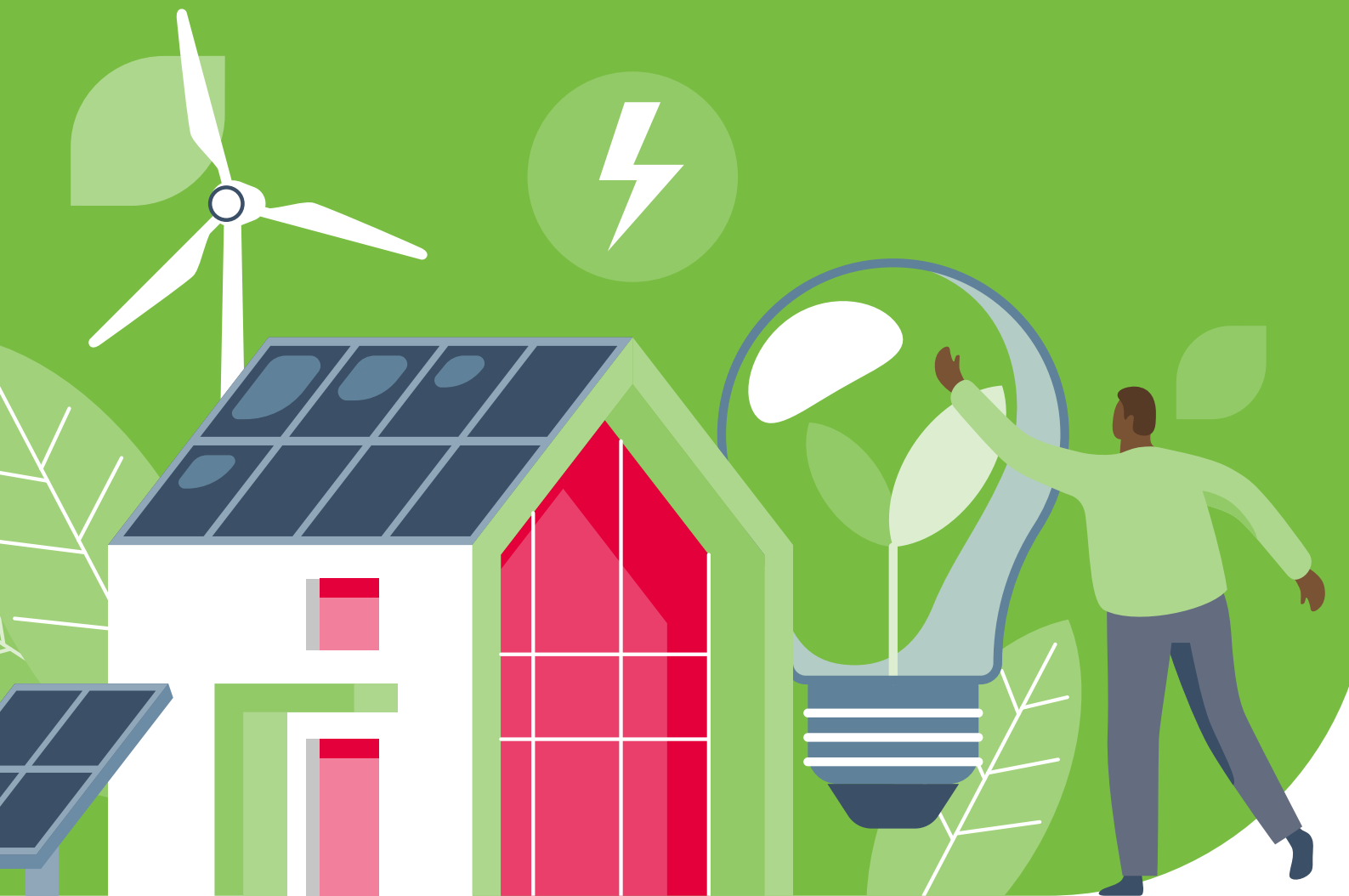


GREEN INNOVATION

BUILDING SUSTAINABLE FUTURES FOR UK BUSINESSES



FUTURE OF
ECONOMY
WHERE BUSINESS BELONGS



British
Chambers of
Commerce
**GREEN
INNOVATION**

FUTURE OF THE ECONOMY

WHERE BUSINESS BELONGS

This paper is part of a series of five policy areas which develop realistic recommendations for the future of the UK economy, and fresh and compelling proposals for government.



CONTENTS

Foreword from Emma Howard Boyd CBE, Chair, Green Finance Institute	4
Introduction from Lisa Witter, Chair, Green Innovation Challenge	5
Insights	6
Executive Summary: Recommendations	7
Building Sustainable Futures for UK Businesses	11
Conclusion	27
Appendix	28
References	29
Contributors	34



FOREWARD

EMMA HOWARD BOYD CBE



Emma Howard
Boyd CBE

Chair

**Green Finance
Institute and Chair,
London Climate
Resilience Review**

The clock is ticking on the climate crisis and solutions lie in the collective ingenuity of British businesses. Thriving companies innovate to stay ahead and by setting ambitious goals they raise the bar for entire markets. Today, that spirit of mutually beneficial competition needs focus or economies risk being undermined by the chaos of extreme weather and the depletion of natural resources.

The British Chambers of Commerce connects businesses across all sectors, forging partnerships so organisations excel through collaboration. This report highlights the role of innovation in a net zero future, but such leadership is also vital to the resilience of firms in the face of climate disruption.

Established technologies like wind and solar are not just whispers of progress but pillars of economic strength. Policies and infrastructure to allow them to become mass-market realities should be prioritised. Emerging technologies, like carbon capture, usage and storage, hold immense promise. Government should bridge the gap between early-stage development and market viability.

We need a financial ecosystem that nourishes green businesses with capital, and a robust institutional framework, supported by long-term vision, clear goals, and the agility to adapt. This includes innovative financing instruments, targeted investments, skills development, streamlined planning rules, targeted tax breaks, and a robust green taxonomy.

An environment where green innovation thrives welcomes diverse voices and a spirit of shared responsibility. The UK is on the right track. This report's recommendations can propel British businesses into a global leadership role, seizing the opportunity of becoming the agents of change.

INTRODUCTION

LISA WITTER



Lisa Witter
**Chair, Green
 Innovation Challenge
 Co-Founder,
 Apolitical**

The UK has the potential to lead the world in green innovation. We have a strong economic base, and a legal and policy framework designed to ensure we reach Net Zero emissions by 2050. To reach those targets and address our shared environmental challenges, businesses must play a leadership role.

BCC research and engagement with businesses tells us that firms of all sizes want to play their part, but face barriers along the way. These include challenges around monitoring and managing impacts; meeting regulatory requirements; and understanding complex policy landscapes.

The UK's response to climate change must be grounded in a deep and impactful partnership between policymakers and business to overcome these barriers. When compared with its international competitors, the UK does rank highly on climate change mitigation and sustainability.

But in order to maintain its world-leading progress and enable our businesses to harness the opportunities the green economy offers; policymakers must focus on policies that drive behavioural change from consumers and businesses and accelerate decarbonisation across all sectors of the economy.

This report has drawn on expertise from businesses of all sizes and sectors, academia, and think tanks, to develop a series of ambitious and realistic proposals that, if adopted by policymakers, can form the blueprint for accelerating our Net Zero transition.

This is the first report by the Green Innovation Challenge group and I would like to thank all the group members and stakeholders who have played such an important part in its development.

While this study focuses on emissions and the journey to Net Zero, our future work will expand to other areas vital to our transition to a greener future.

Our next report will focus on the role of the Circular Economy in going beyond clean energy to achieve further emissions reductions, for example by designing our waste and keeping materials in use.

The British Chambers of Commerce Network is a supporter and enabler of Green Innovation across the UK. I would like to thank the Glasgow Chamber of Commerce and the East Lancashire Chamber of Commerce for their input and guidance on this report.

Glasgow Chamber is building on the legacy of COP26 through its Congress of Business, Climate Chamber City and the Circular Glasgow initiative.

East Lancashire Chamber has developed and launched RedCAT, the Lancashire Centre for Alternative Technologies, which provides a pathway of financial and R&D support to accelerate the commercialisation of low carbon technologies.

UK ENVIRONMENTAL PERFORMANCE

In 2022, the Yale University Environmental Performance Index^a ranked the UK 2nd in the world on climate change mitigation^b.

2022 ENVIRONMENTAL PERFORMANCE INDEX RESULT: TOP 10

Country	Rank	EPI Score	10-Year Change
Denmark	1	77.90	14.90
United Kingdom	2	77.70	23.00
Finland	3	76.50	21.00
Malta	4	75.20	25.40
Sweden	5	72.70	15.80
Luxembourg	6	72.30	13.50
Slovenia	7	67.30	8.60
Austria	8	66.50	7.20
Switzerland	9	65.90	8.20
Iceland	10	62.80	4.40

Source: Yale Center for Environmental Law & Policy <https://epi.yale.edu/epi-results/2022/component/epi>

PRINCE'S TRUST YOUNG PEOPLE'S PERCEPTIONS OF GREEN JOBS

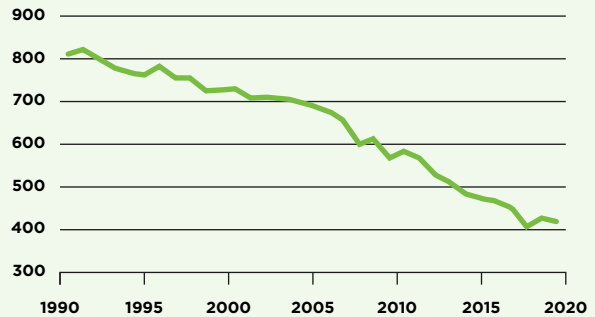
Research by the Prince's Trust revealed that only 27% of young people had heard the term 'green jobs' and could explain what this meant. Only 5% of young people pictured someone in a green job as having not gone to university, despite many roles being well suited to vocational training^c.

REFERENCES

^a<https://epi.yale.edu/>
^bYale University uses a composite measure composed of nine indicators: adjusted emission growth rates for four greenhouse gases (CO₂, CH₄, F-gases, and N₂O) and one climate pollutant (black carbon); projected greenhouse gas emissions in 2050; growth rate in CO₂ emissions from land cover; greenhouse gas intensity growth rate; and greenhouse gas emissions per capita.
^c<https://www.princes-trust.org.uk/about-us/news-views/green-skills-crisis-is-looming>

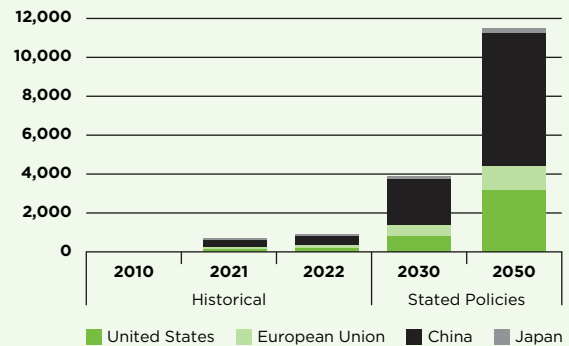
UK TERRITORIAL GREENHOUSE GAS EMISSIONS

1990-2022 (MTCO₂E)



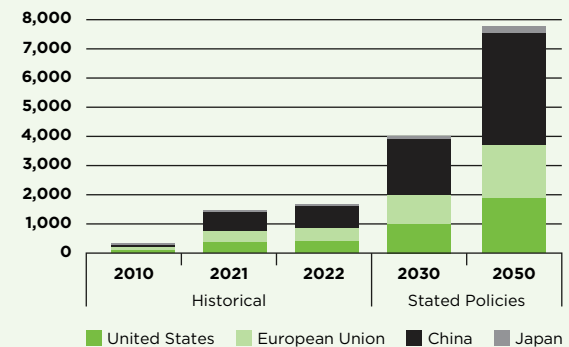
Source: 2022 UK greenhouse gas emissions, provisional figures. Data tables, table 1.

SOLAR PV GENERATION (TWh) SELECTED COUNTRIES



Source: IEA World Energy Outlook 2024 Table A.18

WIND GENERATION (TWh) SELECTED COUNTRIES



Source: IEA World Energy Outlook 2024 Table A.19

EXECUTIVE SUMMARY AND RECOMMENDATIONS

FRAMEWORKS FOR CHANGE: BUILDING ON THE UK'S STRONG TRACK RECORD OF CLIMATE ACTION

The UK has a strong track record and solid legal framework

The UK has a strong track record of action on green issues. In 2022, the Yale University Environmental Performance Indexⁱ ranked the UK 2nd in the world on climate change mitigationⁱⁱ, and 2nd overall for sustainability. UK greenhouse gas (GHG) emissions in 2022 were 46% below 1990 levels.

The UK has one of the most substantial legal frameworks for climate change anywhere in the world. The centrepiece is the “Net Zero” commitment, announced in June 2019 and enshrined in lawⁱⁱⁱ, which requires a 100% reduction of greenhouse gas emissions by 2050 compared with 1990 levels, and the publication of an annual Carbon Budget. Independent scrutiny is provided by the Climate Change Committee (CCC).

Significant challenges are ahead

The scale of the challenge ahead should not be underestimated. The UK's progress so far has been driven by cutting carbon in electricity supply, with emissions in sectors such as agriculture and land use remaining flat over the last decade. Efforts to decarbonise now need to accelerate across all sectors of the economy, from transport and heating to waste and aviation.

This will require behavioural change from consumers and businesses who will face some costs and disruption, as well as tough decisions and trade-offs from policy makers. It will also rely on the deployment of more nascent technologies. However, the transition will also reap substantial rewards, including on exports, as more countries adopt measures to prevent carbon leakage.

Policies: Many sectors are covered but gaps remain

Successive governments have created several ambitious policy frameworks to facilitate the transition to Net Zero, covering many sectors of the economy. Recent examples include Powering Up Britain, the Net Zero Growth Plan, and the Carbon Budget Delivery Plan.

There are also a wide array of sector-specific plans, targets, and task forces, covering areas including the phase-out of gas boilers; solar power; energy efficiency; zero emission vehicles and more. The government should also take credit for the recent Energy Act, and for committing to the Carbon Border Adjustment Mechanism and the UK Green Taxonomy.

Given the scale of action, it is helpful that the Climate Change Committee (CCC) produce a comprehensive guide to progress on climate policy, highlighting how the pieces of the puzzle come together to drive action. Their most recent report gave a mixed review, praising policies such as electricity and vehicles, but flagging risks in others such as sustainable aviation fuels and carbon capture. The CCC highlighted policy gaps in decarbonising industry and agriculture, and in improving energy efficiency in buildings. The government, in turn, responded that they are acting on the majority of the CCC's recommendations. This illustrates the importance of the CCC as an independent, expert voice, helping government pinpoint where additional actions are needed.

Messaging and communications

An area of concern raised by the CCC was regarding mixed government messaging on Net Zero. This followed the Prime Minister’s speech in September 2023, which amended a selection of policies including ruling out new energy efficiency regulations for landlords and stressing the need to reduce cost burdens of the transition. At the same time, the government announced ambitious plans in relation to household grants for making the switch to clean heating and speeding up grid connections, as well as confirming policies to address international climate leakage.

Insight from the business community shows that clarity of government messaging, and consistency of policies, is a vital building block of action. It reassures firms, their supply chains, and end-customers that their decisions fit into the long-term future for the UK economy. A good example of this is heat pump policy, where manufacturers will shortly be required to meet ambitious sales targets against the background of broadly negative media coverage. Clear and unequivocal government support for this, and other green technologies, would help drive business action.

Long-term policies

The UK is fortunate to have developed a broad consensus across the mainstream political spectrum around the science of climate change and on the need to act. To support long-term policy making, we believe there is a case for a new public institution to be created. This could ensure genuine cross-party work to agree long-term commitments on climate policy, which in turn will help drive sustainable investments from the public and private sector. Inspiration can be taken from the successful Covid-19 Vaccine Taskforce, which proves that the UK can work at an exceptionally high pace with a broad range of actors to deliver results.



RECOMMENDATION 1 ADVANCE THE UK'S FRAMEWORK FOR CHANGE

Based on the context and evidence presented in our review, we propose a set of deliverable measures to build on and improve the UK's "framework for change" – the governmental and policy response to the Net Zero challenge. These proposed measures are:

- **Addressing gaps in policy pathways**
The government has clearly made substantial progress on climate change; however, gaps remain. Going forward, emphasis should be given to those sectors which the Climate Change Committee (CCC) has identified as lacking a clear policy pathway to decarbonise. This includes industry and agriculture as well as upgrading energy efficiency in buildings.
- **Strengthen the CCC**
The CCC's resources should be increased to ensure it has the capacity to carry out further deep dives and updates on specific sectors, focusing on those that are the most challenging to decarbonise and involving the most complex trade-offs. This would help the government devise policy solutions in hard-to-abate sectors.
- **Clear and consistent messaging**
Government messaging is vital to the successful implementation of environmental policies. The UK government should clearly communicate the benefits of technologies that its policies are incentivising or requiring business introduce to the market. This is particularly relevant to those areas where the benefits are questioned, such as heat pumps.
- **A new public body to drive change**
A new public institution should be established, building on the 'Vaccine Taskforce' example, to oversee the delivery of plans for core climate policies that achieve pre-identified goals. The government should also develop and include an assessment of the impact on future generations when assessing climate policies, to ensure a long-term perspective is adopted.

- **Build deeper business and government partnerships**

The government should broaden its scope and ambition for business engagement, to develop a fully comprehensive multi-sector partnership approach aligned with the Danish "Climate Partnerships" model, where 14 industrial sectors have clear strategies to reduce GHG emissions by 2030.

RECOMMENDATION 2 INTRODUCE A ROBUST GREEN INDUSTRIAL STRATEGY TO DRIVE INVESTMENT

Governments worldwide are becoming increasingly interventionist, using loans, tax credits and grants to attract global businesses in the green innovation space and create domestic supply chains. This is leading to a significant redeployment of international capital and shining a light on the power of industrial policy.

For example, the United States Inflation Reduction Act is a landmark policy package with tax breaks, government loans and guarantees totalling approximately \$400bn of federal funds delivered through over one hundred programmes of action on green energy and domestic manufacturing. The EU and Japan have introduced similar measures, while China is now the world largest market for both wind and solar energy.

So far, the UK government has resisted calls to develop a new industrial strategy, arguing that it cannot match the fiscal firepower of the US. Instead, they have opted for a more sector-based policy approach, combined with an advantageous tax policy framework to boost general investment, notably the now-permanent Full Expensing policy. To help assess the impact of the government's approach, our report has reviewed policies and progress on four areas of green industrial innovation, with the following conclusions:

1. Solar Power

In addition to reforming planning, addressing critical skills shortages, and ensuring sufficient fiscal incentives are in place, the government should encourage solar manufacturing in the UK and enhance its collaboration with our international partners to secure supplies.

RECOMMENDATION 2 (CONTINUED)**2. Contracts for Difference (CfDs)**

The government should ensure CfDs can crowd-in private investment, by:

- accounting for external economic conditions in its pricing strategy for future CfD allocation rounds;
- taking forward proposed reforms to reward renewables developers for establishing strong local supply chains;
- addressing skills shortages; and
- ensuring the Review of Electricity Market Arrangements does not undermine investor confidence by radically overhauling the scheme.

3. Carbon Capture Usage and Storage (CCUS)

CCUS has an important contribution to make to delivering our Net Zero targets. We welcome the UK government's recently launched CCUS strategy. We call for this to be developed fully with industry cooperation and implemented as a national priority.

4. Sustainable Aviation Fuel (SAF) mandate

SAF has the potential to be a green growth sector for the UK economy. Getting the price mechanism for the SAF mandate right is a vital next step. The government should draw on lessons from CfDs to ensure that industry can develop compelling business cases to deliver these fuels at scale.

While these are all important initiatives, there is currently a lack of a consistent strategy that ties together the sector policies such as those described above, as well as the tax incentives, grants and regulations that influence the transition to Net Zero. There is now a strong case for the government to pull together all its interventions in a clear framework to drive investment, by introducing a robust Green Industrial Strategy.

The Green Industrial Strategy should be based on the following principles:

- Ensure there are strong fiscal incentives and tax frameworks to invest, such as continued Full Expensing and R&D Tax Credits, with the UK's emissions trading scheme linked to the EU Emissions Trading System (ETS), the launch of the UK Carbon Border Adjustment Mechanism (CBAM) and the introduction of the Green Taxonomy.
- Identify sectors of strength where the UK's comparative advantage could be capitalised on, such as Carbon Capture Usage and Storage (CCUS) and Sustainable Aviation Fuel (SAF) and develop policy frameworks to incentivise their growth.
- Maximise strengths in the UK supply chain and address weaknesses, ensuring the UK can access sufficient raw materials and enhancing UK manufacturing capabilities in solar and other renewable technologies.
- Enable the development of the right skills to ensure that the workforce can support the progression and deployment of the necessary technologies.
- Provide clarity, predictability and stability on regulations, standards, and policy incentives, for example on future rounds of CfDs.
- Align trade agreements and export strategy around opportunities for green growth and the transition to Net Zero.
- Evolve funding models to support and reward the progression of low-carbon innovation to full commercialisation.

Finally, although the transition to Net Zero is often described as a race between nations, the race to cut emissions is one that everyone must win. To that end, it is vital to help facilitate the global uptake of green innovation, while the UK should continue to support the Technology Development and Transfer initiative facilitated through the United Nations Framework Convention on Climate Change (UNFCCC)^{iv}.

RECOMMENDATION 3 GREENING THE WORKFORCE

The government has kicked off an innovative and successful Green Jobs Delivery Group initiative, working with various sectors across the economy. There are also positive steps being taken to “green” apprenticeships and help public officials understand and adapt to policy challenges. Building on this, we call on future governments to widen the scope of the Green Jobs Delivery Group to include all sectors of the economy. We echo the call by The Institute of Environmental Management and Assessment (IEMA) to create a permanent cross-government body that takes a strategic approach to delivering green skills and jobs growth in the UK.

RECOMMENDATION 4 REFORMING PLANNING AND UPGRADING THE ENERGY GRID

The recently announced improvements to the planning system, and ambitious plans for grid upgrades, are a welcome and positive development. They should be implemented quickly, to make grid connectivity easier for infrastructure that will support the Net Zero transition and the wider economy.

RECOMMENDATION 5 TAKE ACTION ON THE GREEN TAXONOMY, CARBON PRICING AND LEAKAGE

The government has committed to completing the UK Green Taxonomy, and for institutional arrangements to be confirmed and implemented ahead of the next election. This is the critical missing piece to give investors full confidence around business and industry green credentials. It is vital for the Green Taxonomy to be fully reflective of all sectors, and to be delivered as rapidly as possible. Without this it will not be possible for the UK to achieve its stated aim of being the global hub of green finance.

Climate change is by nature an international issue, and we call for action to enable UK businesses to find opportunities in a carbon-constrained world. A key starting point is to link the EU and UK Emission Trading Schemes, as a common carbon price would incentivise investment sectors and ensure that no new trade barriers on carbon leakage are created between the UK and the EU. Furthermore, we welcome the government’s commitment to implement a UK Carbon Border Adjustment Mechanism by 2027, which, as CBAMs are gradually adopted globally, will help boost British exports and encourage onshore production, due to the UK’s relatively low-carbon energy production.



BUILDING SUSTAINABLE FUTURES FOR UK BUSINESSES

SECTION 1 DEVELOPING THE FRAMEWORK FOR CHANGE

How is the UK doing globally?

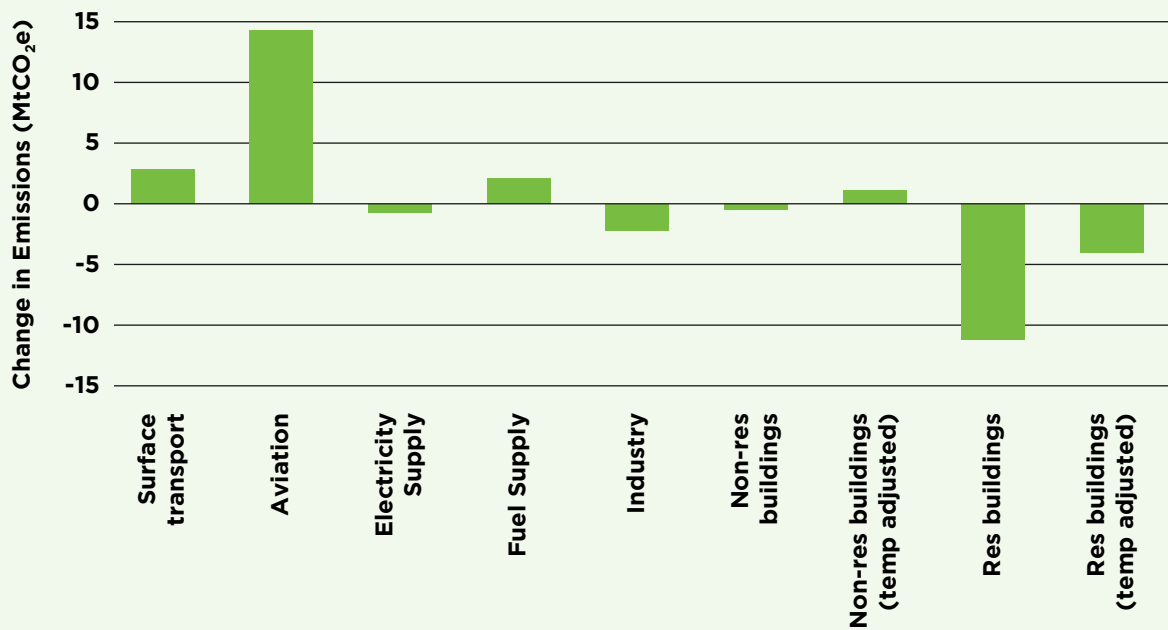
It may seem that Britain is lagging behind other countries when it comes to making progress on climate change. However, from an international perspective, the UK is doing relatively well. In 2022, the Yale University Environmental Performance Index^v ranked the UK 2nd in the world on climate change mitigation^{vi}, and 2nd overall for sustainability. This score is based on emissions reduction performance, and the quality and consistency of policies in place to make further progress.

In 2022, the UK’s greenhouse gas emissions, including the UK’s share of international aviation

and shipping, were 46% below 1990 levels. This is an increase of 0.8% since 2021 but remains 9% below pre-pandemic (2019) levels^{vii}.

Despite this promising headway, the scale of the challenge ahead should not be underestimated. The UK’s progress so far has been driven by cutting carbon in electricity supply, with emissions in sectors such as agriculture and land use remaining flat over the last decade. Efforts to decarbonise now need to accelerate across all sectors of the economy, from transport and heating to waste and aviation (see chart^{viii}).

FIGURE 1
CHANGE IN UK EMISSIONS FOR KEY SECTORS
2021 TO 2022



Source: DESNZ (2023) Provisional UK greenhouse gas emissions national statistics 2022; BEIS (2023) Final UK greenhouse gas emissions national statistics: 1990 to 2021; CCC analysis

Notes: Global warming potentials from IPCC AR5 without feedback are used, Provisional 2022 estimates are not made for non-CO₂ greenhouse gases, so the change in 2022 agriculture emissions is not shown.

This will require behavioural change from consumers and businesses who will face some costs and disruption, as well as tough decisions and trade-offs from policy makers. It will also rely on the deployment of more nascent, and in some cases unproven technologies. However, the transition will also reap substantial rewards, with McKinsey estimating that Net Zero presents a global market opportunity of £1 trillion for British businesses by 2030^{ix}.

An ambitious legal framework

The UK has one of the most substantial legal frameworks for climate change anywhere in the world. The centrepiece is the “Net Zero” commitment, announced in June 2019 and enshrined in law^x, which requires a 100% reduction of greenhouse gas emissions by 2050 compared with 1990 levels^{xi}. This built on the UK’s landmark Climate Change Act 2008, which set governance arrangements to deliver emissions reductions, requiring the government to set legally binding Carbon Budgets which serve as stepping stones towards the 2050 target and establishing a statutory watchdog — the Climate Change Committee (CCC).

The CCC is an expert organisation that advises the UK and devolved governments on emissions targets and submits regular statutory progress reports to Parliament, as well as influential thought pieces, in partnership with industry, to help drive change. The domestic and legal UK framework is also designed to enable the UK to meet its ambitious Nationally Determined Contribution (NDC) goal under the UN climate framework and requires the publication of a Carbon Budget Delivery Plan.

Policies to deliver Net Zero

The need to deliver legal targets, and account to an independent statutory body, has led to a series of policy initiatives. The Net Zero Strategy^{xii}, published in 2021 and updated in April 2022, was built on a previous “Ten-Point Plan for a Green Industrial Revolution” released in 2020 and included ambitious commitments across various sectors including power, manufacturing, buildings and transport (see Appendix for further details).

Subsequently, in January 2023, the Skidmore Review of Net Zero was published. With 129 recommendations, this was one of the largest

consultation exercises undertaken on this topic^{xiii}. While not all the recommendations were accepted, the Skidmore Review shifted the debate towards a more positive framing of climate action around economic opportunity.

This was followed, in March 2023, by the publication of the policy paper “Powering Up Britain”; the “Net Zero Growth Plan”, which responded to the Skidmore Review; and the publication of the Carbon Budget Delivery Plan (CBDP) as required under the Climate Change Act. Together, these provided a blueprint for the government’s approach to energy security and Net Zero, covering core sectors across the economy^{xiv}. Since then, action on climate change has become more politicised, increasingly viewed as a so-called “wedge issue” in which the main political parties can differentiate themselves in the run up to the upcoming general election.

In September 2023, the Prime Minister made a speech which set out the government’s “new approach to Net Zero” which would focus on “pragmatism not ideology” and easing “the burdens on working people”. This included measures to: delay the 2030 ban on the sale of new petrol and diesel vehicles by five years; ease the 2035 ban of new gas boiler installations in homes; delay the 2026 ban on off-grid boilers by nearly a decade; and rule out new energy efficiency regulations for landlords.

However, it also included policies to speed up delivery, including doubling the grants available for households switching to clean heating to £7,500 and accelerating planning and connections processes for network infrastructure which has acted as a major barrier to Net Zero. In October 2023, the government also passed one of the biggest pieces of energy legislation in a decade, the Energy Act, which will lay many of the foundations needed to meet climate targets, and in December 2023 confirmed the UK will introduce a Carbon Border Adjustment Mechanism (CBAM) from 2027 (CBAM policy is discussed later in this paper).

The overall picture is of mixed messaging, with some signals from government that climate action is less important than previously thought, while at the same time continuing with many ambitious climate policy initiatives.

Is the UK on track to meet its climate targets?

In its annual progress report in 2023, the CCC gave the UK government a mixed review. It noted that policy development “continues to be slow” and that the release of the CBDP raised concerns on the pace of delivery, which risks the UK missing its 2030 NDC target^{xv}. The CCC assessment found “credible plans” for just 25% of required emissions reductions, mainly from policies to transition to low carbon electricity and electric vehicles, and attached “significant risks” to 23%, highlighting sectors such as low-carbon heating in homes, sustainable aviation fuels and carbon capture.

The CCC found that plans were “either completely missing or currently inadequate for 18% of the required emissions reduction”, including decarbonising industry and agriculture and upgrading energy efficiency in buildings and concluded that to achieve the NDC goal, the rate of emissions reduction outside the power sector must almost quadruple. To deliver this, the CCC made a total of 300 recommendations to government, including to stay firm on existing commitments and move to delivery, e.g. on decarbonising electricity supply and installing 600,000 heat pumps per year by 2028, as well as developing new policies in industry, particularly steel.

In its response to the CCC, the UK government defended its record, stating that it is “currently delivering an ambitious package to drive towards our existing carbon budgets and NDC”. The government said that it is “acting on 85% of the CCC’s priority recommendations” and “the majority of the remaining 273 recommendations” (see Appendix)^{xvi}.

On 12 October 2023, the CCC published an updated assessment of recent developments. While welcoming the headway made in several areas since its Progress Report, it raised concerns that measures announced in the Prime Minister’s speech were not accompanied by estimates on their impact on emissions. The CCC noted that the government’s plans to meet its targets remained “insufficient” and perceptions of weakened commitment and increased uncertainty could undermine consumer and investor confidence.

Consistent policies can unlock business action

Insight from the business community echoes the point that consistent, clear, and reliable policy measures are vital to enable them to plan effectively for the Net Zero transition. This insight was echoed in qualitative research by the BCC in partnership with Lloyds Bank, which found that frequent changes to government incentives for business action were damaging; the Net Zero and/or energy space is complicated to navigate; and that clearer government communication would be helpful to support business planning^{xvii}.

In this context, it is important for government to respond to the CCC in a more productive manner going forward, acknowledging where the gaps are, and setting out the ways in which it will address areas where the policy framework is not sufficiently developed. As noted above, government messaging on climate may appear confusing to the business audience. The example of domestic heat pumps, as set out below, illustrates that public communications and support of low-carbon technology is vital to the success of the transition.

Developing the policy framework: A “New Vaccine Taskforce” on climate change

The UK is fortunate to have developed a broad consensus across the mainstream political spectrum around the science of climate change and on the need to act. This is reinforced by our long-term legal framework, an ambitious policy framework, and work of the CCC in assessing progress towards targets. It would, we believe, create a significant brake on progress should politicians of any party open a political dividing line on delivering our shared climate goals.

To support long-term policy delivery, we believe there is a case for a new public institution to be created, to ensure effective implementation of agreed long-term objectives on climate policy, which in turn will help drive sustainable investments from the public and private sector. This institution would help secure long-term commitments to the delivery of choices that, while potentially immediately unpopular, are nonetheless wise.

CASE STUDY

HEAT PUMPS CONSISTENCY BETWEEN POLICY AND MESSAGES

The importance of consistent policy and government communications can be clearly demonstrated through exploring the retrofit Clean Heat Market Mechanism (CHMM), which will place an obligation on the manufacturers of heating appliances to meet targets for the proportion of low-carbon heat pumps they sell each year, relative to fossil fuel boilers.

The policy goal is to achieve installations of 600,000 a year by 2028^{xviii}. Data from 2023 indicate that almost 40,000 heat pumps were installed in 2023 (a record high), with industry sources praising an increase in government grant support from £5,000 to £7,500 in October, which increased demand by 50%^{xix}. While this is solid progress, it is some way off the sales needed to hit the government's target.

One of the major challenges facing heat pump adoption is that although the CHMM obligation falls on manufacturers, they have limited influence on the purchase decisions by households. The customer interface for boilers and heat pumps takes place through a dispersed network of third parties, such as plumbers, installers, and builders. Although manufacturers are now engaging at pace with the wider value chain to encourage customers to consider heat pumps, independent research shows that these efforts are hampered by the public's lack of knowledge^{xx}.

Media coverage is adding to public confusion. New BCC research for this paper reveals there were 41,500 articles mentioning heat pumps in the last year (up 65% on year before). Of these just 7,250 (17.5%) rated as having a positive sentiment, undermining efforts by manufacturers to drive demand. For this reason, it is vital for the government, as an impartial, expert voice, to take a greater leadership role in communicating positive messaging on heat pumps, promoting the case for installing them and explaining its policy goals. This would help to lay the groundwork for industry to deliver the target.



Lessons can be learned from the National Infrastructure Commission (NIC) which was established as a non-political body to produce robust, evidence-based and long-term assessments of the UK's infrastructure needs, and to assess the viability of plans to deliver them^{xxi}. Although the advice of the NIC has not always been taken up by government, it has provided a valuable contribution through a long-term independent assessment of infrastructure news.

Inspiration can also be taken from two successful and innovative government initiatives. First, the Covid-19 Vaccination programme, which in England was delivered thanks to the actions of many bodies working in partnership including the Vaccine Taskforce, NHS England, and thousands of local GPs, pharmacists, NHS staff and volunteers^{xxii}. Second, the Welsh government's Well-being of Future Generations Act, which requires public bodies to take account of the long term, with the goal of enabling future generations to have at least the same quality of life as we do now^{xxiii}. This helps ensure that decisions are taken with a long-term view, balancing shorter term political considerations.

Although there are various statutory bodies in the environmental space, either a new organisation would be required to deliver this role, or an existing body would need to have its role expanded to include it. It would be challenging to expand the remit of CCC to do this for instance; as it has a specific function related to its monitoring of progress toward the UK's legal targets, set out in regulation and in its Framework Document^{xxiv}.

Strategic Business and Government partnerships

There are several government-business partnership groups and taskforces undertaking excellent work on the transition to a low carbon future. These include the Net Zero Council, which is coordinating Net Zero plans across multiple sectors, as well as the Jet Zero Council in aviation, the Solar Taskforce in renewables, the Green Jobs Delivery Group, the Energy Efficiency Taskforce, the Zemo Partnership on low-carbon fuels and vehicles, and more.

Groundbreaking work is being done by the Broadway Initiative which convenes trade bodies, NGOs and other stakeholders to bring a wider group of actors together and coordinates the government's Net Zero Council. Extensive business engagement also takes place at the sub-national, sectoral level, such as clusters of firms developing and delivering carbon capture and storage; on-and-offshore wind and other forms of green innovation in places across the UK. Universities are also facilitators of industry clusters as well as innovation-enablers, and a national network of university action and good practice examples is provided by the UK University Climate Network^{xxv}.

While all this engagement is highly beneficial to deliver climate goals, best practice in this area - as proposed in a recent Advisory Group on Business report with the CCC^{xxvi} - is the Danish "Climate Partnership" model. This a comprehensive, multi-year initiative working across 14 sectors of the Danish economy which rapidly developed over 400 concrete recommendations to accelerate action toward the national goal of reducing GHGs by 70% by 2030^{xxvii}.

Importantly, this "call and response" interaction between business and government is an ongoing relationship over time, enabling climate action to take place outside of political cycles, rather than a stand-alone exercise. It is aimed at patiently addressing the system-wide changes that will need to happen to reach climate goals.

RECOMMENDATION**ADVANCE THE UK'S FRAMEWORK FOR CHANGE**

Based on the context and evidence presented in our review, we propose a set of deliverable measures to build on and improve the UK's "framework for change" - the governmental and policy response to the Net Zero challenge. These proposed measures are:

- **Addressing gaps in policy pathways**
The government has clearly made substantial progress on climate change, but gaps remain. Going forward, emphasis should be given to sectors which the Climate Change Committee (CCC) has identified as lacking a clear policy pathway to decarbonise, such as industry and agriculture and upgrading energy efficiency in buildings.
- **Strengthen the CCC**
Resources for the CCC should be increased so that it has the capacity to do further deep dives and updates on specific sectors, focusing on those that are the most challenging to decarbonise and that will involve the most complex trade-offs. This would help the government devise policy solutions in hard to abate sectors.
- **Clear and consistent messaging**
Government messaging is vital to the successful implementation of environmental policies. Government should clearly communicate the benefits of technologies that its policies are incentivising or requiring business to introduce to the market, particularly those where the benefits are questioned, such as heat pumps.
- **A new public body to drive change**
A new public institution should be established, building on the 'Vaccine Taskforce' example, to oversee delivery of plans for core climate policies that achieve pre-identified goals. Government should also develop and include an assessment of the impact on future generations when assessing climate policies, to ensure a long-term perspective is adopted.
- **Build deeper business and government partnerships**
The government should broaden its scope and ambition for business engagement, to develop a fully comprehensive multi-sector partnership approach aligned with the Danish "Climate Partnerships" model, where 14 industrial sectors have clear strategies to reduce GHG emissions by 2030.



SECTION 2

BUILDING A GREEN INDUSTRIAL STRATEGY

Green innovation across the world

While the UK has made an impressive head start on its transition to Net Zero, other countries are catching up rapidly. The UK needs to attract vast sums of private investment to deliver its climate targets, but the “global race to Net Zero” means there is increased competition, including from larger markets such as the US and EU, for investment from overseas.

Countries are becoming increasingly interventionist; using loans, tax credits and grants to attract global businesses in the green innovation space and create domestic supply chains in clean energy to maximise economic rewards. This is leading to a significant redeployment of international capital and shining a light on the power of industrial policy.

This section of the report summarises policy measures that have been put in place in major world economies to support green investment, then uses a selection of specific examples to illustrate progress being made in the UK. The section concludes with a call to action, for government to develop a robust and comprehensive green industrial strategy.

The US Inflation Reduction Act

The United States has significantly upped the ante on green innovation policies, with its landmark Inflation Reduction Act (IRA), which passed into law in August 2022. The IRA is the most substantial investment in tackling climate change in US history, committing around \$400bn of federal funds over ten years to over 100 programmes in clean energy and domestic manufacturing, with funding largely comprising tax breaks, grants and loan guarantees.

Its key objective is to stimulate investment in domestic manufacturing capabilities, incentivise the procurement of critical supplies domestically and spur R&D and commercialisation of new technologies in the US. It also seeks to address regional inequalities, with new manufacturing sites having to meet requirements on wages and offering apprenticeships. A year on from the introduction of the IRA, over 170,000 new jobs in green industries and over 270 new clean energy projects had been created — totalling \$278bn in new investments by July 2023 alone^{xxviii}.

There is already some evidence of its impact on the type of Foreign Direct Investment (FDI) flowing into the US as a result. Recent statistics show that South Korean companies are now making up approximately a third of total announced investments in clean manufacturing, almost the same as domestic US companies, followed by Japan and China, with European investments falling short of their Asian competitors. More evidence of the impact of the IRA on FDI will become available during 2024, as more of the incentives are clarified by the US government^{xxix}.

Responses to the US IRA: EU and Japan

Other countries and territories have reacted to the US IRA by introducing ambitious policy frameworks designed to boost investment in green manufacturing. The EU announced its Green Deal Industrial Plan, aiming for its strategic Net Zero technologies manufacturing capacity to reach at least 40% of EU deployment needs by 2030, and allowing member states to incentivise private investors and match foreign subsidies such as those available under the IRA.

Similarly, Japan recently announced its Green Transformation (GX) Basic Policy, which aims to invest, achieve, or commit over \$1 trillion in public-private financing opportunities over the next ten years, targeting areas including hydrogen, ammonia, carbon capture and electric vehicle (EV) adoption^{xxx}.

While these policies will no doubt be attractive to clean technology manufacturers, it is important to note that the overall “pull” will be greatly influenced the wider direction of politics and the economy. Factors such as interest rates, general tax policies, planning rules, availability of skilled staff, legal frameworks and other economic issues will play a major part in FDI decision making.

There is also the broader question of the longevity of incentives and political preferences. As one commentator puts it, when policies have an expiration date (the US IRA has a 10-year horizon), this impacts investor confidence; the US may have a very different Congress and President when the policy ends in 2032^{xxxi}.

Renewable energy: Worldwide developments

The global development of renewable energy illustrates the staggering pace of the shift to low-climate technology. China is currently the largest solar PV market, accounting for 45% of all global capacity expansion in 2022 supported by huge domestic solar manufacturing capability, followed by the EU (17%), the United States (9%) and India (8%). China is also the largest market for wind power, accounting for half of new global capacity in 2022, with the EU (18%), the US (11%) and Brazil (4%) also leading markets in 2022^{xxxii}.

In contrast, despite its historically strong position in renewable energy deployment, analysis by Energy UK has found that of the world's largest eight economies, the UK is forecast to have the slowest growth in low-carbon electricity generation between now and 2030, and that per head of population, France and Germany have double the installed clean energy capacity than the UK^{xxxiii}.

International Solar PV policies

Taking solar PV as an example is helpful to illustrate the long-term policy measures being developed across different markets to drive deployment^{xxxiv}. For instance:

- China recently published the 14th Five-Year Plan for Renewable Energy with ambitious targets for renewables, aiming to move to one-third of generation from renewable sources by 2030, with plans for 1,200 gigawatts (GW) of solar and wind production by 2025^{xxxv}.
- The EU launched new policies and targets to drive investment in solar proposed in the REPowerEU Plan and the Green Deal Industrial Plan.
- The United States included generous new funding, investment and production tax credits funding for solar PV in the Inflation Reduction Act (IRA).
- India has a new target to increase PV capacity auctioned to 40 GW annually and policies to develop the domestic supply chain are expected to result in further acceleration in PV growth.

The UK's response to the IRA

Despite warnings that the UK will see billions of investments move overseas, the UK government has been frustratingly slow to respond to the US IRA and similar policies worldwide. Instead, it has stated that it does “not wish to participate in a discriminatory subsidy race”^{xxxvi}.

While it is widely accepted that the UK cannot match the fiscal firepower of these larger economies, we have an abundance of sectors where our expertise, geological potential and comparative advantage should be capitalised and bolstered through active government. From floating offshore wind, sustainable aviation fuel, CCUS and tidal stream to our innovative electricity markets, chemicals industry and aerospace sector. The UK also has best in class regulators and research institutions and is a global services superpower.

Despite a sluggish start, the government has recently taken steps to ramp up its industrial policy making, introducing significant additional investment to reduce emissions, including the Industrial Energy Transformation fund, £6 billion for energy efficiency, and £300 million p.a. in tax relief for six years under the new Climate Change Agreement^{xxxvii}. This has been combined with ambitious changes to speed up grid connections and £960 million for a Green Industries Growth Accelerator to support clean energy manufacturing^{xxxviii}.

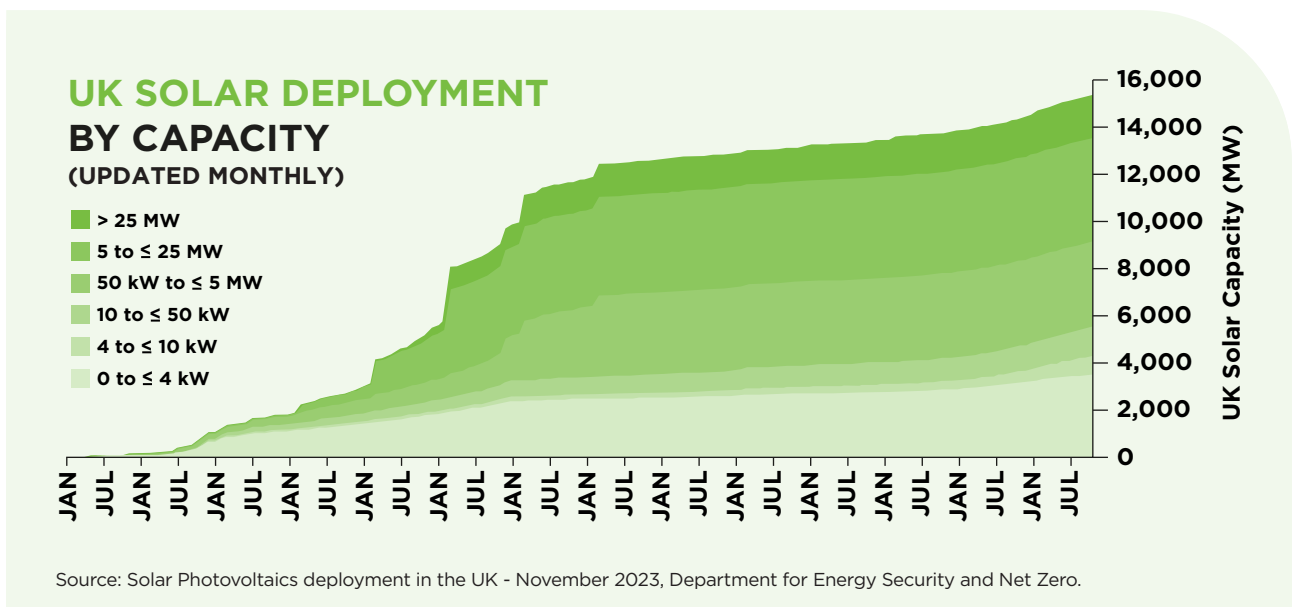
Importantly, the generous tax incentive aimed at increasing investment (Full Expensing) applicable to businesses paying the full rate of Corporate Tax has recently been made permanent^{xxxix}. This provides a long term, stable policy framework for investments in new plant and machinery, reducing a tax barrier in investments in Net Zero which tend to be capital intensive.

The following section explores four areas of green industrial innovation in more detail, to illustrate progress being made and to highlight where further measures are required.

UK policy: Focus on Solar PV

In the UK, the government has a target to increase solar capacity by nearly fivefold to 70 GW by 2035. At the end of November 2023, there was a total of 15.6 GW of solar capacity in the UK across 1.43 million installations^{xi}, with 1.1 GW installed during the year, the highest for almost six years^{xii}. While this is positive progress, it will take a significant acceleration of deployment to reach the 70 GW goal.

Developers of solar energy have faced several barriers in the UK in recent years which have reduced the attractiveness of the UK market. These include access to skills and components, delays to securing planning permissions and connections to the electricity network, and a less generous subsidy regime, moving from the Feed-In-Tariff to the Smart Export Guarantee Scheme.



The government has taken several recent policy steps to improve the confidence of investors and developers of solar energy in the UK. These include establishing a taskforce to oversee delivery of its target, developing measures to upskill the solar workforce, committing to publish a solar roadmap in 2024 and setting out plans to cut waiting times for grid connections.

The government has also provided a 20% VAT reduction on the installation of certain Energy Saving Materials which effectively provides a 20% discount on the installation of solar PV and has helped boost the market. These policy changes are positive, and are helping industry achieve good results, with industry reporting almost 190,000 solar installations in 2023, the highest level since the subsidy regime was changed in 2011.

A recent inquiry by the Environmental Audit Committee echoed the issues around planning and skills, with the Committee calling for new building

codes to include Solar requirements, and for the government to keep a watch on the SEG to ensure there is a sufficient fiscal incentive for Solar PV installations, as cost continues to be a significant driver for action.

An additional challenge to the rollout of Solar in the UK will be supply of key components^{xiii}. The UK has no domestic manufacturing capacity for solar, with China controlling most of the global manufacturing market. The UK is spending hundreds of millions each year on solar imports from China, risking over reliance on a single market and exposing the UK to supply chain disruption.

RECOMMENDATION
Boosting British Solar

In addition to planning, skills and fiscal support, the need for the government to encourage solar manufacturing in the UK should be front and centre of its thinking.

UK Policy: Contracts for Difference

The Contracts for Difference (CfDs) policy is widely seen by industry stakeholders as a good-practice example of providing long-term certainty for investors. Established by the Energy Act 2013, CfDs aim to give developers a higher level of certainty to invest in low carbon power generation, by agreeing to a fixed price for the sale of electricity over a 15-year timeframe^{xliii}.

Developers of clean electricity projects bid for CfD contracts in competitive auctions which take place annually. The scheme has driven up investment and driven down costs in the UK's renewables sector and has been credited with helping the average strike price for offshore wind projects fall from £150 per MWh to less than £40 per MWh in less than a decade.

However, the government's approach to the CfD scheme has been tested recently, with no offshore or floating offshore wind projects featured in Allocation Round 5, the results of which were announced in September 2023. High inflation, combined with rising interest rates and supply chain bottlenecks, left offshore wind developers facing substantial cost increases.

Despite widespread warnings from the sector, these market conditions were not adequately reflected in the strike price by the government, with the auction deemed economically unviable for many developers. While this was a disappointing result, the government has since set a correction course for next year's auction, increasing the maximum price offered for offshore wind projects.

RECOMMENDATION

Contracts for Difference (CfDs)

The government should ensure CfDs can crowd-in private investment, by accounting for external economic conditions in its pricing strategy for future CfD allocation rounds; taking forward proposed reforms to reward renewables developers for establishing strong local supply chains and addressing skills shortages and ensuring the Review of Electricity Market Arrangements does not undermine investor confidence by radically overhauling the scheme.



UK Policy: Carbon Capture and Storage

Carbon Capture Usage and Storage (CCUS) is a relatively new, but important technology to enable various sectors to continue to operate, while delivering a Net Zero economy^{xliv}. The UK has the natural resources to become a world leader in CCUS, with 78 billion tonnes storage potential in the North Sea^{xlv}, combined with a strong existing industrial skills capability.

To play its allocated role in meeting CO₂ emissions targets, the CCUS sector will need to increase the annual amount of CO₂ stored by at least 6 Megatonnes per annum (Mtpa) each year from 2031, and to at least 50 Mtpa by the mid-2030s^{xlvi}. This is a significant challenge given that there are currently no CCUS projects operating in the UK^{xlvii}.

To foster this industry, the government has, in December 2024, launched its vision to establish a competitive market in CCUS. In the strategy, the government has identified the first four CCUS clusters for deployment in the UK by 2030 and committed up to £20 billion to establishing a CCUS sector in the UK. During 2024, the government will work with industry to finalise its framework for the transition from the current “market creation” phase (i.e. government support for CCUS clusters) to a commercial, competitive and self-sustaining CCUS market^{xlviii} where the private sector leads on the delivery of ambitious goals for this sector. This industrial policy intervention on clusters is proving successful, showing the benefits of an active government to convene and facilitate industry action.

The policies to be determined in the coming year include an enhanced competitive allocation process for capture contracts, setting out the strategic direction for CO₂ transport networks, as well as securing sufficient subsurface storage capacity, publishing a Green Jobs Plan, and establishing an industry working group on cost reduction opportunities^{xlix}. The recently passed Energy Act is also a key enabler, as it establishes the primary legislative framework for Industrial Carbon Capture, Greenhouse Gas Removals.

CCUS industry stakeholders have broadly welcomed the government’s strategy, noting its bold plan for making the UK a global leader in CCUS, and the positive steps for both Track 1 and Track 2 CCUS clusters. However, industry investors have called for accelerated progress on the first four CCUS clustersⁱ.

RECOMMENDATION

Carbon Capture Usage and Storage (CCUS)

CCUS has an important contribution to make to delivering our Net Zero targets. We welcome the government’s recently launched CCUS strategy and call for this to be developed fully with industry cooperation and implemented as a national priority.

UK Policy: Sustainable Aviation Fuel

Aviation is a growing contributor to GHG emissions, and the global aviation industry has adopted a 2050 Net Zero target, with measures including adopting new technologies, streamlined flight operations and the introduction of Sustainable Aviation Fuel (SAF). The UK aviation sector is leading the way in developing business-led adoption of SAF, making strong calls for government to introduce legal requirements for sustainable fuel to be blended into aviation fuel.

The government has introduced a legal requirement for SAF blending of 10% by 2030, with a commitment to consult on a pricing mechanism to follow. In addition, Virgin Atlantic recently successfully completed the first 100% SAF flight as a proof-of-concept demonstratorⁱⁱ. The development of SAF has the potential to be a success story for UK businesses who have strong technical capacity in this space, with the government already committed to deliver five SAF plants.

However, with the US IRA driving billions of investment across the Atlantic, and the EU’s ReFuel initiative (which introduces a SAF requirement to EU aviation) already in placeⁱⁱⁱ, the UK must move at pace to secure the domestic production potential of this policy. The key element is the price support mechanism, to bridge the green premium between kerosene and SAF.

RECOMMENDATION

Sustainable Aviation Fuel (SAF) mandate

SAF has the potential to be a green growth sector for the UK economy. Getting the price mechanism for the SAF mandate right is a vital next step; government should draw on lessons from CfDs to ensure that industry can develop compelling business cases to deliver these fuels at scale.

Bringing the policies together: A robust Green Industrial Strategy

While these are all important initiatives, there is currently a lack of a consistent strategy that ties together the sector policies such as those described above, and the tax incentives, grants and regulations that influence the transition to net zero. There is now a strong case for the government to pull together all its interventions a clear framework to drive investment, by introducing a robust Green Industrial Strategy.

RECOMMENDATION

Introduce a robust Green Industrial Strategy,

to draw together existing tax incentives, sector plans and associated policy measures into a clear framework to drive investment. The Green Industrial Strategy should be based on the following principles:

- Ensure there are strong fiscal incentives and tax frameworks to invest, such as continued Full Expensing and R&D Tax Credits, with the UK's emissions trading scheme linked to ETS, the launch of the UK CBAM and introduction of the Green Taxonomy.
- Identify sectors of strength where the UK's comparative advantage could be capitalised on, such as Carbon Capture Usage and Storage (CCUS) and Sustainable Aviation Fuel (SAF) and develop policy frameworks to incentivise their growth.
- Maximise strengths in the UK supply chain and address weaknesses, ensuring the UK can access sufficient raw materials and enhancing UK manufacturing capabilities in solar and other renewable technologies.
- Enable the development of the right skills to ensure that the workforce can support the progression and deployment of the necessary technologies.
- Provide clarity, predictability and stability on regulations, standards and policy incentives, for example on future rounds of CfDs.
- Align trade agreements and export strategy around opportunities for green growth and the transition to Net Zero.
- Evolve funding models to support and reward the progression of low-carbon innovation to full commercialisation.

Reflection: The global race that everyone must win

Finally, although the transition to Net Zero is often described as a race between nations, the race to cut emissions is a race that everyone must win. To that end, it is vital to help facilitate the global uptake of green innovation.

RECOMMENDATION

Driving global uptake of green innovation

The UK should continue to support the Technology Development and Transfer initiative facilitated through the UNFCCC^{liii}.

SECTION 3 GREENING THE WORKFORCE

The green skills challenge

There is a significant challenge ahead of us in developing the workforce needed to power the Net Zero transition. The Offshore Wind sector alone could employ around 70,000 workers in 2026, compared to around 26,000 in 2022. These figures are dwarfed by the scale of the challenge for the energy network; the National Grid estimates a need to recruit for 400,000 energy jobs between now and 2050 to get to Net Zero^{iv}.

Changes across the skills curriculum are required to make this a reality. In general, the current vocational skills system should be made more accessible and usable to all businesses^v. For Green Innovation to take hold, curriculum development must keep pace with business needs, and both vocational and academic courses should be flexible enough to facilitate this.

There is a significant challenge in bringing forward a clear pathway to green jobs in the UK. Research by the Prince's Trust revealed that only 27% of young people had heard the term 'green jobs' and could explain what this meant. In addition to low awareness, green jobs are seen as being for those who take an academic route, which limits how many people feel they can access them. Only 5% of young people pictured someone in a green job as having not gone to university, despite many roles being well suited to vocational training^{vi}.

In this section, we highlight three case studies of green skills development; there are of course many more courses available to learners from all ages, ranging from Levels 5-7 through to vocational training. More broadly, as the power sector example below shows, engineering and technical skills will increasingly be applied to green sectors, as the economy moves to a Net Zero future.



CASE STUDY

GREEN SKILLS ACROSS THE UK

Governments across the UK nations are taking leadership roles in developing the green workforce of the future. For example, in Scotland, the Green Jobs Work Academy will support existing employees, and those facing redundancy, to assess their skills and show people how to reskill or upskill to get a green job. The Welsh government has set out a skills action plan to support its net zero commitments. In Northern Ireland, the “Look up. Move Up. Skill Up.” initiative includes free green technology courses, while in England the Institute for Apprenticeships has introduced a “green thread” across its curriculum through its green skills strategy, ensuring that courses are equipped to support the delivery of Net Zero targets^{lvii}.

CASE STUDY

GREEN JOBS DELIVERY GROUP

To help tackle this broad challenge, the UK has recently convened a broad industry-government initiative, the Green Jobs Delivery Group (CJDG). The group was set up to examine the environmental skills gaps and produce plans for action across a selection of sectors (Power & Networks, Nature, Resources & Waste) as well as explore the role of local businesses and public authorities to create place-based green economies^{lviii}.

In 2024, the GJDG will produce a Net Zero and Nature Workforce Action Plan, and the BCC is contributing to its work by providing insight on its Local Capacity workstream. In the meantime, the Power & Networks group has agreed a list of ‘head-start’ actions which government and industry agreed to make early progress on. This includes “Skills Bootcamps” which are funded by government to support training, the development of vocational courses and more detailed assessments of workforce demand^{lix}.

CASE STUDY

GOVERNMENT CLIMATE CAMPUS

An international initiative aimed at building skills capacity is the Government Climate Campus, developed by the non-profit group Apolitical, who estimate that 80% of public servants don’t have the tools or the training to tackle the climate crisis. In response, Apolitical has launched an ambitious project, the Government Climate Campus, to train 50,000 public servants to half their emissions by 2030, through a climate learning hub with courses, networks, and expert-led programmes^{lx}.

RECOMMENDATION

A permanent cross-sector approach to Green Jobs

We call on future governments to widen the scope of the Green Jobs Delivery Group to include all sectors of the economy, and we echo the call by IEMA to create a permanent cross-government body that takes a strategic approach to delivering green skills and jobs growth in the UK^{lxi}.

SECTION 4

REFORMING PLANNING AND UPGRADING THE ENERGY GRID

Grid upgrade plans are welcome

We were pleased that the government has listened to the BCC and other business voices, committing to implement reforms to upgrade the grid and speed up the connections process, in line with the recommendations of the Winser review into grid upgrades^{lxii}. The government is also consulting on plans to provide households closest to new transmission infrastructure with up to £1,000 a year off their electricity bills over ten years. Together, these actions make practical measures such as putting in EV recharging facilities and Solar PV quicker, and, by providing enhanced community benefits, reduce local opposition to major grid upgrades.

Ensure planning reforms deliver

Even with this significant progress on grid upgrades, the planning system remains problematic for the introduction of green technology. For example, applications for new onshore wind in England came to a stop due to the introduction of more stringent community consent requirements into planning rules in 2015^{lxiii}. The government has recently amended planning rules regarding onshore wind in England to provide a more balanced view on community backing. However, renewables developers warned that changes did not go far enough to unlock new opportunities for the technology. Onshore wind still faces higher barriers than other forms of infrastructure, with no new applications for onshore wind projects being submitted in England since the government ‘lifted’ the de facto ban^{lxiv}.

However, this is also an area where the government has listened to business, with recent commitments including, help at the local level to improve planning services across England, policy changes to help accelerate EV charging infrastructure, and plans to return consenting time for nationally significant major projects to two and a half years - which was last achieved in 2012^{lxv}.

Onshore wind in Scotland

The Scottish government has committed to reduce the time it takes to determine Section 36 applications for onshore wind projects by increasing skills and resources, and by streamlining approaches to scoping Environmental Impact Assessment Reports. This is driven by the Scottish government’s ambition of 20 GW of installed onshore wind capacity by 2030, which will require a significant number of new sites^{lxvi}.

RECOMMENDATION

Reforming planning and upgrading the energy grid

The recently announced improvements to the planning system, and ambitious plans for grid upgrades, are a welcome and positive development. They should be implemented quickly, to make grid connectivity easier for infrastructure that will support the Net Zero transition and the wider economy.



SECTION 5

FINANCE, CARBON PRICING AND LEAKAGE

The UK Green Taxonomy is needed now

The UN Environment Plan defines Green Financing as, financing which aims to increase level of financial flows (from banking, micro-credit, insurance and investment) from the public, private and not-for-profit sectors to sustainable development priorities^{lxvii}. A key objective is to better manage environmental and social risks, take up opportunities that bring both a decent rate of return and environmental benefit, and deliver greater accountability.

The UK has a Green Finance strategy (published 2019 and updated 2023) which aims to position the UK at the forefront of the rapidly growing global Green Finance market, aiming to become the world's first Net Zero Aligned Financial Centre. The commitments included requiring disclosure of transition plans where they exist, launching a call for evidence on Scope 3 emissions and delivering a UK Green Taxonomy - a tool to provide investors with definitions of which economic activities should be labelled as green^{lxviii}.

Over the past two years, an expert group called the Green Taxonomy Advisory Group (GTAG)^{lxix} has developed a thorough and robust set of guidance for government on how to take the taxonomy forward. This included detailed proposals on its content, as well as where it should sit within government structures. In its final report, the GTAG notes that since the UK announced its plan to introduce a Green Taxonomy, an additional 21 taxonomies have been announced or come into force globally, reaching 47 across the world^{lxx}.

The GTAG see this delay as an opportunity for the UK to learn from what went before and has allowed for extensive industry input. However, it also emphasises that the government should act now, stressing that, "if defined well it will be an invaluable transparency tool, helping to ensure the integrity of disclosures and enabling reporting on objective measures of environmental sustainability"^{lxxi}.

In our view, it is important that a full consultation on the Green Taxonomy is launched as soon as possible, to ensure that all sector views are represented, alongside clear timelines for implementation. However, now is the time for action, because there are many businesses in the green innovation space who urgently need this clarity to attract secure investment.

Finance is, of course, also a vital part of developing green innovation. As industry adapts to the low-carbon future, more innovators are likely to enter the green space, and will require funding. It is important that state backed funds crowd-in private investment, as there is competition from overseas funders to attract British green innovators overseas. These issues will be addressed in more detail in our Global Britain Challenge report, which will explore the funding landscape for British businesses more broadly.

Carbon pricing and leakage

Setting the price of carbon is fundamental to addressing climate change. The price signal created shifts consumption and investment patterns, making economic development compatible with climate protection^{lxxii}. It creates a cost of emitting carbon, which changes the cost-benefit analysis of investing in different types of energy source, and/or making production more efficient. A carbon price sits behind modern approaches to environmental policy which seek to harness markets to create the most efficient solution.

One application of carbon pricing is to use price signals to help address the issue of climate leakage, i.e. a tax at the border for the carbon emitted in the production of goods entering a particular country or economic territory. A legal instrument to do this has recently been established in the EU, known as the Carbon Border Adjustment Mechanism (CBAM), which has implications for the UK's trade with the EU.

The CBAM will initially cover products that are carbon intensive, and that the EU considers creating a significant risk of carbon leakage; namely cement, iron and steel, aluminium, fertilisers, electricity and hydrogen. Reporting has been required from late 2023, and from 1 January 2026, importers will also need to surrender the corresponding number of “CBAM certificates”, to cover the price of the value of the carbon being imported. Over time the EU may open CBAM to a wide variety of downstream products^{lxxiii}.

Given the UK is now outside of the EU, UK firms in affected sectors who are exporting to the EU will need to comply with the EU CBAM rules. However, under the terms of the Trade and Cooperation Agreement (TCA), the UK and EU agreed to consider linking our respective carbon pricing schemes and to cooperate on carbon pricing^{lxxiv}. If this happens, it could ensure that UK exports of high-carbon products to the EU are exempt from the EU’s CBAM scheme^{lxxv}.

Linking the two emissions trading schemes would not be straightforward due to divergence between them. At the time of the scheme’s launch in 2021, the emissions cap for the UK was 5% although this cap is currently under review. The EU is taking a slightly different approach and aiming for a reduction of 2.2% each year in phase 4^{lxxvi}.

Divergence between the schemes, combined with political and negotiation difficulties, may lead to a partial linkage, similar to Switzerland’s arrangement, which could be confined to certain sectors (e.g. carbon-intensive sectors at risk of carbon leakage)^{lxxvii}. As the two schemes continue to develop independently, and diverge in important ways, finding a linkage arrangement will become more challenging. So it is important for the UK and the EU to engage constructively on this issue as soon as possible.

In December 2023, the UK government announced its own CBAM, with slightly different guardrails compared to the EU’s. It will cover additional sectors (e.g. glass and ceramics) and a start date of 2027. Full details are to be consulted on during 2024^{lxxviii}. This is a welcome development. As CBAMs are gradually adopted, this will help British exports and encourage onshore production, due to the UK’s relatively low-carbon energy production.

RECOMMENDATION

Take action on the Green Taxonomy, Carbon Pricing and Leakage

The government has committed to completing the UK Green Taxonomy, and for institutional arrangements to be confirmed and implemented ahead of the next election. It is the critical missing piece to give investors full confidence around business and industry green credentials. It is vital for the Green Taxonomy to be fully reflective of all sectors, and to be delivered as rapidly as possible. Without this it will not be possible for the UK to achieve its stated aim of being the global hub of green finance.

Climate change is by nature an international issue, and we call for action to enable UK businesses to find opportunities in a carbon-constrained world. A key starting point is to link the EU and UK Emission Trading Schemes, as a common carbon price would incentivise investment sectors and ensure that no new trade barriers on carbon leakage are created between the UK and the EU. Furthermore, we welcome the government’s commitment to implement a UK Carbon Border Adjustment Mechanism (CBAM) by 2027, and call for this to be developed and implemented in close collaboration with industry.

CONCLUSION

This paper has summarised the UK's progress on climate change; how we are faring compared to other nations; and where some of the most important challenges lie going forward. Overall, the message is positive. The UK has a stable legal basis for action; a diverse and broadly effective set of policies, and a private sector ready to seek opportunities around green innovation.

That said, we are now entering a crunch phase for delivery on Net Zero. Many of the necessary policy measures involved changes to supply chains, to customer and business behaviours, and in some cases additional cost burdens at least in the short term.

It is vital that the UK government engage in frank, honest conversations with people and businesses to be clear about what these challenges are, and seek support in overcoming them.

We make recommendations in this paper on ways to bolster and build organisational frameworks, as well as specific ideas in sectors that are key to the Net Zero transformation. We also call on the government to continue its work on enablers – planning, skills, trade and carbon pricing.

Our priority calls to action are for a new, robust and deliverable Green Industrial Strategy, and for a new, high-impact government body to drive change over time, using the Covid Vaccine Taskforce as inspiration.

We believe that by incorporating the recommendations set out in our report, the UK can truly become the world leader in Green Innovation.



APPENDIX

A1: NET ZERO STRATEGY COMMITMENTS

The Net Zero Strategy^{lxxix}, published in 2021 and updated in April 2022, was built on a previous “Ten-Point Plan for a green industrial revolution” released in 2020. The Net Zero Strategy includes ambitious commitments across various sectors (see Appendix):

- **Power sector:** full decarbonisation by 2035.
- **Fuel supply and hydrogen:** deliver 5 GW of hydrogen production capacity by 2030, whilst halving emissions from oil and gas.
- **Industry:** deliver four carbon capture usage and storage (CCUS) clusters, capturing 20 to 30 MtCO₂ across the economy, including 6 MtCO₂ of industrial emissions, per year by 2030.
- **Heat and buildings:** set a path to all new heating appliances in homes and workplaces from 2035 being low carbon.
- **Transport:** remove all road emissions at the tailpipe and kickstart zero emissions international travel.
- **Natural Resources, waste and fluorinated gases:** treble woodland creation rates in England.
- **Greenhouse Gas Removals** an ambition to deploy at least five MtCO₂/year of engineered GGRs by 2030.
- **Cross cutting action:** 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.

A2: SELECTION OF POLICY MEASURES IN THE GOVERNMENT’S RESPONSE TO THE CCC

Actions cited by the government include:

- Publishing the Green Finance strategy to ensure the UK is a world leader in this space.
- Delivering on the £1 billion Net Zero Innovation Portfolio.
- Holding the first Net Zero Council meeting to seek business input into delivery of Net Zero.
- Securing funding for Fusion Energy.
- Launching Great British Nuclear and confirming investment in Sizewell C.
- Securing £4bn private investment in a new Gigafactory.
- Publishing guidelines for sector roadmaps.
- Launching a £1 billion insulation scheme and increasing cash grants for heat pumps.
- Setting out its preferred approach to the Zero Emission Vehicle mandate – 80% of new cars to be ZEV by 2030.

REFERENCES

- i. <https://epi.yale.edu/>
- ii. Yale University uses a composite measure composed of nine indicators: adjusted emission growth rates for four greenhouse gases (CO₂, CH₄, F-gases, and N₂O) and one climate pollutant (black carbon); projected greenhouse gas emissions in 2050; growth rate in CO₂ emissions from land cover; greenhouse gas intensity growth rate; and greenhouse gas emissions per capita.
- iii. Climate Change Act 2008 (2050 Target Amendment) Order 2019
- iv. <https://unfccc.int/topics/what-is-technology-development-and-transfer>
- v. <https://epi.yale.edu/>
- vi. Yale University uses a composite measure composed of nine indicators: adjusted emission growth rates for four greenhouse gases (CO₂, CH₄, F-gases, and N₂O) and one climate pollutant (black carbon); projected greenhouse gas emissions in 2050; growth rate in CO₂ emissions from land cover; greenhouse gas intensity growth rate; and greenhouse gas emissions per capita.
- vii. Progress in reducing emissions: 2023 Report to Parliament, Climate Change Committee (CCC), June 2023
- viii. Progress in reducing emissions: 2023 Report to Parliament, Climate Change Committee (CCC), June 2023
- ix. <https://www.mckinsey.com/capabilities/sustainability/our-insights/opportunities-for-uk-businesses-in-the-net-zero-transition>
- x. Climate Change Act 2008 (2050 Target Amendment) Order 2019
- xi. Government policy on reaching Net Zero by 2050, House of Commons Library Research Briefing, 02 June 2023
- xii. Net Zero Strategy: Build Back Greener, HM Government, October 2021 (updated April 2022)
- xiii. Mission Zero: Independent review of Net Zero, Rt Hon Chris Skidmore MP, March 2023
- xiv. Sectors covered in the CBDP were: Power, Fuel Supply, Industry, Heat & Buildings, Domestic Transport, International Aviation and Shipping, Agriculture, Forestry and Other Land Use, Resources & Waste, F-gases and GHG removals.
- xv. Progress in reducing emissions: 2023 Report to Parliament, Climate Change Committee (CCC), June 2023
- xvi. Responding to the Climate Change Committee's (CCC) 2023 Annual Progress Report to Parliament, HM Government, October 2023
- xvii. Climate Call to Action: Research Report, A BCC and Lloyds Bank Partnership, August 2023
- xviii. Heat Pump Investment Roadmap Leading the way to net zero April 2023
- xix. <https://www.theguardian.com/environment/2024/jan/11/installation-of-rooftop-solar-panels-uk-12-year-high-2023-record-number-of-heat-pumps>
- xx. POSTnote 699, UK Parliament, By Ben Harris, Alan Walker 14 July 2023
- xxi. The NIC was established provide expert, impartial advice to the government on infrastructure, shape and develop the national infrastructure assessment and specific studies. See www.nic.org
- xxii. Public Accounts Committee, The rollout of the Covid-19 vaccine programme in England, 13 July 2022
- xxiii. <https://www.gov.wales/well-being-of-future-generations-wales>
- xxiv. <https://www.theccc.org.uk/wp-content/uploads/2013/03/CCCFramework-Document.pdf>
- xxv. <https://uucn.ac.uk/about-us/>
- xxvi. The Power of Partnership: Unlocking business action on Net Zero, A report prepared by the Advisory Business Group for the UK's Climate Change Committee, June 2023
- xxvii. <https://climatepartnerships2030.com/>
- xxviii. <https://www.weforum.org/agenda/2023/08/inflation-reduction-act-one-year-green-jobs/>

- xxix. One year inflation reduction act— initial outcomes and impacts for EU-US trade and investment, E3G, October 2023
- xxx. <https://www.atlanticcouncil.org/blogs/energysource/a-year-after-the-ira-industrial-policy-has-gone-global/>
- xxxi. One year inflation reduction act— initial outcomes and impacts for EU-US trade and investment, E3G, October 2023
- xxxii. World Energy Outlook 2023, IEA
- xxxiii. <https://www.energy-uk.org.uk/news/mind-the-gap-how-low-carbon-energy-investment-can-transform-the-uk/>
- xxxiv. Examples taken from the IEA solar policy database, <https://www.iea.org/energy-system/renewables/solar-pv>
- xxxv. <https://www.theguardian.com/world/2023/jun/29/china-wind-solar-power-global-renewable-energy-leader>
- xxxvi. <https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain>
- xxxvii. HM Treasury, Autumn Statement 2023
- xxxviii. <https://www.gov.uk/government/news/billions-of-investment-for-british-manufacturing-to-boost-economic-growth>
- xxxix. <https://www.gov.uk/government/publications/autumn-statement-2023>
- xl. Solar Photovoltaics deployment in the UK - November 2023
- xli. DESNZ, Energy Trends, Statistical Release 21 December 2023
- xl. Environmental Audit Committee, Technological innovations and climate change: onshore solar power, Letter to Secretary of State for DESNZ, 4th May 2023 <https://committees.parliament.uk/publications/39836/documents/193860/default/>
- xl. Contracts for Difference evaluation phase 1 executive summary, BEIS,
- xliv. Progress in reducing emissions: 2023 Report to Parliament, Climate Change Committee (CCC), June 2023
- xl. Progress in reducing emissions: 2023 Report to Parliament, Climate Change Committee (CCC), June 2023
- xlvi. Carbon Capture, Usage and Storage: A Vision to Establish a Competitive Market, DEZNS Policy paper, December 2023
- xl. Progress in reducing emissions: 2023 Report to Parliament, Climate Change Committee (CCC), June 2023
- xl. Carbon Capture, Usage and Storage: A Vision to Establish a Competitive Market, DEZNS Policy paper, December 2023
- xl. Carbon Capture, Usage and Storage: A Vision to Establish a Competitive Market, DEZNS Policy paper, December 2023
- i. UK CCUS Industry Reaction to Government's CCUS Vision & Cluster Sequencing Announcements, <https://www.ccsassociation.org/all-news/ccsa-news/uk-ccus-industry-reaction-to-governments-ccus-vision-cluster-sequencing-announcements/>
- ii. <https://corporate.virginatlantic.com/gb/en/media/press-releases/worlds-first-sustainable-aviation-fuel-flight.html>
- ii. <https://www.consilium.europa.eu/en/press/press-releases/2023/10/09/refueu-aviation-initiative-council-adopts-new-law-to-decarbonise-the-aviation-sector/>
- liii. <https://unfccc.int/topics/what-is-technology-development-and-transfer>
- liv. Green Jobs Task Force; Report to Government, Industry and the Skills Sector

- iv. Broader issues around skills policy are explored in more detail in our People & Work Challenge report
- lvi. <https://www.princes-trust.org.uk/about-us/news-views/green-skills-crisis-is-looming>
- lvii. <https://www.instituteforapprenticeships.org/about/who-we-are/green-apprenticeships-and-technical-education-advisory-panel/>
- lviii. <https://www.gov.uk/government/groups/green-jobs-delivery-group>
- lix. Power and Networks Summer 2023 publication, Green Jobs Delivery Group
- lx. <https://apolitical.co/learning-hub/government-climate-campus/>
- lxi. Addressing the climate and biodiversity crises: IEMA's key recommendations for UK policymakers, IEMA, August 2023
- lxii. Review of Energy Networks Commissioner, Nick Winser, August 2023 <https://www.gov.uk/government/publications/accelerating-electricity-transmission-network-deployment-electricity-network-commissioners-recommendations>
- lxiii. House of Commons Research Library, Planning for onshore wind, October 2023
- lxiv. House of Commons Research Library, Planning for onshore wind, October 2023
- lxv. HM Treasury, Autumn Statement 2023
- lxvi. Onshore Wind Sector Deal for Scotland 2023
- lxvii. <https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-financing>
- lxviii. Mobilising Green Investment: 2023 Green Finance Strategy, HM Government, March 2023
- lxix. <https://www.greenfinanceinstitute.com/programmes/uk-green-taxonomy-gtag/>
- lxx. Closing statement from the Chair of the GTAG | GTAG has advised, now the UK must implement, GTAG / Green Finance Institute, 5 October 2023
- lxxi. Closing statement from the Chair of the GTAG | GTAG has advised, now the UK must implement, GTAG / Green Finance Institute, 5 October 2023
- lxxii. About carbon pricing, UNFCC
- lxxiii. https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en
- lxxiv. Developing the UK Emissions Trading Scheme (UK ETS), UK Government, March 2022
- lxxv. UK and EU Emissions Trading Schemes – drifting in different directions?, Sam Lowe and James Lowe, UK in a Changing Europe, 11 Sep 2023
- lxxvi. <https://energyadvicehub.org/the-uk-emissions-trading-scheme-frequently-asked-questions/>
- lxxvii. UK and EU Emissions Trading Schemes – drifting in different directions?, Sam Lowe and James Lowe, UK in a Changing Europe, 11 Sep 2023
- lxxviii. Factsheet: UK Carbon Border Adjustment Mechanism, 18 December 2023
- lxxix. Net Zero Strategy: Build Back Greener, HM Government, October 2021 (updated April 2022)



CONTRIBUTORS

We are pleased to thank the following stakeholders who contributed to our report including BCC

Business Council members:

- Chair - Lisa Witter, entrepreneur, Co-Founder of Apolitical and the Apolitical Foundation and emeritus member of the board of directors for Climate Counts
- East Lancashire Chamber of Commerce and Industry
- Glasgow Chamber of Commerce
- Green Finance Institute
- Institute of Environmental Management and Assessment (IEMA)



British Chambers of Commerce | 65 Petty France, London, SW1H 9EU
britishchambers.org.uk | @britishchambers | 020 7654 5800

British Chambers of Commerce is a Company Limited by Guarantee, registered in England and Wales No. 9635.
Designed by iloveclive.co.uk