House of Commons Library

Debate Pack
25 July 2024
Number 2024/0110

By Alan Walker,
Suzanna Hinson,
Nikki Sutherland

Making Britain a clean energy superpower

Summary

The UK's energy system supplies its electricity, transport, heating and industrial needs. Energy policies focus on delivering three main objectives for the system: affordability, security of supply and sustainability.

"Clean" energy tends to refer to low-carbon energy technologies which are mainly used for generating electricity. The role of electricity is expected to increase with the increasing adoption of technologies such as heat pumps for heating and electric vehicles in transport.

The UK's electricity mix has been changing over time, as the proportion of fossil fuels such as coal reduces, and the proportion of renewables increases. This has contributed to a reduction in UK emissions since the 1990s, much of which has been driven by reducing electricity emissions. The UK produces much of its own energy needs, and in recent years became a net exporter of electricity. It is a net importer of gas and petroleum. The cost of energy has been a focus in recent years, following a price spike in 2022 to 2023.

The Labour Government, in its 2024 election manifesto, committed to making the UK a "clean energy superpower". This was one of five "missions to rebuild Britain" and include policies such as launching a publicly-owned energy company (GB Energy), a National Wealth Fund, and a Warm Homes Plan.

Stakeholders have broadly welcomed Labour's plans, highlighting the need to increase investment in order to meet decarbonisation targets. The Climate Change Committee (CCC) and National Grid Future Systems Operator (ESO) have recently published reports on the energy system (yearly reports that are independent of the election). The CCC highlighted that the UK is off track to meet some of its decarbonisation targets, and the ESO stated that action was needed within the next two years to transform the energy system.

1 Current state of the UK energy sector

The UK's energy system supplies its electricity, transport, heating and industrial needs.

The Library briefing Introduction to the domestic energy market provides an overview of the energy system. The government also publishes an annual report on UK energy system statistics.

The UK's energy mix has changed over time

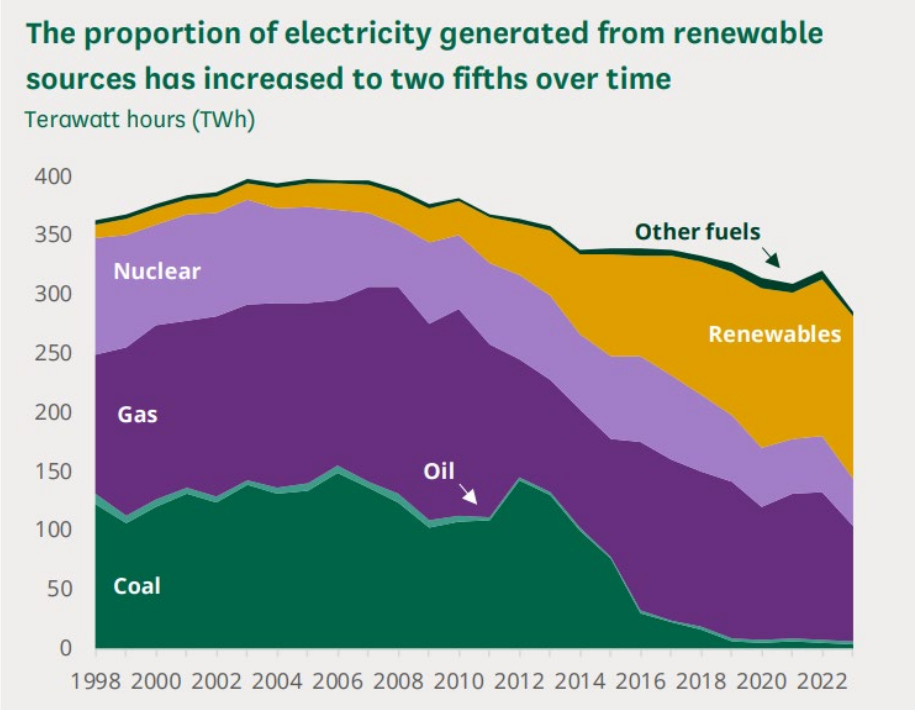
Energy is a broad term encompassing different fuels. These include transport and heating fuels, as well as electricity, which in turn can be produced from different generating technologies.

The UK's energy supply is dominated by fossil fuels, which meet approximately 78% of its demand.[1] This is mainly split between natural gas for heating and electricity, and petrol and diesel for transport.

"Clean" energy tends to refer to low-carbon energy technologies which are mainly used for generating electricity. These include renewables and nuclear power. The proportion of low-carbon sources of energy is increasing, particularly for electricity (where low-carbon sources accounted for 56% in 2022).[2]. Electricity only met around 18% of total energy demand in the UK in 2022, although its role is expected to increase with the adoption of technologies such as heat pumps for heating and electric vehicles.

The UK's changing electricity mix is shown in the graph below, with a reduction in the use of coal and an increase in the use of renewables.

1 DESNZ, Digest of UK Energy Statistics (DUKES) 2023, 27 July 2023
2 DESNZ, Digest of UK Energy Statistics (Dukes): electricity, 27 July 2023



Source: DESNZ, Energy Trends: UK electricity, ET 5.1

Energy bills have spiked in recent years

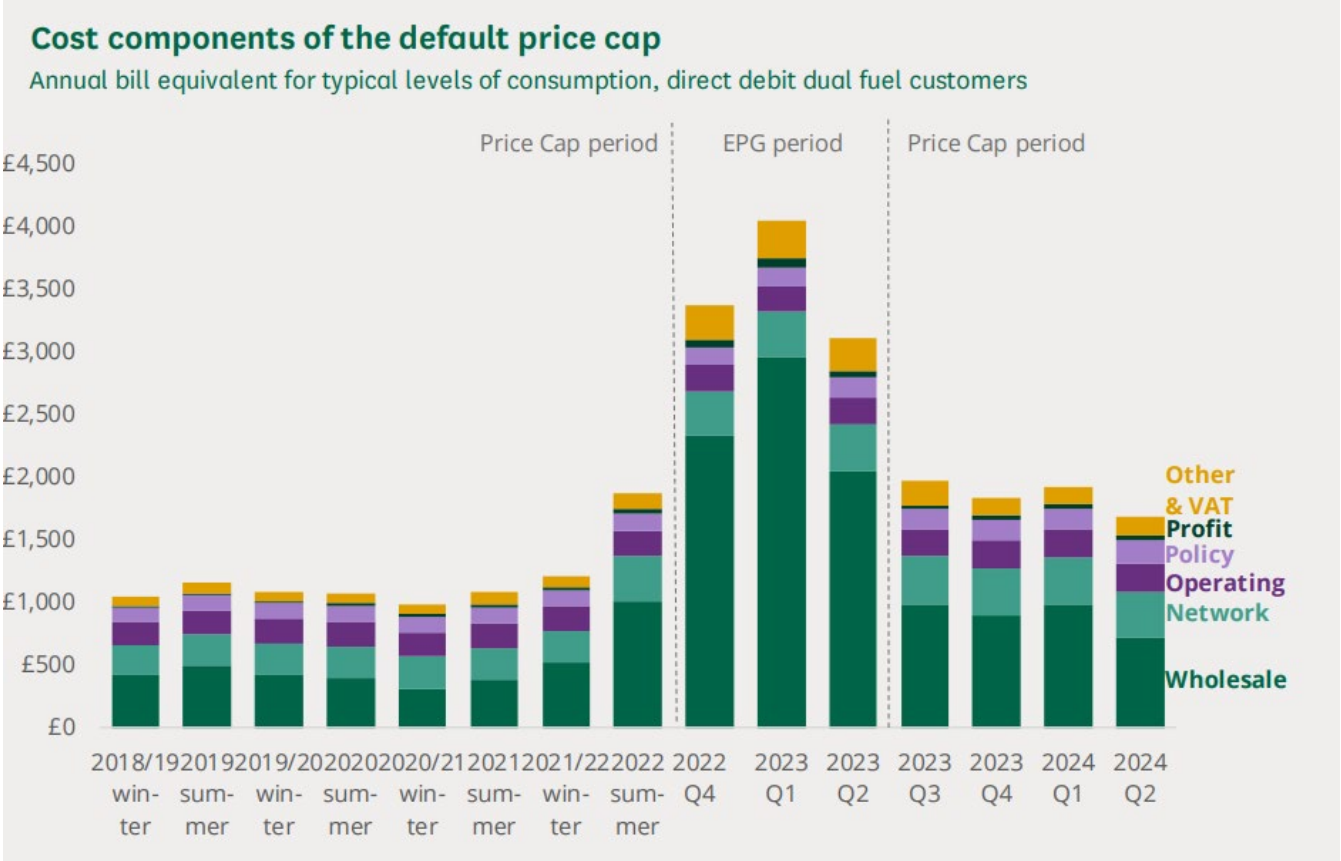
The energy market is split into a wholesale market (generators selling to suppliers) and a retail market (suppliers selling energy to end consumers).

Consumer energy bills comprise a variety of costs. The wholesale cost of gas and electricity make up the largest part of an energy bill. Other costs include network costs, social and environmental policy costs, supplier operating costs and margin, other direct costs, and taxes.

Energy bills have been a focus for government policy as there have been concerns about households in fuel poverty, and whether the energy market is operating effectively and competitively. From 2019, the government introduced a "price cap" on the unit costs of energy to try to protect consumers from inflated bills. The Library briefing on Energy bills and the price cap (September 2022) provides further information.

Energy bills spiked, both in the UK and globally, from 2022 following the loosening of restrictions relating to the Covid pandemic, and the Russian invasion of Ukraine. The government introduced several additional measures to support consumers, including an Energy Price Guarantee (EPG). The Library briefing Gas and electricity prices during the "energy crisis" and beyond (28 May 2024) provides further information.

The chart below shows how the different components of a bill have changed over time.[3] Much of the peak shown was not paid by consumers as bills were capped by the EPG.



Source: Ofgem, Energy price cap levels 1 April to 30 June 2024. Final levelized cap rates model (Annex 9)

Energy imports and exports vary between different fuels and years

The UK produces much of its energy and is also engaged in the international market of imports and exports.

- Gas: The UK currently imports more natural gas than it exports. Most of the gas consumed in the UK came from domestic production (54% in 2023),[4] with the remainder coming from imports. The UK imports gas through pipelines from Europe (for example, in 2023 57% of UK gas imports came from Norway via a pipeline) and tankers of liquified natural gas (LNG) from various countries which accounted for 30% of UK gas demand in 2023.[5] While the UK previously

3 Graph notes: These are costs for a typical domestic fuel bill paid by direct debt. "Other" includes direct debit uplift, adjustment allowance and headroom. "Operating costs" includes smart meters costs. "Profit" is earnings before interest and tax (EBIT)

4 DESNZ, Energy Trends: UK gas, Table 4.1

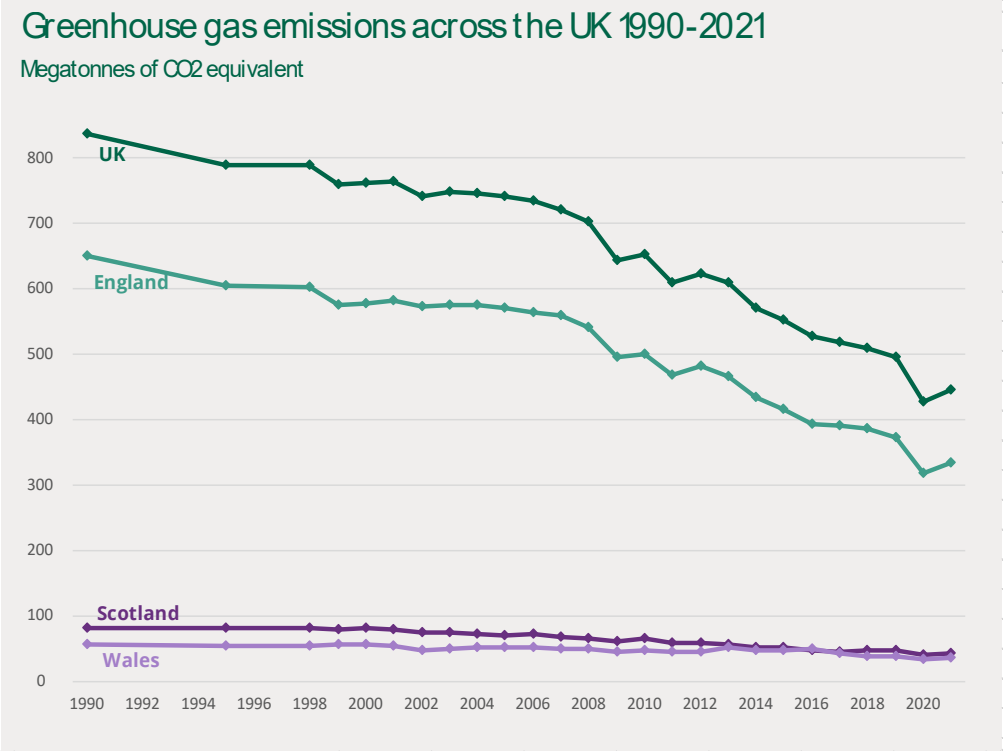
5 DESNZ, Energy Trends: UK gas, Table 4.1

imported gas from Russia, the UK banned the import of Russian gas from the start of 2023. The Library briefing, Imports of fossil fuels from Russia, provides further information.

- Petroleum: The UK is also a net importer of petroleum (mainly used in transport) with the US and Norway the largest sources.[6]
- Electricity: Most of the electricity consumed in the UK is generated in the UK. In 2023, 41% was from renewable sources (such as solar power and wind power), 36% of electricity was generated from fossil fuels, and 14% was from nuclear energy. The UK has several electricity interconnectors with Europe to allow trading and sharing of surplus electricity such as that generated from windfarms. The UK has historically been a net importer of electricity but in 2022, the UK was a net exporter of electricity for the first time and was also a net exporter in 2023.[7]

UK carbon emissions have been falling

UK carbon emissions have fallen by around a half since 1990. The graph below shows the decline across the countries of GB.



Source: National Atmospheric Emissions Inventory, Greenhouse gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2021, June 2023

6 DESNZ, Energy Trends: UK oil and oil products, ET 3.2
7 DESNZ, Energy Trends: UK electricity, ET 5.1

2 Challenges for UK energy policy

Policies relating to the energy system must balance three main aspects – affordability, security of supply and sustainability. This section sets out some of the issues and challenges of addressing these challenges.

2.1 Affordability

As set out above, the cost of energy increased significantly from the beginning of 2022. By the end of 2023, the cost of the average annual household energy bill, as set by the regulator Ofgem in its energy cap, had more than doubled to over £4,000. In response, the government introduced measures that provided financial support to all UK domestic consumers. For more information, see the Library briefing paper on Help with energy bills (updated 22 December 2023).

The price of natural gas has since fallen and most government support mechanisms were discontinued in spring 2024. However, prices remain high, with the energy price cap around 40% higher than in winter 2021/22, which includes costs of an estimated £2.7 billion resulting from energy retailers that went bust during the energy price crisis.

In the UK, the price of electricity at any particular time is set by the most expensive form of generation needed to meet demand, which is usually natural gas. This means that recent decreases in the cost of wind and solar energy have not had the expected impact on consumer bills. The Library's Insight Why is cheap renewable electricity so expensive on the wholesale market? explains more. A review of wholesale electricity market arrangements (REMA) was started in July 2022 and is ongoing.

2.2 Security of supply issues

The invasion of Ukraine exacerbated a shortage of supply in global fuel markets, brought on by a surge in demand following the end of Covid restrictions around the world. This highlighted the global nature of energy supply chains and potential impacts on the security of UK energy supplies.

In a statement to the Organization for Security and Co-operation in Europe (OSCE) in July 2023, the UK government Delegate said:

> Putin's invasion exposed mainland Europe's over-dependence on Russian gas, with implications for affordability and security. […] That is why the UK has worked with international partners to ban imports of Russian coal, oil, and liquefied natural gas. Reducing exposure to volatile oil and gas

> prices and Russian energy market manipulation depends on a faster transition to renewables and nuclear.[8]

In April 2022, the government published its British energy security strategy that aimed to increase domestic energy production by greater deployment of renewables, nuclear energy and domestic oil and gas, thus reducing dependence on foreign energy supplies.

The issue of energy security is discussed in the Parliamentary Office of Science and Technology (POST) briefing on Energy security (August 2022). This notes that there are different components of energy security that includes availability, accessibility and affordability. In practice, the UK has a high level of security of supply with failures more likely to be the result of equipment failures or weather-related events rather than because of fuel shortages or a lack of electrical generating capacity. However, the POST briefing suggests that the energy transition may introduce additional energy security risks such as challenges related to the integration of large amounts of intermittent sources of electricity (mainly wind and solar), lack of investment, shortages of skills or critical materials, and cyber-attacks.

2.3 Sustainability

Climate Change Committee's 2024 Progress Report

In July 2024 the Climate Change Committee (CCC, the government's independent climate advisory body) published its latest yearly assessment of the UK Government's progress in reducing greenhouse gas (GHG) emissions.[9]

The CCC's report noted that the UK has so far met all three of its interim targets for emissions reductions (Carbon Budgets 1-3), with territorial emissions[10] having fallen by over half since 1990. However, the report signals that the UK is not on track to meet its target to reduce emissions by 68% compared to 1990 levels by 2030. This target is the UK's agreed Nationally Determined Contribution (NDC) to the Paris Agreement and the first UK target set in line with its net zero by 2050 target.

8 Foreign, Commonwealth and Development Office, Russia's war is impacting energy security: UK statement to the OSCE, July 2023

9 CCC, 2024 Progress report to Parliament, 18 July 2024. More information on the CCC, net zero, and the UK's carbon budgets is set out in the Library briefing paper on The UK's plans and progress to reach net zero by 2050 (November 2023)

10 Territorial emissions are those produced in the UK rather than from the overseas production of goods or services consumed in the UK. Territorial emissions also exclude the UK's contribution to international aviation and shipping.

The report recommends that a period of rapid investment and delivery is required to ramp up the roll-out of low-carbon technology. The CCC said that by 2030, the UK needs:

- A tripling of offshore wind installations, doubling of onshore wind installations and a five-fold increase in solar installations.
- The installations of heat pumps in 10% of existing UK homes, compared to a current level of 1%.
- An increase of the market share of electric vehicles from 16.5% at present to almost 100%.[11]

In order to achieve the necessary acceleration in delivery of low-carbon infrastructure, the CCC set out 10 priority actions including:

- Make electricity cheaper.
- Reverse recent policy rollbacks.
- Remove planning barriers for heat pumps, electric vehicle charge points and onshore wind.
- Introduce a comprehensive programme for decarbonisation of public sector buildings.
- Effectively design and implement the upcoming renewable energy Contracts for Difference (CfD) support mechanism auctions.
- Accelerate electrification of industrial heat.
- Publish a strategy to support skills.[12]

The CCC is currently preparing its advice on the Seventh Carbon Budget, which covers the period 2038-2042, that will be published in early 2025.

National Grid ESO/National Energy System Operator (NESO)

National Grid ESO is the electricity system operator for Great Britain. In summer 2024, it will transition to the National Energy System Operator (NESO), an independent, public corporation responsible for planning Britain's electricity and gas networks and operating the electricity system.

National Grid ESO models a range of possible credible pathways to decarbonise the energy system by 2050. The most recent of these -

11 CCC, 2024 Progress report to Parliament, 18 July 2024
12 CCC, 2024 Progress report to Parliament, 18 July 2024

Future Energy Scenarios: ESO Pathways to Net Zero (FES) - was published on 15 July 2024.

Similar to the CCC 2024 Progress report, the FES states that:

> Decisive action is needed within the next two years to deliver the fundamental change required for a fair, affordable, sustainable and secure net zero energy system by 2050.[13]

The FES 2024 put forward eight key actions, including:

- Accelerate the delivery of whole system infrastructure through strategic investment and planning reforms.
- Deliver market reform.
- Accelerate progress on low carbon heating including faster rollout of heat pumps.
- Deliver innovation and build consumer trust in affordable smart technology.
- Expedite the delivery of clean, low-cost and reliable new technologies and long-duration energy storage by reforming the connections process.
- Invest in supply chain and skills to deliver the low carbon technologies and infrastructure.[14]

2.4 Grid connections

The transition to a decarbonised electricity system will require large amounts of new generation capacity, such as wind farms, to be connected to the electricity grid in order to supply the necessary electricity.

Concerns have been raised by the energy sector industry about the length of time to obtain grid connections for new energy infrastructure, which is seen as a potential bottleneck to deliver a decarbonised grid in time to meet targets. For example, speaking at an oral evidence hearing (24 January 2023, PDF) for the then Business, Energy and Industrial Strategy Committee inquiry on Decarbonisation of the power sector, industry representatives reported that in some cases connection dates of 15 years or more had been offered.

To address the issue, in July 2022, the government appointed Nick Winser CBE as the UK's first Electricity Networks Commissioner. The

13 National Grid ESO, Future Energy Scenarios: ESO Pathways to Net Zero, July 2024 p21
14 National Grid ESO, Future Energy Scenarios: ESO Pathways to Net Zero, July 2024 p21

Winser report on accelerating electricity transmission network deployment was published in August 2023, and set out recommendations that aimed to halve the connection time of new projects to around seven years.

In response, the government accepted the recommendations and published its Transmission Acceleration Action Plan in November 2023, which addressed the recommendations of the Electricity Networks Commissioner's report across eight themes, details of which can be found in the Secretary of State's statement on Transforming Great Britain's Electricity Network (see Section 8.1).

The government and Ofgem also published an Electricity networks: connection action plan in November 2023 that has an ambition for the majority of projects to receive the connection date they request. Ofgem also announced in November 2023 a new policy to clear 'zombie projects' and cut waiting time for energy grid connection. The policy ended the existing 'first-come, first-served' system and allowed stalled or speculative developers to be forced out of the connections queue.

National Grid ESO, the electricity system operator for GB, have a five point plan to improve the connection process at the transmission level in the short term. National Grid ESO also published proposals in April 2024 to further develop connections reforms by applying a first ready, first connected approach to the whole connections queue.

Labour, in its 2024 Manifesto, identified the national grid as an obstacle to the deployment of clean power generation and the electrification of industry. They have expressed an intention to work with industry to upgrade national transmission infrastructure.

3 Labour's proposals for a "clean energy superpower"

3.1 Labour manifesto plans for clean energy

In its 2024 election manifesto, Labour committed to making the UK a "clean energy superpower". This was one of five "missions to rebuild Britain"[15]. The Labour manifesto set out how it plans to achieve this aim.[16] Some of the main elements are:

- Clean power by 2030

15 Labour, Mission-driven government

16 Labour, Make Britain a clean energy superpower (2024) (pdf)

A commitment to have a zero-carbon electricity system by 2030. It includes targets to double onshore wind, triple solar power, and quadruple offshore wind, along with investment in carbon capture and storage, nuclear energy, hydrogen, marine energy, and long-term energy storage.

It also includes plans to maintain a strategic reserve of gas power stations to guarantee security of supply and ensure a phased transition in the North Sea, but no new oil and gas licences or coal licences will be issued and fracking will be permanently banned.

To support investment, Labour will extend the sunset clause in the Energy Profits Levy until the end of the next parliament and increase the rate of the levy by three percentage points, as well as removing any investment allowances. Labour also said it will retain the Energy Security Investment Mechanism, which is a mechanism to end the Energy Profits Levy early if the 6-month average price for both oil and gas falls below a threshold price.

- Warm homes plan

  The Warm Homes Plan will offer grants and low interest loans to support investment in home energy efficiency improvements, such as insulation and other improvements such as solar panels, energy storage batteries and low carbon heating. Labour said it will partner with local authorities and the private sector to deliver this plan. It will aim to provide more private finance to accelerate home upgrades, and introduce minimum energy efficiency standards by 2030 in the private rented sector, but Labour claim that no one will be forced to replace existing boilers.

- Great British Energy

  Labour plan to create a new, publicly-owned energy company that will co-invest with industry in leading technologies, help support capital-intensive projects, and deploy local energy production.

  Great British Energy will be capitalised with £8.3 billion over the next parliament. It will be headquartered in Scotland, and the Labour manifesto said that it will create jobs and build supply chains across the UK.

  A bill to create GB energy was included in the Kings Speech (see below).

- Market reform, green jobs and investment

  Labour intends to introduce a tougher system of regulation for energy markets. This will include a reduction in standing charges and automatic customer compensation for failures.

Labour also sees the national grid as an obstacle to the deployment of clean energy and intend to work with industry to upgrade the national transmission infrastructure.

Labour plan to create a National Wealth Fund: a new strategic body to invest and create jobs in green industries, such as in ports, hydrogen and industrial clusters. It aims to invest public money to 'crowd in' private capital, with a focus on projects relevant to the energy transition.

Working with businesses and trade unions, Labour aim to rebuild supply chains and create new export markets. This will include a British Jobs Bonus, allocating up to £500 million per year from 2026 to companies that offer good jobs and manufacturing facilities in the UK. Labour also expressed an intention to end any injustices related to the Mineworkers' Pension Scheme.

Labour plans to introduce a carbon border adjustment mechanism to protect British industry from higher emission imports, and mandate UK-regulated financial institutions to develop and implement credible transition plans that align with the Paris Agreement.

The manifesto also said Labour would also create policies in wider net zero sectors, such as resilience to climate change, protecting nature, clean water, supporting British farmers and animal welfare. Labour also outlined an automotive sector plan that will support the rollout of electric vehicle charging infrastructure and restore the 2030 phase-out date for petrol and diesel cars.

3.2 Labour priorities for the Department of Energy Security and Net Zero (DESNZ)

Labour formed a government following the general election on 5 July 2024. Ed Miliband was appointed as Secretary of State for Energy Security and Net Zero and, on 8 July 2024 he set out his priorities for DESNZ. The Department, he said, would be leading the mission "to make Britain a clean energy superpower with zero carbon electricity by 2030, and accelerating our journey to net zero."[17]

Miliband stated his priorities would be:

- Delivering our mission to boost energy independence and cutting bills through clean power by 2030.

[17] Department for Energy Security and Net Zero, Energy Secretary Ed Miliband sets out his priorities for the department, 8 July 2024

- Taking back control of our energy with Great British Energy.
- Upgrading Britain's homes and cutting fuel poverty through our Warm Homes Plan.
- Standing up for consumers by reforming our energy system.
- Creating good jobs in Britain's industrial heartlands, including a just transition for the industries based in the North Sea.
- Leading on international climate action, based on our domestic achievements.[18]

3.3 Statement by Ed Miliband on clean energy mission

On 18 July 2024, Ed Miliband made a statement in the House of Commons on the government's Clean Energy Superpower Mission. In the statement, he noted the urgency of the challenges related to energy insecurity and the cost of living crisis. It also noted the Climate Change Committee's 2024 Progress report (see section 4.1), which had concluded that the UK is not on track to meet its 2030 emission reduction target.

Mr Miliband set out the following next steps he would be taking:

- Lift the ban on onshore wind (a Policy statement on onshore wind was published on 8 July 2024 removing some restrictions on onshore wind in the National Planning Policy Framework (NPPF)).
- Publish a solar road map with greater ambition and reconvene the solar taskforcedeployment of to deliver that objective.
- Report in early August on the allocation budget for the next round of auctions for the Contracts for Difference (CfD) renewable energy support scheme.
- Introduce the Great British Energy Bill (see section 3.5).

In response, the shadow Secretary of State, Claire Coutinho, questioned the impact that decarbonising the grid by 2030 might have on energy bills and security of supply. She also raised concerns that Labour plans to accelerate deployment of energy infrastructure would impact rural communities and come at the expense of food or national security.

[18] Department for Energy Security and Net Zero, Energy Secretary Ed Miliband sets out his priorities for the department, 8 July 2024

3.4 Mission Control to deliver clean power by 2030

On 9 July 2024, the government announced that Chris Stark, former chief executive of the Climate Change Committee, had been appointed a head of a new Mission Control tasked with delivering clean power by 2030.

The press release stated the new body will:

> work with key energy companies and organisations including the regulator Ofgem, the National Grid and the Electricity System Operator to remove obstacles and identify and resolve issues as they arise. This will speed up the connection of new power infrastructure to the grid, and cleaner, cheaper power to people's homes and businesses.[19]

Its activity will focus on setting and tracking progress towards decarbonising the electricity grid by 2030, monitoring progress of critical infrastructure projects, and acting as an innovation centre.

3.5 Energy bills in the Kings Speech

The Kings Speech, delivered on 17 July 2024, included several bills with relevance to the energy sector, details of which can be found in the King's Speech 2024: background briefing notes. The energy relevant bills were:

- Great British Energy Bill: a Bill to set up Great British Energy, a publicly owned clean power company headquartered in Scotland, which will help accelerate investment in renewable energy such as offshore wind.
- National Wealth Fund Bill: a Bill to establish the National Wealth Fund, which will be capitalised with an additional £7.3 billion and make transformative investments across every part of the country.
- Planning and Infrastructure Bill: a Bill to reform the planning system, speeding up and streamline the process to build more homes and accelerate the delivery of major infrastructure projects in alignment with industrial, energy, and transport strategies.
- Crown Estate Bill: a Bill to modernise The Crown Estate by removing outdated restrictions on its activities, widening its investment powers and giving it the powers to borrow in order to

[19] Gov.uk, Chris Stark to lead Mission Control to deliver clean power by 2030, 9 July 2024

invest at a faster pace, including vital marine investment needed to accelerate and quadruple offshore wind capacity by 2030.

- Sustainable Aviation Fuel Bill: a Bill to create a revenue certainty mechanism for the construction of sustainable aviation fuel (SAF) manufacturing plants in the UK.

- Water (Special Measures) Bill: a Bill to strengthen the powers of the water regulator.

4 Stakeholder response to Labour's proposals

Energy UK, the UK's energy industry trade association, published its report The steps to make Britain a clean energy superpower in July 2024. This welcomes the ambition shown by the Labour Government to make Britain a clean energy superpower but notes that:

> A fundamental part of the ambition to make Britain a clean energy superpower hinges on the ability to deliver a decarbonised grid by 2030. To achieve this, a step change in how projects are deployed will be required. The Government needs to urgently address the barriers to the rapid expansion on clean electricity so the private sector can deliver.[20]

The report also calls for action on market reform, decisions on low-carbon generation, the impact of policy costs on consumer bills, grid connections, and the planning system.

The National Engineering Policy Centre, a partnership of 42 professional engineering organisations, noted in its report Rapid decarbonisation of the GB electricity system (July 2024) that the decarbonisation of the UK energy system will require significant co-investment from the public and private sectors. It recommends that government "must clearly set out the objectives and benefits of electricity decarbonisation" and that transforming the power system "requires strong single-point leadership, accountable to the Prime Minister, to respond to this complex system challenge."[21]

Others have expressed concern that a 'green skills gap' could hold back the UK's transition to net zero. Research by social media platform LinkedIn found that:

> half of workers in the UK, and 41 per cent of staff in the most energy-intensive industries - namely transportation, automotive, construction,

20 Energy UK, Mission Possible: The steps to make Britain a clean energy superpower (PDF), July 2024

21 National Engineering Policy Centre, Rapid decarbonisation of the GB electricity system, July 2024

utilities, manufacturing, oil and gas, farming and mining - do not have access to the training required to move into greener roles or to improve relevant skills. [22]

5 International context

The UK energy system does not operate in isolation as energy is traded globally, projects compete for international investment, and nations cooperate on decarbonisation.

Through the 2016 Paris Agreement, 196 countries have set a goal to limit increases in average global temperature to well below two degrees above pre-industrial levels. International efforts to transition to a low-carbon energy system are accelerating with innovation and investment increasing globally.

The International Energy Agency (IEA), in its World Energy Outlook 2023, noted that "Investment in clean energy has risen by 40% since 2020." This, they say, is driven by the push to reduce greenhouse gas emissions, but also by some fuel-importing countries' desire to improve energy security and create clean energy jobs. The IEA forecast that by 2030, in a scenario based on the latest policies stated by international governments, annual investments in clean energy will be over $2 trillion compared to less than $1 trillion for fossil fuels.[23]

Investment in clean energy is global, but is driven mainly by three regions: the US, the European Union and China:

- United States: in August 2022, the US Congress approved the Inflation Reduction Act (IRA). This aimed to reduce domestic inflation while tackling climate change. The IRA is made up of various grants, loans, tax provisions and other incentives to accelerate the deployment of sustainable energy, vehicles, buildings and manufacturing. A total of around $370 billion of funding is expected to be distributed. The impact of the IRA is difficult to gauge at this early stage. However, Goldman Sachs, in its article The US Inflation Reduction Act is driving clean-energy investment one year in (October 2023), reported that in the IRA's first year 280 projects were announced that are expected to create nearly 175,000 jobs and add over 185 gigawatts of new clean energy capacity, helping the US gain a larger share of the global clean-tech market.

- European Union (EU): the EU have a number of policy packages that relate to climate and energy including the European Green Deal (2019), which aims to make the EU net zero by 2050, Fit for 55

22 Business Green, LinkedIn: Green skills gap putting Labour's 'clean energy superpower' vision at risk, 24 July 2024

23 International Energy Agency, World Energy Outlook 2023

(2021), which set a target of 55% emissions reductions by 2030, and REPowerEU Plan (2022), which aims to reduce dependence on fossil fuels and accelerate the clean energy transition. The European Commission estimate that public and private investments to meet 2030 targets are expected to total over €400 billion annually over the period 2021-2030 and an additional cumulative investment of €300 billion will be needed to meet the REPowerEU objectives. The IEA notes that the EU is a leading region for clean energy deployment, investing 10 times more in clean energy than in fossil fuels.

- China: although China has accounted for around two-thirds of the increase in global oil use and one-third of the global increase in natural gas use over the past decade, the IEA suggest that the scope for further expansion of physical infrastructure in China is narrowing. In terms of clean energy investment, China is now the leading global clean energy investor, accounting for one-third of clean energy investments worldwide. China is also the leading installer of clean energy, commissioning as much solar PV in 2022 as the rest of the world combined. In the same year, its wind energy capacity increased by 66%. Government support for clean energy manufacturing, particularly in solar cells, lithium batteries and electric vehicles, is driving its exports of clean energy technology, although the European Union and United States are both concerned about the impact of this on their domestic manufacturing.

Overall, Bloomberg has reported that China invested around twice as much ($676 billion) in the energy transition as any other country or region in 2023, followed by the EU and US with $360 billion and $303 billion respectively. The UK, by comparison, invested $74 billion.[24]

6 News coverage

New Civil Engineer

18 July 2024

Great British Energy Bill to 'accelerate investment in renewable energy' with £8.3bn backing

Offshore Energy

[24] BloombergNEF, Global clean energy investment jumps 17%, hits $1.8trillion in 2023, according to Bloomberg NEF Report, 30 January 2024

17 July 2024

UK set on leaving fossil fuels behind and turning into clean energy superpower

Sustainability Magazine

17 July 2024

What does Great British Energy Mean for Sustainability?

New Statesman

16 July 2024

Britain will never be an energy superpower

Energy UK report

9 July 2024

The steps to make Britain a clean energy superpower

Department for Energy Security and Net Zero press release

9 July 2024

Chris Stark to lead Mission Control to deliver clean power by 2030

Business Green

8 July 2024

'Clean energy superpower': Ed Miliband sets out priorities for DESNZ

FT [subscription required]

5 July 2024

What Starmer's clean energy strategy means for investors

Recharge News

5 July 2024

Labour promised to make the UK a clean energy superpower: can it deliver?

Guardian

24 June 2024

Labour wants to make UK a clean energy superpower. Will this help those stuck in fuel poverty?

7 Parliamentary coverage

7.1 Statements

Written statement: Sustainable Aviation Update

22 Jul 2024 | HCWS16

The Secretary of State for Transport (Louise Haigh):

Sustainable aviation fuel (SAF) is an important part of the strategy to decarbonise air travel. It can be used in existing aircraft, and it emits on average 70 per cent fewer greenhouse gas emissions than using fossil jet fuel on a life cycle basis.

Developing, using and producing SAF will help drive our missions to kickstart economic growth and make Britain a clean energy superpower, delivering the Government's manifesto commitment to secure the UK aviation industry's long-term future, including through promoting sustainable aviation fuels.

Today, in addition to the announcement we have already made in the King's Speech on 17th July that a Bill will be introduced to support sustainable aviation fuel production, we are taking a further important step in confirming that, subject to Parliamentary approval, we will introduce a SAF Mandate to start from 1st January 2025. We will be one of the first countries in the world to legislate in this way. We are also today confirming the full policy detail of the Mandate.

Today's announcement is good for aviation, the environment and for the UK overall: sustainable aviation fuel production is estimated to add over £1.8 billion to the economy and over 10,000 jobs across the country while supporting decarbonisation. The SAF Mandate will drive demand for SAF in the UK, deliver emission reductions up to 2.7 MtCO2e in 2030 and up to 6.3 MtCO2e in 2040 and provide investor confidence that the UK will be a place to produce, use and supply SAF.

SAF Mandate:

The SAF Mandate will start in 2025 at 2% of total UK jet fuel demand, increase on a linear basis to 10% in 2030 and then to 22% in 2040. From 2040, the obligation will remain at 22% until there is greater certainty regarding SAF supply.

The Mandate will encourage the innovation of advanced fuels that can generate greater emission reductions and the diversification of feedstocks to reduce dependencies on scarce resources, by including in the Mandate:

- a cap on the feedstocks used in the hydroprocessed esters and fatty acids (HEFA) process, but not until other types of SAF are also commercially viable to recognise the important part that HEFA SAF will play in the 2020s. HEFA supply will not be limited under the Mandate for the first two years, fall to 71% in 2030 and still contribute 35% in 2040.

- a separate obligation on power to liquid fuels from 2028 that reaches 3.5% of total jet fuel demand in 2040.

The Mandate will include a buy-out mechanism for both the main and power to liquid obligations to incentivise supply while protecting consumers where suppliers are unable to secure a supply of SAF. These will be set at £4.70 and £5.00 per litre of fuel, respectively. These provide a significant incentive for fuel suppliers to supply SAF into the market rather than pay the buy-out. They also set a maximum price for the scheme, and therefore deliver emission reductions at an acceptable cost. The plan includes a review mechanism to help minimise the impact on ticket fares for passengers.

We will also work closely across Government on feedstock availability to ensure that feedstocks are used in a sustainable and productive way.

SAF Revenue Certainty Mechanism (RCM)

The Bill announced on 17th July will introduce a revenue certainty mechanism for SAF producers who are looking to invest in new plants in the UK. This builds on the SAF Mandate, which will create demand for SAF by setting targets on fuel suppliers to use a proportion of SAF. This

new sector will create jobs and growth opportunities in the UK, help secure a supply of SAF for UK airlines, and enhance energy security.

There are a number of SAF projects being developed across the UK. Bringing in a revenue certainty mechanism will help to reduce risk, giving investors the confidence they need to invest in UK SAF plants. It will increase the likelihood SAF plants will be built in the UK, thereby securing a supply of SAF for the UK aviation sector and supporting the delivery of the SAF Mandate.

These two SAF initiatives will drive the government's mission-driven plan to kick start economic growth and make Britain a clean energy superpower.

Commons statement followed by questions: Clean Energy Superpower Mission

HC Deb 18 July 2024 | Volume 752 c188-

7.2 PQs

Renewable Energy: Scotland

Asked by: McCluskey, Martin

To ask the Secretary of State for Scotland, what recent estimate he has made of the value to the Scottish economy of the renewable energy sector; and what steps he plans to take to support that sector.

Answering member: Ian Murray | Department: Scotland Office

The renewable energy sector supports economic activity throughout its supply chains and this economic activity supports wage spending across Scotland. According to the Fraser of Allander Institute, a leading think-tank, Scotland's renewable energy industry and its supply chain supported an estimated 42,000 jobs and contributed over £10.1 billion to the economy in 2021. Scotland's renewables industry continues to contribute significantly to the UK economy, and has a growing role to play as we realise the UK Government's ambition of becoming a clean energy superpower by 2030. The establishment of GB Energy, publicly owned and headquartered in Scotland, will further support and turbocharge the sector.

HC Deb 24 July 2024 | PQ 542

Aviation: Climate Change

Asked by: Cooper, Daisy

To ask the Secretary of State for Transport, with reference to the report by the Climate Change Committee entitled 2023 Progress Report to Parliament, published on 28 June 2023, whether he plans to accept the recommendation that no airport expansions should proceed until a UK-wide capacity management framework is in place to (a) annually assess and (b) control sector (i) CO2 emissions and (ii) non-CO2 effects.

Answering member: Mike Kane | Department: Department for Transport

Decarbonising transport is central to delivery of the UK's cross-economy climate targets and directly supports the Prime Minister's mission to make Britain a clean energy superpower and accelerate our journey to net zero.

Delivering greener transport is one of five priorities the Secretary of State for Transport has set out for the Department for Transport.

The Government will respond to points raised in the Climate Change Committee's annual report to Parliament, published on 18 July 2024, in the autumn.

HC Deb 22 July 2024 | PQ 406

8 Further reading

Labour 2024 Manifesto, Make Britain a clean energy superpower

Climate Change Committee, 2024 Progress Report to Parliament, 18 July 2024

National Grid ESO, Future Energy Scenarios (FES)

International Energy Agency (IEA), World Energy Investment 2024, June 2024

Business, Energy and Industrial Strategy Committee, Decarbonisation of the power sector, April 2023

National Engineering Policy Centre, Rapid decarbonisation of the GB electricity system, July 2024

Disclaimer

The Commons Library does not intend the information in our research publications and briefings to address the specific circumstances of any particular individual. We have published it to support the work of MPs. You should not rely upon it as legal or professional advice, or as a substitute for it. We do not accept any liability whatsoever for any errors, omissions or misstatements contained herein. You should consult a suitably qualified professional if you require specific advice or information. Read our briefing 'Legal help: where to go and how to pay' for further information about sources of legal advice and help. This information is provided subject to the conditions of the Open Parliament Licence.

Sources and subscriptions for MPs and staff

We try to use sources in our research that everyone can access, but sometimes only information that exists behind a paywall or via a subscription is available. We provide access to many online subscriptions to MPs and parliamentary staff, please contact hoclibraryonline@parliament.uk or visit commonslibrary.parliament.uk/resources for more information.

Feedback

Every effort is made to ensure that the information contained in these publicly available briefings is correct at the time of publication. Readers should be aware however that briefings are not necessarily updated to reflect subsequent changes.

If you have any comments on our briefings please email papers@parliament.uk. Please note that authors are not always able to engage in discussions with members of the public who express opinions about the content of our research, although we will carefully consider and correct any factual errors.

You can read our feedback and complaints policy and our editorial policy at commonslibrary.parliament.uk. If you have general questions about