

Fifty-ninth Report of Session 2022-23

Department for Energy Security and Net Zero

Decarbonising the power sector

Introduction from the Committee

Since 1990, greenhouse gas emissions from the UK power sector have reduced by approximately 73%; however, in 2021, 13% of UK emissions were still from electricity generation. In October 2021, the government published its Net Zero Strategy, setting out its long-term plan for transitioning to a net zero economy. This included an expectation, responsibility for which falls to the recently created Department for Energy Security & Net Zero, that all electricity will come from low-carbon sources by 2035, subject to security of supply. It is also subject to there being sufficient zero and low-carbon electricity generation, over the same period, to supply an expected 40% to 60% increase in electricity demand as modes of transport and heating switch to electricity from fossil fuels. Government has set ambitious targets for domestic energy generation for offshore wind, solar and nuclear power, and estimates that £280 to £400 billion of public and private investment in new generating capacity will be needed by 2037 (the end of the Sixth Carbon Budget).

Based on a report by the National Audit Office, the Committee took evidence on Thursday 23 March 2023 from the Department for Energy Security and Net Zero. The Committee published its report on 21 June 2023. This is the government's response to the Committee's report.

Relevant reports

- NAO report: [Decarbonising the power sector](#) – Session 2022-23 (HC 1131)
- PAC report: [Decarbonising Power Sector](#) – Session 2022-23 (HC 1003)

Government response to the Committee

1. PAC conclusion: The lack of an overarching delivery plan jeopardises government's achievement of its challenging ambition to decarbonise the power sector by 2035.

1. PAC recommendation: The Department should pull together its numerous decarbonising power plans in an integrated, coherent delivery plan as soon as possible, and by autumn 2023 at the latest, to demonstrate a clear path to achieving power sector decarbonisation.

1.1 The government agrees with the Committee's recommendation.

Target implementation date: December 2023

1.2 The Department for Energy Security and Net Zero (the department) is implementing a 'whole system' approach to overseeing delivery of the government's ambitions for the power sector. The department will use analytical and portfolio management techniques to consider potential options, measure uncertainty and manage the risks, issues, assumptions and interdependencies. At an operational level, the portfolio approach will be the bridge between strategy formulation and delivery of policies.

1.3 The [Powering up Britain: Energy Security Plan](#) set out a pathway to the delivery of strategies and objectives set out in the British Energy Security Strategy and [Net Zero Strategy](#).

1.4 The government recognises the value of a short overarching plan, that sets out how these various policies to decarbonise power form a coherent whole and intends to publish one later in the year.

2. PAC conclusion: We are sceptical that plans for expanding nuclear, solar and wind power are credible.

2. PAC recommendation: The Department should provide annual updates to Parliament that demonstrate progress against milestones towards its objectives and identify how significant risks are being mitigated.

2.1 The government agrees with the Committee's recommendation.

Target implementation date: December 2023

2.2 The power sector is a key aspect of delivering Net Zero, and the department therefore provides annual updates to Parliament in the form of the government response to the Climate Change Committee's annual Progress Reports.

2.3 These government responses, coupled with the various other more detailed publications the department produces on our plans for specific aspects of the power sector, are an opportunity to provide timely updates on progress towards achieving our objectives, and on the actions the government has taken to mitigate risks.

3. PAC conclusion: We are not convinced that government is providing enough clarity to the private sector to attract the investment that is necessary to build infrastructure, spur innovation and drive competition to lower costs.

3. PAC recommendation: The Department should set out in the delivery plan due later this year how it will provide greater clarity to the private sector to encourage the investment it needs to decarbonise the power sector.

3.1 The government agrees with the Committee's recommendation.

Target implementation date: December 2023

3.2 The department recognises the importance of giving clarity to the private sector to encourage investment. Earlier this year the government published [Mobilising Green Investment: the 2023 Green Finance Strategy](#), alongside the [Powering Up Britain: the Net Zero Growth Plan](#) and [Powering up Britain: the Energy Security Plan](#).

3.3 The Green Finance Strategy provides clarity on pathways for investment across net zero, and communicates to businesses, investors and the finance sector the UK's plan to grow investment. These publications set out plans to grow green investment across all parts of the UK, which include providing up to £20 billion funding for early deployment of Carbon Capture, Usage and Storage, and launching the fifth Contracts for Difference allocation round, the first round to run on an annual basis. These provide investor clarity on the government's overall approach to enhance our country's energy security, seize the economic opportunities of the transition, and deliver on our net zero commitments.

3.4 In addition, the department is also communicating more detailed investment needs and opportunities on a sector-by-sector basis. In March 2023 it published the [Offshore Wind Net Zero Investment Roadmap](#), the [Heat Pump Net Zero Investment Roadmap](#), and the [Hydrogen Net Zero Investment Roadmap](#), as well as an updated version of the [Carbon Capture Usage and Storage Investment Roadmap](#). The department considers that this is an appropriate way

to provide detail relevant to particular groups of investors and plans to publish further roadmaps for other sectors that need private sector investment later in 2023.

4. PAC conclusion: It is not clear the Department has the support it needs from other departments to achieve government's power sector decarbonisation ambition.

4. PAC recommendation: The Department should set out in its Treasury Minute response how it will influence other departments to ensure they collaborate and prioritise activities in pursuit of power sector decarbonisation.

4.1 The government agrees with the Committee's recommendation.

Recommendation implemented

4.2 Decarbonising the power sector by 2035, subject to security of supply, is a key aspect of reaching Net Zero and therefore the Power Sector Portfolio reports into Net Zero governance. The department has robust governance and reporting processes at ministerial and official level for both strategy and delivery, attended by representatives from all relevant government departments. These provide opportunities to collaborate and prioritise activities in pursuit of decarbonising the power sector.

4.3 The department's governance structures feed into the ministerial led, Domestic and Economic Affairs (Energy, Climate & Net Zero) and the cabinet sub-committee. These fora are supported at senior official level by a monthly Climate Change Integrated Review and Implementation Group, chaired by a Director General. In addition to formal governance processes, the department's officials work with counterparts across government to coordinate action, working particularly closely with Cabinet Office and HM Treasury to ensure that net zero is prioritised in government policy and decision-making and aligns with other priorities.

5. PAC conclusion: The Department has not yet set out how it expects decarbonising the power sector will impact energy bill payers and taxpayers.

5. PAC recommendation: The Department should publish in the delivery plan due later this year information on when and how the costs of decarbonising the power sector are likely to have an impact on energy bill payers and taxpayers, and update this regularly when new information becomes available that changes the cost profile.

5.1 The government disagrees with the Committee's recommendation.

5.2 The department is focused on consumer security by bringing bills down, keeping them affordable. The government took steps to shield consumers and companies from the worst effects of the rise in global energy prices, paying around half a typical household's bill over winter 2022-23 and half the wholesale energy costs paid by some businesses.

5.3 In March 2023, the Secretary of State noted that access to cheap, abundant and reliable energy provide the foundation stone of a thriving economy, with homes and businesses relying on it to deliver our future prosperity. Following the unprecedented cost of living support that winter, the Secretary of State noted that Powering Up Britain sets out how the government will fix this problem in the long term to deliver wholesale electricity prices that rank amongst the cheapest in Europe.

5.4 A decarbonised power sector is a key step on the path to a low-cost, clean energy system by 2050. The impact of policy interventions on prices and bills is therefore a key factor in making decisions.

5.5 Future costs are naturally subject to uncertainty, and the extent to which costs impact bill payers and taxpayers will depend on future policy decisions, as well as on factors such as the development of flexible and low-carbon generation technologies, and the evolution of global power markets.

5.6 The government currently publishes information on cost impacts and estimates for specific policy interventions in Impact Assessments, and monitors energy prices, publishing regular updates via the series of [Quarterly Energy Prices reports](#).

6. PAC conclusion: We are not yet clear what the Department's plans are in respect of energy efficiency and consumer behaviour.

6. PAC recommendation: Alongside its Treasury Minute response to this report, the Department should write to the Committee setting out the demand assumptions it has used in its modelling and how this reflects policies and plans to promote energy efficiency and influence consumer behaviour.

6.1 The government agrees with the Committee's recommendation.

Recommendation implemented

6.2 The department has [modelled two potential scenarios](#) to help estimate future power sector demands: the Net Zero Higher¹ scenario, which explores the impact of using widespread electrification to support transport, heating, and industry decarbonisation; and the Net Zero Lower scenario, which explores the impact of using low-carbon hydrogen more extensively. Both scenarios take account of the underlying socioeconomic drivers of energy demand (such as GDP and population growth) and are consistent with the department's Carbon Budgets and for achieving net zero emissions by 2050. Full details of the modelling and assumptions are in the [technical annex to the Net Zero Strategy](#).

6.3 Through its range of sectoral models, the department then ensures it takes account of the policies and proposals required to achieve its net zero goals. While the policy mix in each scenario will depend on the net zero pathway taken, consumer choices and energy efficiency measures will play a significant role in achieving carbon savings. For instance, the high electrification scenario assumes high adoption of electric heat pumps and electric vehicles, while energy efficiency measures (such as insulation and more efficient appliances) reduce energy demand. The government's policies aim to take into account consumer preferences and to follow natural replacement cycles, whilst supporting the infrastructure needed to make such transitions, and incentivising behavioural change. Full details are set out in the government's [Carbon Budget Delivery Plan](#).

¹ The 'Net Zero Higher' electricity demand scenario is similar to the 'High Electrification' scenario presented in the Net Zero Strategy. The 'Net Zero Lower' scenario corresponds to the NZS' 'High Resource' scenario.