Hynet and East Coast Clusters, will act as economic hubs for green jobs in line with our ambition to capture 20-30 MtCO₂ per year by 2030. This puts Teesside and the Humber, Merseyside and North Wales, along with the North East of Scotland as a reserve cluster, among the potential early SuperPlaces which will be transformed over the next decade
- Future-proofing industrial sectors, and the communities they employ through the £315 million Industrial Energy Transformation Fund (IETF), (£289 million for England, Wales and Northern Ireland, £26 million for Scotland).
- Incentivise cost-effective abatement in industry at the pace and scale required to deliver Net Zero, through the UK ETS by consulting on a Net Zero consistent UK ETS cap (in partnership with the Devolved Administrations).

Net Zero Strategy for Heat & Buildings:

- Support up to 100,000 jobs in the middle of the 2020s and up to 175,000 in 2030.
- Start to mobilise additional public and private investment of approximately £200 billion, in line with our 2037 delivery pathway.
- Set a path to all new heating appliances in homes and workplaces from 2035 being low carbon

Key policies:

- An ambition that by 2035, no new gas boilers will be sold.
- A new £450 million three-year Boiler Upgrade Scheme will see households offered grants of up to £5,000 for low-carbon heating systems so they cost the same as a gas boiler now.
- A new £60 million Heat Pump Ready programme that will provide funding for pioneering heat pump technologies and will support the government's target of 600,000 installations a year by 2028.
- Delivering cheaper electricity by rebalancing of policy costs from electricity bills to gas bills this decade.
- Launching a Hydrogen Village trial to inform a decision on the role of hydrogen in the heating system by 2026

Net Zero Strategy for Transport:

- Support for up to 22,000 jobs in 2024 and up to 74,000 jobs in 2030.
- Start to mobilise additional public and private investment of around £220 billion, in line with the 2037 delivery pathway.
- Remove all road emissions at the tailpipe and kickstart zero emissions international travel.

Key policies:

- A zero-emission vehicle mandate. This will deliver on our 2030 commitment to end the sale of new petrol and diesel cars, and 2035 commitment that all cars must be fully zero emissions capable.
- Further funding of £620 million for zero emission vehicle grants and EV Infrastructure, including further funding for local EV Infrastructure, with a focus on local on street residential charging.
- Allocating a further £350 million of our up to £1 billion Automotive Transformation Fund (ATF) to support the electrification of UK vehicles and their supply chains.
- Trial three zero emission HGV technologies at scale on UK roads to determine their operational benefits, as well as their infrastructure needs.
- £2 billion investment which will help enable half of journeys in towns and cities to be cycled or walked by 2030.
- £3 billion to create integrated bus networks, more frequent services and bus lanes to speed journeys.
- 4,000 new zero emission buses and the infrastructure to support them, and a Net Zero rail network by 2050, with the ambition to remove all diesel-only trains by 2040.
- Trials of clean maritime vessels and infrastructure to decarbonise the maritime sector.
- Significant investment in rail electrification and city rapid transit systems.

Net Zero Strategy for Natural Resources, waste and fluorinated gases:

- Afforestation in England could support up to 1,900 jobs in 2024 and 2,000 jobs in 2030.
- Start to mobilise additional public and private investment of approximately £30 billion, in line with our 2037 delivery pathway.
- Treble woodland creation rates in England, contributing to the UK's overall target of increasing planting rates to 30,000 hectares per year by the end of this Parliament.

Key policies:

- Through the Farming Investment Fund and the Farming Innovation Programme -invest in equipment, technology, and infrastructure to improve profitability, benefit the environment and support emissions reductions.
- We will boost the existing £640 million Nature for Climate Fund with a further £124 million of new money, ensuring total spend of more than £750 million by 2025 on peat restoration, woodland creation and management.
- Restoring approximately 280,000 hectares of peat in England by 2050 and trebling woodland creation rates in England
- £75 million on Net Zero related R&D across Natural Resources, Waste & F-gases, to meet our pathway to 2037.
- Commitment to explore options for the near elimination of biodegradable municipal waste to landfill from 2028 (bringing forward £295 million of capital funding which will allow local authorities in England to prepare to implement free separate food waste collections for all households from 2025).

Net Zero Strategy for Greenhouse Gas removals:

- New, highly skilled, jobs in the UK's industrial heartlands.
- Start to mobilise additional public and private investment of around £20 billion, in line with the 2037 delivery pathway.
- An ambition to deploy at least 5 MtCO₂/year of engineered GGRs by 2030.

Key policies:

- Delivering £100 million of investment in GGR innovation. Which in turn will leverage private investment and demand for transferrable engineering expertise from the UK's oil and gas sector.

Net Zero Strategy for Supporting the transition with cross-cutting action:

Key policies:

- Deliver at least £1.5 billion of funding to support Net Zero innovation projects.
- Use the UK Infrastructure Bank (UKIB) to crowd in private finance, support more than £40 billion of investment, and pull through low carbon technologies and sectors to maturity and scale.
- Introduce a new Sustainability Disclosures Regime, including mandatory climate related financial disclosures and a UK green taxonomy.
- Reform the skills system so that training providers, employers and learners are incentivised and equipped to play their part in delivering the transition to Net Zero.
- Publish an annual progress update against a set of key indicators for achieving our climate goals.

Heat and Buildings Strategy:

- **To meet Net Zero virtually all heat in buildings will need to be decarbonised.** Evidence from a study commissioned by BEIS indicated that properties with an EPC C rating were worth around 5% more than those currently at EPC D rating, after controlling for other factors such as property size and archetype.
- **The buildings transition presents huge opportunities for jobs, growth and levelling up.** As building improvements are labour-intensive, upgrading our homes and workplaces could rapidly create new opportunities and support over 240,000 low carbon jobs by 2035 across the sector (from manufacture to installation and modelling to project management).
- **Fairness and affordability are at the heart of the approach.** Investing in energy efficiency will bring down bills for millions of households and businesses – with Government support for low income households to pay for improvements.
- **Net Zero will mean gradually, but completely, moving away from burning fossil fuels for heating.** The future is likely to see a mix of low-carbon technologies used for heating: electrification of heat for buildings using hydronic (air-to-water or ground-to-water) heat pumps, heat networks and potentially switching the natural gas in the grid to low-carbon hydrogen.
- **Strategic decisions on the role of Hydrogen for heat by 2026.**
- **We need to act now to develop the market and bring down costs for energy efficient low-carbon heat.** Heat pumps and Heat Networks are proven scalable options for decarbonising heat and will play substantial roles in any Net Zero scenario, so we need to build the market for them now. To deploy at least 600,000 hydronic heat pump systems per year by 2028 can keep us on track to get to Net Zero and set us up for further growth if required.
- **The journey to Net Zero buildings starts with better energy performance.** Increased awareness of energy use and the need for greater efficiency is the first stepping-stone to enabling consumer decisions to improve building energy performance and use smarter, more efficient products and systems.

- **We need to take a co-ordinated system-wide approach to decarbonise cost effectively.** Need to consider the measures to decarbonise heat alongside the decarbonisation action needed in other sectors. This includes the generation, distribution and storage of energy (such as electricity and hydrogen).

The Strategy also sets out “five core principles to guide action”

1. We need to take a whole-buildings and whole-system approach to minimise costs of decarbonisation.
2. Innovation is essential to driving down costs, improving options and informing future decisions.
3. We need to accelerate 'no- and low-regrets' action now. Adopt a fabric-first approach to improve building thermal efficiency (Fabric-first' means focusing on installing measures that upgrade the building fabric (e.g. walls/lofts) itself before making changes to the heating system).
4. We will balance certainty and flexibility to provide both stability for investment and an enabling environment for different approaches to be taken to address different buildings. Govt to provide long-term signals to investment by setting requirements and embedding flexibility in how they are achieved, so businesses and the public can prepare to decarbonise in a way that suits them and maximise the opportunities this presents, including investing in training in greener skills.
5. Government will target support to enable action for those in most need. We will make sure that our policies support those who are hardest hit by COVID-19, such as small businesses and the fuel poor.

There is also a ‘Ten Point Plan to develop the markets and consumer choices required to achieve Net Zero heating’:

1. Signaling our intention to phase out the installation of new natural gas boilers from 2035.
2. Setting a clear ambition for industry to reduce the costs of installing a heat pump by at least 25-50% by 2025 and to ensure heat pumps are no more expensive to buy and run than gas boilers by 2030.
3. Improving heat pump appeal by continuing to invest in research and innovation. The £60 million Net Zero Innovation Portfolio (NZIP) ‘Heat Pump Ready’ Programme will support the development of innovation across the heat pump sector.
4. Ensuring affordability by providing financial support to meet capital costs. Through the e Boiler Upgrade Scheme – the gov't will provide households with £5,000 grants when they switch to an air source heat pump or £6,000 when they switch to a ground source one.
5. Rebalancing energy prices to ensure that heat pumps are no more expensive to buy and run than gas boilers.
6. Significantly growing the supply chain for heat pumps to 2028. The gov't will go from installing around 35,000 hydronic heat pumps a year to a minimum market capacity of 600,000 per year by 2028.
7. Ensuring all new buildings in England are ready for Net Zero from 2025.
8. We intend to start by phasing out the installation of fossil fuel heating systems in properties not connected to the gas grid. We are consulting on ending the installation of high-carbon fossil fuels to heat homes that are

not connected to the gas grid in England from 2026 and non-domestic buildings not connected to the gas grid from 2024.

9. Growing UK-manufactured technology and capabilities. Aiming for a 30-fold increase in heat pumps manufactured and sold within the UK by the end of the decade.
10. Ensuring the electricity system can accommodate increased electricity demand and heat pumps can be quickly and affordably connected to the network.

Lastly, the strategy make a series of commitments on hydrogen:

- Developing hydrogen for heating buildings by thoroughly assessing the feasibility, safety, consumer experience and other costs and benefits, by the middle of the decade.
- Establishing large-scale trials of hydrogen for heating. To have a neighbourhood trial by 2023 and a village scale trial by 2025. We will also develop plans by 2025 for a possible hydrogen town that can be converted before the end of the decade.
- Enabling blending of hydrogen in the gas grid. Aim to blend up to 20% hydrogen (by volume) into the existing gas network. Final decision on this in 2023.
- Consulting on hydrogen-ready boilers by 2026.
- Developing the evidence base necessary to take strategic decisions on the role of hydrogen for heating buildings in 2026.

Greening Finance: A Roadmap to Sustainable Investing

Greening the financial system can be seen in three phases:

Phase 1: Informing investors and consumers – addressing the information gap for market participants, ensuring a flow of decision-useful information on environmental sustainability from corporates to financial market participants.

Phase 2: Acting on the information – creating expectations and requirements that sustainability information a part of mainstream business and financial decisions.

Phase 3: Shifting financial flows – ensuring that financial flows across the economy shift to align with the UK's Net Zero commitment and wider environmental goals.

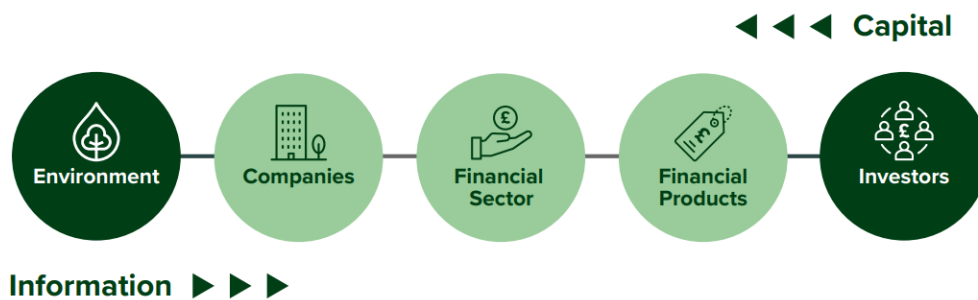
- This Roadmap represents the government's strategy to deliver Phase 1.
- Central to this are new economy-wide Sustainability Disclosure Requirements (SDR).
- This will allow sustainability information to flow from companies in the real economy to the financial sector and its financial products.
- This information will help empower investors and consumers to make financial decisions which align with their values

1. Getting the right information to market participants:

The new Sustainability Disclosure Requirements (SDR) will create an integrated framework for decision-useful disclosures on sustainability across the economy. This will look at:

- **Corporate disclosure:** New requirements for companies – including in the financial services sector – to make sustainability disclosures.
- **Asset manager and asset owner disclosure:** New requirements for asset managers and asset owners to disclose how they take sustainability into account.
- **Investment product disclosure:** New requirements for creators of investment products to report on the products' sustainability impact and relevant financial risks and opportunities.

Figure A: How information and capital flows through the economy



2. A UK Green Taxonomy:

- There is not an accepted definition of which economic activities count as environmental sustainability.
- This can make it difficult for companies and investors to understand the environmental impact of their decisions and can lead to greenwashing (This is when firms make misleading or unsubstantiated claims about environmental performance).
- To address this, the government is implementing the UK Green Taxonomy ('the Taxonomy'). This will clearly set out the criteria which specific economic activities must meet to be considered environmentally sustainable and therefore 'Taxonomy-aligned'.

Aims:

- Reporting against the Taxonomy will form part of SDR.
- Certain companies will be required to disclose which proportion of their activities are Taxonomy-aligned.
- Providers of investment funds and products will have to do the same for the assets that they invest in.

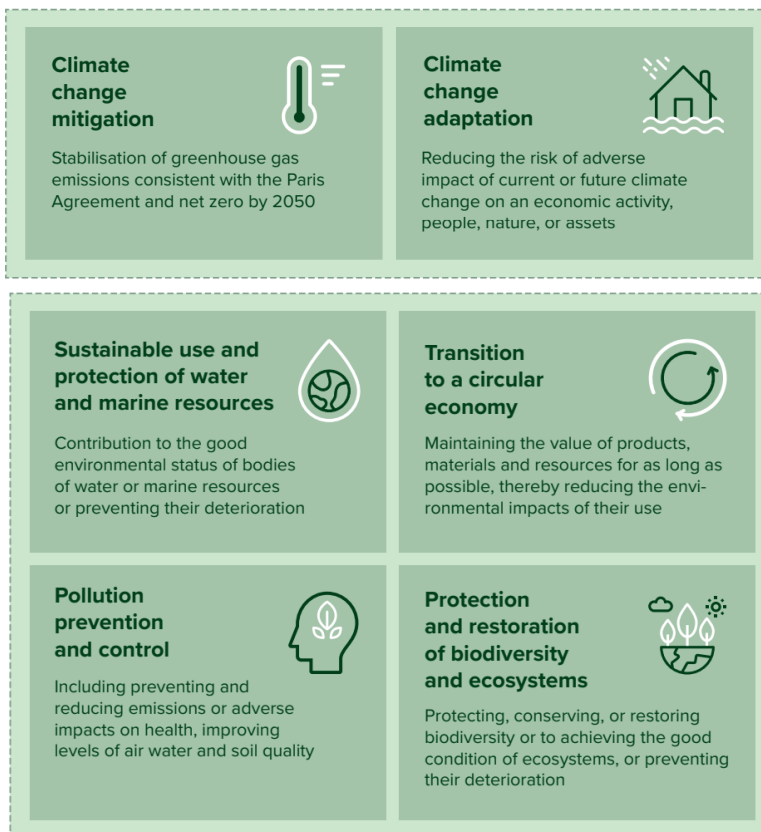
The Taxonomy aims to:

- Create clarity and consistency for investors.
- Improve understanding of companies' environmental impact.
- Provide a reference point for companies.

The Government's implementation process will be guided by three core principles:

- **Robust and evidence-based:** The Taxonomy will take an objective and science-based approach to assessing sustainability.
- **Accessible:** The government intends both for the Taxonomy to be useful to investors and for disclosure requirements not to place a disproportionate burden on business.
- **Built for the UK to support a global transition:** The Government will take an approach that is suitable for the UK market and consistent with UK Government policy.

The Taxonomy has six environmental objectives:



- Each of the environmental objectives will be underpinned by a set of detailed standards, known as Technical Screening Criteria (TSC).
- There will be an individual TSC for each economic activity included in the Taxonomy, which identifies how that activity can make a substantial contribution to the environmental objective.

To be considered Taxonomy-aligned, an activity must meet three tests:

1. Make a substantial contribution to one of six environmental objectives The criteria for making a substantial contribution are set out in the TSC for the activity in question.
2. Do no significant harm to the other objectives: This is also defined for each activity in the TSCs. This aims to ensure that activities which support one objective, such as climate change mitigation do not have a significant adverse impact on another, such as biodiversity.
3. Meet a set of minimum safeguards. These are minimum standards for doing business, constituting alignment with the OECD Guidelines for Multinational Enterprises, and the UN Guiding Principles on Business and Human Rights.

Net Zero Cost Review

- The review is not a cost-benefit analysis but considers the potential exposure of businesses and households to the transition, and highlights factors to be taken into account when designing policy that will allocate costs over the time period up to 2050.
- The report states that the UK should look at the direct and indirect costs of climate change. The true cost of a warmer climate to the UK economy could be higher than current estimates. It mentions that we should consider the possible harm to supply chains when factoring in the economic costs of rising temperature.
- The movement towards Net Zero investment can boost the UK economy (thus hopefully increasing employment and GDP).
- UK jobs market to perhaps dramatically change as it moves from high to low carbon industries/sectors. Boost to be seen in areas such as insulating homes and business premises; installing low carbon heat sources; replacing petrol and diesel vehicles with zero emission equivalents; and addressing the emissions from necessary industrial processes.
- There will also be significant co-benefits, such as cleaner air. Improved air quality could deliver £35 billion worth of economic benefits in the form of reduced damage costs to society, reflecting for example lower respiratory hospital admissions. 13 Where these benefits allow for a healthier and more productive workforce, they can support long term growth and productivity improvements.
- Possible risk of firms leaving the UK if it is more profitable to produce in countries with less stringent climate policies.
- However, the main risks are concentrated in a small number of sectors, and primarily in these sectors' export activities rather than domestic ones. As such, the first best solution is effective international co-operation and policy co-ordination.
- So, the best solution is effective international co-operation and policy co-ordination.
- The review states that it will be difficult to assess the impact on labour market costs and raw material costs. The possible costs and benefits will not fall evenly across households and could take up to 2050 to be able to fully assess. Businesses do not welcome uncertainty.
- The review states that the precise nature of what technologies need to be introduced/implemented has not been fully considered.
- The review states that the government will have to consider the impact of Net Zero changes on lower income households as they spend a higher share of their income on high carbon goods. The possible increase in prices in these types of goods (due to firms investing in Net Zero technology) will have to be considered.
- Households' exposure to housing decarbonisation will depend on a number of factors, including dwelling size and dwelling type. For example, larger houses are more likely to face higher costs. Households living in social housing may be less exposed to costs as social housing is on average already much better insulated, with 62% of dwellings already having wall insulation, compared to just 32% of privately rented dwellings.
- Possible trade-off from those higher income households who can afford the move to electric vehicles and those from lower income households remaining to use existing petrol-based vehicles. Policies to

support the adoption of EVs may disproportionately benefit higher income groups, and the costs of any policies that affect the remaining drivers may fall disproportionately on low-income groups.

- Further consideration of emission-based regulations to curb the market failure (i.e. reducing emissions) can be an effective tool. The review mentions that the govt has committed to exploring UK Emissions Trading Scheme (UK ETS) expansion to the two-thirds of uncovered emissions. These are forms of pollution permit schemes.
- To quote from page seven – “Overall, a combination of tax, regulation, spending and other facilitative levers will be required.”. A variety of Net Zero incentives/schemes/laws will be needed.
- The need for new ‘creative disruptive’ industries will hopefully arise between and 2050 to move the UK economy towards Net Zero technologies.
- Pressures on fiscal policy/public spending will arise from the need to meet the 2050 target. One of the biggest could arise from the loss in tax revenues from fossil fuels. Should there be a massive need for public spending in the future then the govt will need to consider changes to existing taxes and seek out new forms of tax revenues to meet the Net Zero target. The review briefly mentions the notion of the polluter pays and the possible unfairness if others must incur the increase in costs.

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