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Committee of Public Accounts

Decarbonising home heating

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to the report*

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Summary

Decarbonising home heating represents one of the biggest challenges to the government achieving net zero, requiring almost all 28 million UK households to engage in the transition. Households using fossil fuel heating, such as gas boilers, will need to switch to a low-carbon alternative, such as heat pumps. But the costs of doing so are high, with far fewer households than expected installing a heat pump to date. An average heat pump is currently four times more expensive than a gas boiler, and electricity prices mean that heat pumps can be more expensive to run.

The Department for Energy Security & Net Zero (DESNZ) aims to reach 600,000 heat pump installations per year by 2028. We are not yet convinced that progress to date matches its ambitions. Consumers still face too much complexity and confusion to make informed decisions about installing a heat pump, including understanding whether they need insulation upgrades to manage their energy bills. DESNZ faces a substantial challenge to increase the number of trained heat pump installers to support an elevenfold increase in heat pump installations. It needs to be realistic about levels of consumer demand, raise public awareness of heat pumps and work with industry to make heat pumps more affordable. It will be essential that DESNZ carefully monitors the rate of installations against its ambition and evaluates progress regularly.

It is important that no one is left behind in the transition to low-carbon heating, yet DESNZ is still to work out how it will support households to decarbonise their homes where heat pumps are not a practical solution. Low-carbon heating will need to be supported by reliable and green sources of energy, but government's plans for decarbonising the power sector are delayed substantially. Moreover, the government committed in its October 2021 Heat and Buildings strategy to decide on the role of hydrogen for heating in 2026. Since then, DESNZ's work to test hydrogen for heating has been beset by problems, with key trials cancelled. Since our evidence session, DESNZ has also announced that it will not progress work on a hydrogen town pilot until after 2026. Indecision over the role of hydrogen for heating is creating uncertainty for investors who need to invest in major low-carbon technologies.

Introduction

The Department for Energy Security & Net Zero (DESNZ) has overall responsibility for achieving net zero, including decarbonising home heating in England and meeting interim emissions reductions targets for five-year periods known as carbon budgets. Heating the UK's 28 million homes accounted for 18% of all UK greenhouse gas emissions in 2021. The main source of these emissions is from burning natural gas to heat homes. Reducing emissions from heating homes is a key component of the government's overall target to achieve net zero emissions by 2050. Households using fossil fuels, such as gas boilers, will need to switch to a low-carbon alternative. This could involve installing a heat pump, which uses electricity to generate heat; connecting to a low-carbon heat network – a communal source of heating delivered to multiple dwellings; or potentially using hydrogen instead of natural gas. The suitability of these alternatives depends on factors including regional geography, house type and the heating system currently in use. Emissions from heating homes can also be reduced by improving energy efficiency, for example by improving insulation, to reduce energy usage and emissions.

In October 2021, the government published its Heat and Buildings Strategy. The Strategy stated the government's ambition to end the installation of new fossil fuel boilers by 2035. It also committed to growing the supply chain for heat pumps to a minimum market capacity of 600,000 heat pump installations per year by 2028, and developing the evidence base to inform strategic decisions in 2026 on the future role of hydrogen in home heating.

DESNZ must reduce emissions while also meeting statutory fuel poverty targets. The government has committed £6.6 billion from 2021–22 to 2024–25 for schemes to improve energy efficiency and install low-carbon heating, and an additional £6 billion from 2025–26 to 2027–28. This includes the Boiler Upgrade Scheme, which provides households in England and Wales with an up-front grant of £7,500 to help cover the cost of replacing fossil fuel heating with a heat pump or biomass boiler. This is an increase from the £5,000-£6,000 grant that had been available between May 2022 and September 2023.

Conclusions and recommendations

1. **The cost of buying and running heat pumps is a substantial barrier to take-up for most households, at a time when incomes are already stretched.** Fewer households than expected have installed a heat pump to date. Nearly 18,900 heat pumps have been funded in England and Wales through the Boiler Upgrade Scheme between May 2022 and December 2023, less than 40% of the 50,000 expected installations, causing DESNZ to underspend by £100 million in the first year of the Scheme. DESNZ recognises that the installation and running costs of heat pumps are the main reason for low uptake. At around £11,600, an average heat pump is currently four times more expensive than a gas boiler. While installation costs have fallen by up to 6% since 2021, costs need to come down much quicker if the government is to achieve its target of a 25% reduction in installation costs by 2025. Heat pumps are also more expensive to run than boilers because of the cost of electricity being higher than gas. DESNZ has delayed plans to rebalance the cost of electricity and gas by nearly two years, stating that doing so is difficult. We are concerned that most households receiving the government's £7,500 Boiler Upgrade Scheme grant might be from more affluent groups, as they are more likely to be able to afford the additional costs and may have installed a heat pump even without the grant. DESNZ is evaluating uptake of the Boiler Upgrade Scheme grant among different socio-economic groups, for which interim results are due in the second half of 2024.

Recommendation 1a: *DESNZ should, by end-January 2025, write to the Committee setting out the findings of its evaluation of heat pump take-up among different socio-economic groups, based on the most recent data.*

Recommendation 1b: *DESNZ should, as part of its Treasury Minute response, set out what actions (and accompanying timetable) it will take to address the high running costs of heat pumps.*

2. **We are concerned that there is too much complexity and potential confusion for households to enable them to make informed decisions about installing a heat pump.** Households can face complex decisions when looking to install a heat pump. For example, DESNZ is removing a requirement to have minimum standards for properties to have loft and cavity wall insulation in order to be eligible to apply for a grant through the Boiler Upgrade Scheme. It is instead leaving this as a choice for householders, but has not made available any additional evidence about how this choice will impact on energy bills. DESNZ accepts that it needs to undertake a fair bit of myth busting about the quality of the consumer experience when living with a heat pump. Households also need to identify a skilled installer and to do this they need proper information to decide where to spend their money. But many are unsure where to get impartial advice on making improvements to reduce their homes' emissions.

Recommendation 2: *DESNZ should, as part of its Treasury Minute response, set out how it will make the heat pump landscape easier for consumers to navigate, for example being clear on the impact of insulation on energy bills, by directly comparing heat pump running costs in homes with and without insulation, with this information provided through an easy-to-use website.*

3. **DESNZ has made good progress in increasing the number of trained heat pump installers, but it faces a huge challenge to make sure there are enough installers to achieve its target to install 600,000 heat pumps per year by 2028.** DESNZ reports that it is on track towards meeting its target to have 12,000 trained heat pump installers by 2025, with 7,000 installers trained so far. The Heat Pump Association estimates, however, that there will need to be 33,700 trained heat pump installers by 2028 in order to meet DESNZ's overall installations target. DESNZ recognises that there is more to be done to achieve this and that it needs to keep investing in training heat pump installers after 2025, but decisions for future training grants will be for the next spending review. A key challenge will be to retrain around 110,000 existing gas heating engineers to be able to install heat pumps. Although DESNZ considers this could be done quickly, this is nonetheless a large number of people who will need to be retrained given the number of installers it has trained so far.

Recommendation 3: *DESNZ should, as part of its Treasury Minute response, set out what actions it will take to increase the number of heat pump installers after 2025.*

4. **DESNZ is not collecting all the information it needs to monitor progress with installing heat pumps.** DESNZ does not have a single measure of the number of heat pumps that have been installed. Instead, it relies on data on the number of grants provided through government schemes and heat pump sales data. Some 55,000 heat pumps were sold in 2022. But DESNZ does not hold, or collect, information on whether the heat pumps that have been sold have been installed. It accepts that requiring people to inform DESNZ when they have installed a heat pump would be too burdensome. It also does not have complete information on the number of heat pumps that are installed in new build homes. DESNZ is looking to produce a more regular data series that it could publish. Regular monitoring of progress would help DESNZ better understand whether it is on track to deliver the anticipated increase in heat pump installations and evaluate where further intervention may be required from government or industry.

Recommendation 4: *DESNZ should, by end-December 2024 at the latest, develop a mechanism for collecting and monitoring data on heat pump installations across all households in England and publish this data each quarter.*

5. **DESNZ has not yet worked out how it will support households to decarbonise their homes where heat pumps are not a practical solution.** An estimated 20 per cent of homes might be exempt from the government's plans to phase out new fossil fuel boilers in 2035. This includes those requiring energy efficiency upgrades or that lack space to install a heat pump, such as densely populated urban areas and blocks of flats. DESNZ intends to consult this year on how it can help people decarbonise their homes for those where a heat pump might not be the most appropriate solution. It considers heat networks to be the next major alternative technology for people living in these areas and intends to invest some £868 million in heat networks up to 2028. DESNZ is developing a regulatory framework to oversee heat networks and ensure there is fair pricing and quality of service that is already in place for gas and electricity consumers. Connecting customers to heat networks through DESNZ's heat network zoning—which is identifying areas suitable for heat networks—could, however, increase running costs for residents relative to the gas systems they replace.

Recommendation 5: *DESNZ should, by end-December 2024, outline which types of properties and regions it does not expect to be suitable for a heat pump and what alternative low-carbon technologies are available to them, to make sure that no one is left behind or unfairly penalised in the transition to low-carbon heating.*

6. **DESNZ’s work to test hydrogen for heating has been beset with problems, with key trials cancelled.** DESNZ has committed to deciding on the role of hydrogen for heating in 2026. Major trials intended to support its decision have been cancelled or delayed due to local opposition and insufficient supply of hydrogen. It has not tested the role of hydrogen in non-domestic properties. At the time of our evidence session in April 2024, an announcement on a successful bidder for a hydrogen town, planned for the end of this decade, had been delayed by 13 months. Since then, DESNZ has announced that it will not progress work on a hydrogen town pilot until after 2026, thereby meaning information on the pilot will not feed into its decision on hydrogen’s role due in 2026. Overall, this absence of the evidence needed to support any decision is also creating uncertainty for industry to plan and invest on a wider scale and could hamper overall progress. Early planning for any decommissioning of the gas networks, if it is decided that hydrogen has a limited role and electricity becomes the main energy source, is vital to manage costs that we have seen passed to the taxpayer with decommissioning in other sectors, such as nuclear, and oil and gas.

Recommendation 6a: *DESNZ should, as part of its Treasury Minute response, set out how it will test hydrogen for different types of properties, including domestic and non-domestic properties, so it can make an informed decision on the role of hydrogen for heating.*

Recommendation 6b: *DESNZ should, by end-June 2025, set out how it will undertake any required decommissioning of the gas networks, including how it will be funded.*

7. **Low-carbon heating will increase demand for electricity, but the government’s plans to decarbonise power have been delayed substantially.** Heat pumps may change existing patterns around the demand for electricity, and DESNZ recognises that it needs to make sure the power system can manage peaks and troughs throughout the day. Low-carbon flexible sources of generation will be important to help manage a grid that is reliant on renewable energy, particularly offshore wind and solar electricity generation that is determined by the weather. The main technologies for this will be carbon capture, hydrogen power and long-duration energy storage, particularly needed during the winter months. DESNZ has, however delayed its delivery target to pull together the different plans for decarbonising power from December 2023 to mid-2024. We previously warned that the lack of an overarching delivery plan makes it difficult for DESNZ to understand the decisions and timings it must take to achieve its ambition to decarbonise the power sector by 2035. It also limits confidence in the private sector to invest in new and upgraded infrastructure.

Recommendation 7: DESNZ should urgently publish its power decarbonisation plan so that people and businesses can be confident that their investment in low-carbon heating will be supported by reliable and green sources of energy. The plan must be published by DESNZ's delivery target of mid-2024 i.e. end-June 2024.

1 Barriers to heat pump adoption

1. On the basis of a report by the Comptroller and Auditor General, we took evidence from the Department for Energy Security and Net Zero (DESNZ) about decarbonising home heating.¹

2. Reducing emissions from heating homes is a key component of the government's overall target to achieve net zero emissions by 2050. Heating the UK's 28 million homes accounted for 18% of all UK greenhouse gas emissions in 2021. The main source of these emissions is from burning natural gas to heat homes. Households using fossil fuels will need to switch to a low-carbon alternative. This could involve: installing a heat pump, which uses electricity to generate heat; connecting to a low-carbon heat network – a communal source of heating delivered to multiple dwellings; or potentially using hydrogen instead of natural gas. The suitability of these alternatives depends on factors including regional geography, house type and the heating system currently in use. Emissions from heating homes can also be reduced by increasing energy efficiency, for example by improving insulation.²

3. DESNZ has overall responsibility for achieving net zero, including decarbonising home heating in England and meeting interim emissions reduction targets for five-year periods known as carbon budgets. It must reduce emissions while also meeting statutory fuel poverty targets. The government has committed £6.6 billion from 2021–22 to 2024–25 for schemes to improve energy efficiency and install low-carbon heating, and an additional £6 billion from 2025–26 to 2027–28. This includes the Boiler Upgrade Scheme, which provides households in England and Wales with an up-front grant of £7,500 to help cover the cost of replacing fossil fuel heating with a heat pump or biomass boiler. This is an increase from the £5,000-£6,000 grant that had been available between May 2022 and September 2023.³

4. In October 2021, the government published its Heat and Buildings Strategy. The Strategy stated the government's ambition to end the installation of new fossil fuel boilers by 2035. It also committed to growing the supply chain for heat pumps to a minimum market capacity of 600,000 heat pump installations per year by 2028; and developing the evidence base to inform strategic decisions in 2026 on the future role of hydrogen in home heating.⁴

Costs to households

5. The Boiler Upgrade Scheme funded 18,900 heat pump installations between May 2022 and December 2023, less than half of the 50,000 installations that DESNZ expected. DESNZ underspent by £100 million in the first year of the Scheme. In 2021, DESNZ set an ambition for industry to reduce the costs of installing a heat pump by at least 25–50%

1 C&AG's Report, [Decarbonising home heating](#), Session 2023–24, HC 581, 18 March 2024

2 C&AG's Report, paras 1–2

3 Qq 3, 30, 43; C&AG's Report, paras 4, 6, 15

4 Qq 47, 60–62; C&AG's Report, para 3

by 2025. While installation costs reduced by up to 6% between 2021 and 2023, to £11,287, costs will need to fall around three times faster over the next two years if they are to reach the minimum 25% reduction ambition.⁵

6. DESNZ recognised the costs of installing a heat pump were a key reason for low uptake. It outlined that an average heat pump was four times more expensive than a gas boiler: a heat pump costed around £11,600, whereas the cost of a new gas boiler was typically £2,500 to £3,000. It also noted that there was a wider range in the cost of installing a heat pump of between £8,000 and £15,000 depending on the work that needed to be done to the home, such as ensuring a thermal heat source and changing radiators.⁶ In their written evidence, the Buildings Societies Association, Calor Gas, Good Energy and Centrica all highlighted that the high upfront cost of heat pumps was a challenge for many households. Research by the Building Societies Association found that 52% of respondents cited meeting the initial upfront costs as the primary barrier to making home heating upgrades, while Centrica emphasised that the cost of replacing the existing heating system also included the cost of replacing radiators and pipework.⁷

7. We therefore asked the Department what it was doing to address the barriers to consumers to installing heat pumps. In response to low levels of demand, in October 2023, DESNZ increased the grant available through the Boiler Upgrade Scheme to £7,500 per household, up from £5,000 for an air source heat pump and £6,000 for a ground or water source heat pump. It told us that, following this change, there were now some people who could get an air-source heat pump for £500, although recognised that this was a minority of customers.⁸ Overall, DESNZ said that there were “encouraging signs” following the grant uplift. It explained that applications to the scheme were 75% higher in February 2024 compared with the previous February, and 45% higher over three months compared to the previous period.⁹ Data over a longer period will be required to determine whether the improvement is sustained.¹⁰

8. Grants under the Boiler Upgrade Scheme are available to all households irrespective of income. While other schemes are available for low income households, such as the Social Housing Decarbonisation Fund, Home Upgrade Grant and the Energy Company Obligation, DESNZ explained that the Boiler Upgrade Scheme is designed for the able-to-pay market. The £7,500 grant covers nearly 60% of the average cost of installing a heat pump, based on the average cost in 2023.¹¹ An energy industry representative, the Energy & Utilities Alliance, told us in its written evidence to us that by definition, only those households who can afford to pay the remaining amount to top up the grant can afford to participate in the Scheme.¹² According to the Energy Saving Trust, this creates a gap in support for those who are ineligible for fuel poverty schemes but are unable to afford the total upfront cost of switching to a low carbon heating system.¹³ Similarly, the MCS

5 Qq 3, 49; C&AG’s Report, paras 15–16. Installation cost figures represent real-term reduction compared to the cost in 2021

6 Qq 3, 30, 119; C&AG’s Report para 16

7 DHH0015, [Written evidence submitted by The Building Societies Association](#), 29 April 2024; DHH0043, [Written evidence submitted by Calor Gas](#), 29 April 2024; DHH0046, [Written evidence submitted by Good Energy](#), 29 April 2024; DHH0053, [Written evidence submitted by Centrica](#), 29 April 2024

8 Qq 3, 10, 30; C&AG’s Report, para 15

9 Qq 11, 43

10 Qq 11, 43; C&AG’s Report, para 3.19

11 Qq 30, 54–55; C&AG’s Report, para 15

12 DHH0040, [Written evidence submitted by Energy & Utilities Alliance](#), 29 April 2024

13 DHH0026, [Written evidence submitted by Energy Saving Trust](#), 29 April 2024

Foundation told us that upfront costs were too high for many households even with the help of a grant, making it “impossible for households without savings to benefit from the scheme”.¹⁴ Energy UK, a representative body for the energy industry, called for the costs to be distributed in a more equitable way that did not leave low and middle income customers behind.¹⁵

9. We asked DESNZ whether heat pumps were being installed by people who may have switched to a heat pump anyway, particularly more affluent households. DESNZ accepted that the universal nature of the Boiler Upgrade Scheme raised a prospect of “deadweight”, with some recipients able to afford to install a heat pump even without the grant, but explained that it decided to have a flat-rate scheme for “simplicity” rather than linking grants to income. It told us that it believed that its approach was supported by the increase in applications since the grant uplift. DESNZ is evaluating uptake of the Boiler Upgrade Scheme grant among different socio-economic groups, for which interim results are due in the second half of 2024.¹⁶

10. DESNZ recognised that the cost of running heat pumps was also a key barrier to heat pump adoption. It explained that, as they are based on electricity, heat pumps are more expensive to run than fossil fuel boilers because of the cost of electricity is higher than gas.¹⁷ This view was supported by written evidence to our inquiry from some energy suppliers including Good Energy and Octopus Energy; a consumer campaign group, Fuel Poverty Action; and Energy UK.¹⁸ In their written evidence, the Heat Pump Association and the MCS Foundation told us that the UK’s price ratio between electricity and gas prices of 4:1 was one of the highest in Europe.¹⁹ Both EDF Energy and the MCS Foundation explained that this disparity was partly due to the government levying a large proportion of its environmental policy costs on electricity bills, such as schemes to support renewable energy development and energy efficiency. The MCS Foundation added that, for a standard direct debit customer, 16% of their electricity bill will be made up of these levies, compared to only 5% of their gas bill.²⁰ DESNZ explained that although electricity was about four times per unit more expensive than gas, this was offset by the fact that heat pumps were three times as efficient as gas boilers, which “helps a lot”.²¹

11. DESNZ plans to work on rebalancing the costs of electricity and gas, but it said that doing so is difficult because of large structural issues in the sector. It had aimed to rebalance costs to some extent by moving levies from electricity to gas bills, but its plans to do so have been delayed by nearly two years. It explained that it was looking at options that are fair and affordable for consumers and taxpayers, and will set out its approach during 2024.²² In the meantime, one energy company, Centrica, noted that it had created tariffs

14 DHH0014, [Written evidence submitted by The MCS Foundation](#), 29 April 2024

15 DHH0033, [Written evidence submitted by Energy UK](#), 29 April 2024

16 Qq 9, 43; C&AG’s Report, para 17

17 Qq 3, 30

18 [DHH0033](#); [DHH0045](#), [Written evidence submitted by Fuel Poverty Action](#), 29 April 2024; [DHH0046](#); [DHH0050](#), [Written evidence submitted by Octopus Energy](#), 29 April 2024

19 [DHH0008](#), [Written evidence submitted by The Heat Pump Association and The Heat Pump Federation](#), 29 April 2024; [DHH0014](#), [Written evidence submitted by The MCS Foundation](#), 29 April 2024

20 [DHH0011](#), [Written evidence submitted by EDF Energy](#), 29 April 2024; [DHH0014](#), [Written evidence submitted by The MCS Foundation](#), 29 April 2024

21 Q 30

22 Qq 30; C&AG’s Report, paras 16, 3.10

that encourage households to move their electricity use away from peak times. Centrica added that the wider issue, however, must be tackled without penalising those households with gas boilers who are unable to move to low-carbon heating.²³

Complexity and confusion

12. Households can face a range of decisions when looking to install a heat pump. One such decision is whether to improve insulation to reduce energy usage and emissions. At the time of our evidence session, households were required to meet recommendations relating to cavity wall and loft insulation, identified in the Energy Performance Certificate (EPC), in order to qualify for a grant as part of the Boiler Upgrade Scheme. DESNZ told us that it would be removing this requirement in May 2024, which duly happened on 8 May. It told us that this was to address the issue of people being put off from applying to the Scheme by having to make improvements to their insulation and having to sequence the work, and to make the customer journey as simple as possible.²⁴ We received written evidence from Octopus Energy, which explained that it welcomed the removal of the requirement for outstanding cavity wall and loft insulations in the EPC. It urged DESNZ to simplify the process further and remove the requirement for an EPC, which it told us were not required before installing gas boilers and added extra costs and delays to customers looking to replace their boiler with a heat pump.²⁵

13. We asked DESNZ why it had decided to change the minimum insulation standards required for heat pumps, and what impact it expected this decision to have. DESNZ told us that government had decided to leave insulation improvements as a choice for householders. It explained that it was still recommending that they make such upgrades in response to their EPC, but that it was leaving it to householders to choose when, or if, to undertake this work. We therefore asked DESNZ about the evidence it had used to reach this decision. DESNZ told us that it made its decision based on evidence that showed that 80% to 90% of UK homes do not need additional insulation for a heat pump to work effectively. DESNZ accepted, however, that it still needed to do some myth-busting about the quality of the consumer experience when living with a heat pump.²⁶

14. While some organisations advocated a ‘fabric first’ approach, which involves improving the thermal performance of materials in a building prior to installing a heat pump, others suggested that it is not necessary, making it difficult for households to determine cost-effective measures. In their written evidence to us, the Energy & Utilities Alliance and National Energy Action both suggested, for example, that a fabric first approach would reduce bills and cut energy consumption, while the Kensa Group highlighted that loft and cavity wall insulation reduced heat-related energy consumption by only around 10%.²⁷ DESNZ told us that it planned to assess the effect of changes it has made to insulation requirements on people’s experience through its planned evaluation of the Boiler Upgrade Scheme.²⁸

23 DHH0053, [Written evidence submitted by Centrica](#), 29 April 2024

24 Qq 3–4, 6–7

25 [DHH0050](#)

26 Qq 4–7, 13

27 DHH0040, [Written evidence submitted by Energy & Utilities Alliance](#), 29 April 2024; DHH0020, [Written evidence submitted by National Energy Action](#), 29 April 2024; DHH0016, [Written evidence submitted by The Kensa Group](#), 29 April 2024

28 Qq 39–42

15. We noted that the installation of heat pumps could be a very complicated picture for consumers, and asked how an individual was expected to understand the running costs of a heat pump and the potential impact of installing insulation before or after a heat pump, or for their type of property. Written evidence from The Building Societies Association, for example, outlined that 36% of respondents to its research about the barriers to making home heating upgrades were “unsure of the cost savings on energy bills”. DESNZ recognised that calculating the running costs and working through the process were “issues of complication and complexity for consumers at the moment”.²⁹

16. In response to our question about how DESNZ ensured customers had access to proper information to make decisions about investment and running costs, the Department explained that it provided information through its online tools on heat pump suitability and retrofit options to make homes cheaper to heat, and a phone line service providing households in England with advice about how to improve the energy performance of their homes. Research published by Energy Saving Trust in December 2023, and the written evidence it submitted to us, however, highlighted a lack of impartial, personalised support as a major barrier to decarbonising homes, with almost half (48%) of homeowners in England unsure where to get independent, impartial advice on making improvements to reduce their homes’ emissions. It told us that the current process for households looking to decarbonise their homes was “complex and confusing”, which left people unsure where to find trusted information about what measures are suitable for their property. It also cautioned that financial support alone will be insufficient to increase uptake of low-carbon heating if not accompanied by impartial, tailored advice services that guide consumers through the process.³⁰

17. DESNZ clarified that it was “working on making the Government digital offering in this space much better”. It added that it signposted to digital companies that helped households to calculate running costs and lifetime costs via gov.uk. It recognised, however, that there was a role for it to do more. It also explained that it mitigated the risk of poor installations by requiring Microgeneration Certification Scheme-certification for all heat pump installations funded through the Boiler Upgrade Scheme.³¹

29 Q 31; [DHH0015](#)

30 Q 33; [DHH0026](#); C&AG’s Report, para 2.16

31 Qq 31–32, 34, 37, C&AG’s Report, para 3.14

2 Increasing heat pump installations

Training installers

18. We received written evidence from the Retrofit Academy, Schneider Electric, Energy UK and MCS Service Company which highlighted that meeting the target to install 600,000 heat pumps per year by 2028 will require a large increase in the number of trained installers. The Heat Pump Association and the Heat Pump Federation estimated that there will need to be at least 33,700 trained installers by 2028 to meet the overall installations target, and a minimum of 50,200 installers by 2030.³²

19. DESNZ said that training new installers was a “growing industry”. It stated that it was investing £29 million from 2021–22 to 2024–25 to train installers in the heat sector. Part of this spend includes a £5 million Heat Training Grant to support up to 10,000 heat pump and heat network training opportunities from 2023–24 to 2024–25. DESNZ reported that it was on track towards meeting its target to reach 12,000 trained heat pump installers by 2025, and that it had trained 7,000 installers so far, including 3,000 as part of the Heat Training Grant. DESNZ recognised that it will need to continue to invest in heat pump training and expand training opportunities to reach the number of installers needed in later years. It told us that decisions for future training grants would form part of the next spending review.³³ The MCS Foundation, which supports education in the heat sector, told us that it was key that the government continue to support the development of the heat pump supply chain, which included training installers by providing long-term clarity and certainty.³⁴

20. We heard from DESNZ that a key challenge will be to retrain around 110,000 existing gas heating engineers to install heat pumps. Centrica, an energy company and low carbon heating installer, agreed that it was “vital” to focus on retraining as many engineers as possible to ensure that there are enough engineers to support homes to install low carbon technologies. DESNZ considered that this could be done quickly through an existing skilled workforce.³⁵ The Heat Pump Association and Heat Pump Federation, which represent manufacturers of heat pumps, however, called for more to be done to incentivise the upskilling of the existing heating engineer workforce.³⁶ In its written evidence to us, Schneider Electric said that there were “inadequate” incentives for upskilling and training. It explained that the complexity of heat pump installations compared to traditional boilers and the current insufficient £500 training grant to cover lost income from four days of training discouraged installers from upskilling.³⁷

Monitoring and evaluating progress

21. DESNZ does not have a single measure of the number of heat pump installations. Instead, it relies on data from a range of sources, including the number of heat pump

32 Q 21; [DHH0008](#); DHH0010, [Written evidence submitted by The Retrofit Academy](#), 29 April 2024; DHH0027, [Written evidence submitted by Schneider Electric](#), 29 April 2024; [DHH0033](#); DHH0037, [Written evidence submitted by MCS Service Company](#), 29 April 2024

33 Qq 21, 25–28; C&AG’s Report, para 3.15

34 DHH0014, [Written evidence submitted by The MCS Foundation](#), 29 April 2024

35 Qq 24–25; [DHH0053](#)

36 [DHH0008](#)

37 [DHH0027](#)

grants provided through government schemes, Microgeneration Certification Scheme (MCS) installations data and heat pump sales data. Data from the Heat Pump Association indicates that some 55,000 heat pumps were sold in 2022.³⁸ We asked DESNZ why it did not have a mechanism to measure how many heat pumps had been installed. It explained that there were “challenges”, as no one was required to tell DESNZ whether they had installed a heat pump. It considered that requiring this information would be “overly regulatory”. It also told us that not everyone who installed a heat pump was certified by the MCS, so not all installations were captured in the MCS installations data. In addition, DESNZ explained that there were significant numbers of installations taking place in the devolved administrations, which were not included in its data, and that the number of heat pumps that are installed in new build homes would not always be captured either.³⁹

22. DESNZ told us that it was looking to produce a more regular data series that it could publish by combining some of its data sources. It was also developing a dashboard that will show the number of heat pumps installed through each government scheme. The NAO found that regular monitoring of progress would help DESNZ better understand whether it was on track to deliver an elevenfold increase in heat pump installations to reach its target of 600,000 installations by 2028. It found that it would also help to determine where further intervention may be required from government or industry.⁴⁰

23. We asked DESNZ how it was learning lessons from the roll out of heat pumps. It explained that it had already learned some lessons, such as about the level of grant driving demand, and that it would continue to evaluate the roll out of the Boiler Upgrade Scheme “very carefully” to see if there were further refinements to increase uptake further. It added that a first interim evaluation report for the Boiler Upgrade Scheme was due later in 2024, but it did not outline what the evaluation would cover.⁴¹

38 Qq 48, 49, 60; C&AG’s Report, para 3.3. The Microgeneration Certification Scheme (MCS) is a quality assurance scheme. The Boiler Upgrade Scheme requires heat pumps to be installed by MCS-certified installers.

39 Qq 48, 60

40 Q 48; C&AG’s Report, paras 17, 19, 3.3

41 Qq 10, 39

3 The pathway to decarbonising home heating

Supporting all households

24. In September 2023, the government announced that some homes may be exempt from the planned phase-out of new fossil fuel boilers in 2035. The government estimated that around a fifth of households might be exempt. Examples of such homes could cover those requiring energy efficiency or electrical connection upgrades, those not connected to the gas grid, or those that lack space for a heat pump. We asked DESNZ which were the types of properties or regions where installing a heat pump might be harder. DESNZ explained that it would be most challenging to install heat pumps in densely populated urban areas and those without outside space, such as blocks of flats.⁴² We received written evidence from Fuel Poverty Action, which suggested that there were 2 million households with electric storage heating, often flats, that are unsuitable for heat pumps but suffer from high energy prices and therefore require more flexibility.⁴³ Calor Gas, which supplies Liquid Petroleum Gas (LPG) to off-gas grid properties, said in its written evidence that many of its customers live in harder to treat, remote properties—some of which have period features, planning restrictions, or constrained local electricity grid constraints—all of which prevent retrofit works from being carried out.⁴⁴

25. In response to our question about how it would identify which homes are unsuitable for a heat pump and therefore exempt from the 2035 phase out, DESNZ said that it was some way from determining this, given the deadline was not until 2035. It outlined that it intended to consult in 2024 on alternative, predominantly electric, low-carbon technologies for people to decarbonise their homes where a heat pump might not be an appropriate solution. DESNZ recognised that it had “more work to do” including “additional trials” of alternative technologies.⁴⁵ We received written submissions from some manufacturing companies which said they were developing alternative technologies that might be placed anywhere in the home. Both Tepeo and Thermal Storage UK, for example, explained that they were developing heat batteries that can operate in homes where there is lack of outdoor space.⁴⁶ NexGen Heating described that it was developing an infrared heating technology, which would be agnostic to housing type and require minimal disruption.⁴⁷

26. The NAO reported that DESNZ was yet to determine its approach for homes that are complex to decarbonise. DESNZ told us that it considered that heat networks would be the next major alternative low-carbon technology for people living in properties that are unsuitable for a heat pump. DESNZ outlined that it was identifying areas suitable for heat networks through heat network zoning in partnership with local authorities. It explained that it had a strong pipeline of projects for heat networks and was investing some £868 million in heat networks up to 2028. This included £338 million to 2025 and £530 million between 2025 and 2028. It explained that the main source of funding was

42 Q 66; C&AG’s Report, para 2.21

43 [DHH0045](#)

44 [DHH0043](#)

45 Qq 114–116; C&AG’s Report, para 2.22

46 [DHH0024](#), [Written evidence submitted by Mr Tom Lowe](#), 29 April 2024; [DHH0044](#), [Written evidence submitted by Tepeo](#), 29 April 2024

47 [DHH0041](#), [Written evidence submitted by NexGen Heating](#), 29 April 2024

its Green Heat Network Fund, which it said had so far provided grants of £268 million to support 20 projects. DESNZ stated that most applications to this fund were for large heat pumps, some of which use energy from waste, mine water or geothermal sources. DESNZ estimated that around 3% of total heat demand is supplied to buildings through heat networks, but it believed that there was potential for that to expand to around 20% by 2050.⁴⁸

27. In a written submission to our inquiry, the Chartered Institute of Housing expressed concern that the social housing sector, which it said accounted for over half of all heat networks, would need clear guidance and support to prepare and respond to the new regulatory regime for heat networks, and that this represented a “considerable shift” for the sector. It added that almost all heat networks in the social housing sector were operated on a cost recovery basis, and “significant” costs of regulation and zoning would therefore be passed through to residents for them to remain viable. Its overall concern was that connecting customers to heat networks through the zoning process could increase running costs for residents relative to the gas systems they replace, with social housing residents having a much lower household income than other tenures.⁴⁹ DESNZ explained that it was developing a regulatory framework to oversee heat networks through the Energy Act. It said the aim for this framework was to ensure fair pricing and quality of service that is already in place for gas and electricity customers. The NAO called for DESNZ to further consider how to ensure that people living in harder-to-decarbonise homes are not left behind or penalised unfairly.⁵⁰

The role of hydrogen and gas networks

28. In the 2021 Heat and Buildings strategy, DESNZ committed to developing the evidence base necessary to take strategic decisions on the role of hydrogen for heating buildings in 2026. It also committed to establishing large-scale trials of hydrogen for heating, including: a neighbourhood trial by 2023, a village scale trial by 2025; and developing plans by 2025 for a possible hydrogen town that can be converted by the end of the decade.⁵¹ Major trials intended to support decisions on hydrogen for heating have, however, been cancelled or delayed. We noted that two hydrogen village trials had been abandoned. DESNZ announced in July 2023 that it was no longer proceeding with supporting a village trial in Whitby, originally planned for 2025, owing to residents’ reluctance to change their heating systems. In December 2023, DESNZ announced that it would also not proceed with the other proposed village trial site in Redcar, because the necessary local hydrogen supply would not be available. A gas distribution company plans to start a neighbourhood trial, originally planned for 2023, in 2024 with around 300 interested participants in domestic properties in Fife.⁵²

29. We observed that, at the time of our evidence session, an announcement on a successful bidder for a hydrogen town, planned for the end of this decade, was delayed by 13 months. We asked DESNZ when an announcement could now be expected. DESNZ told us that it was considering its next steps on the hydrogen town trial and would set

48 Qq 67–68, 70, 80–82; C&AG’s Report, para 2.22; Department for Energy Security & Net Zero, [UK heat networks: market overview](#), September 2023

49 DHH0003, [Written evidence submitted by The Chartered Institute of Housing](#), 29 April 2024

50 Qq 67, 71–72, 80; C&AG’s Report, para 2.22

51 HM Government, [Heat and buildings strategy](#), October 2021, white paper, CP 388, pages 23–24.

52 Qq 85, 86, 88; C&AG’s Report, para 2.3

out its plans shortly, but could not give a more precise date than before the summer.⁵³ Following our evidence session, on 9 May 2024 DESNZ announced that it had decided not to progress work on a hydrogen town pilot until after the 2026 strategic decisions on the role of hydrogen in decarbonising heat.⁵⁴

30. In response to a question about how DESNZ had got so far with the trial at Redcar before realising that the supply of hydrogen needed was not available, DESNZ said that it was not solely reliant on the outcomes from the cancelled village trials, although the trials were “important”. It considered that “there were other sources and ways of getting the evidence that we needed in order to make decisions around the role of hydrogen”.⁵⁵ We asked DESNZ what evidence it would use to make a decision and whether it still expected to be in a position to make a decision by 2026 given the delays and cancellations of hydrogen trials. DESNZ told us that it was still working towards being able to make a strategic decision in 2026. It explained that it was drawing on other sources of evidence, such as a trial to use hydrogen for home heating across a neighbourhood in Fife, alongside trials in other countries, such as the Netherlands and Germany. In addition, it explained that it was working with the Health and Safety Executive to develop an evidence base around the safety and appropriateness of hydrogen to inform its 2026 decision.⁵⁶ Written evidence from Hydrogen UK, however, highlighted that the cancellation of the village trials had “adversely” affected the collection of data needed to evaluate hydrogen for heating.⁵⁷ We noted that the neighbourhood trial was exclusively testing supply to the domestic market, but by 2026 there would not have been a live trial of hydrogen supply to non-domestic properties.⁵⁸

31. Several written submissions to our inquiry highlighted that uncertainty over the role of hydrogen is delaying key decarbonisation investment decisions until government makes a decision on hydrogen. Hydrogen UK, for example, told us that the decisions about trials and recent announcements had “created ambiguity in the role of hydrogen in domestic heating”. It explained that clarity around the role of hydrogen was needed to “enable industry stakeholders to make informed decisions, commit to necessary investments, and drive forward the innovation and infrastructure development required”.⁵⁹ Similarly, a climate change think tank, E3G, suggested that industry was “suffering” from a lack of clarity regarding government’s “indecisiveness” on the future role of hydrogen for domestic heating.⁶⁰ The MCS Foundation also told us that businesses, installers and manufacturers will be reluctant to invest in skills and technologies if there is a risk than in later years the government will focus on hydrogen rather than electrified solutions.⁶¹ Good Energy further indicated that manufacturers of heat pumps and heat network developers require “affirmative signals” over the future of hydrogen for heating.⁶²

32. Alongside industry, some written submissions highlighted that households were unclear over the role of hydrogen. Octopus Energy told us that there was “widespread

53 Qq 92, 93

54 Department for Energy Security and Net Zero, [Correspondence – Hydrogen Heating Town pilot: letter to Gas Distribution Networks – update](#), 9 May 2024.

55 Qq 86–88

56 Qq 85, 94; C&AG’s Report, para 2.5

57 DHH0036, [Written evidence submitted by Hydrogen UK](#), 29 April 2024

58 Qq 92, 94

59 [DHH0036](#)

60 DHH0012, [Written evidence submitted by E3G](#), 29 April 2024

61 [DHH0014](#)

62 [DHH0046](#)

customer confusion and investments in electrification are being held back”.⁶³ Centrica also reported that customers were “unwilling” to make their own decisions on whether to install particular low-carbon heating measures while there is uncertainty over which options they could take in the future.⁶⁴ The Chartered Institute for Housing added that some social housing providers are employing a “wait and see” approach, awaiting the government’s decision on hydrogen, to decarbonise at least some of their homes.⁶⁵ In October 2023, DESNZ set out that heat pumps and heat networks will be the main low-carbon heating technologies over the next decade, with “the potential for hydrogen to play a role in slower time in some locations”. DESNZ told us that it was thinking about the locations and buildings where hydrogen might be used, but that anyone looking to install a heat pump should do so, irrespective of where they live.⁶⁶

33. We asked DESNZ if it was aware of the level of uncertainty for industry given that an increasing number of businesses do not know what the government’s position is on heat decarbonisation. DESNZ told us that it needed to “take decisions in the right order at the right time” and, in its view, it remained the case that a decision on hydrogen should be taken in 2026. It told us that there was a risk that taking decisions earlier could result in it becoming locked into a “suboptimal path”.⁶⁷ In contrast, the NAO and written submissions to our inquiry from Hydrogen UK, Good Energy and Octopus Energy have called for the government to consider bringing forward some aspects of its decision on hydrogen.⁶⁸

34. Hydrogen UK and the National Audit Office reported that there was also uncertainty over the future role of the gas networks, if it is decided that hydrogen has a limited role and electricity becomes the main energy source.⁶⁹ This included questions over who will pay for the networks to either continue in service if there is a decreasing customer base, or to be decommissioned. We asked DESNZ about potential funding options, including whether decommissioning would be funded by the taxpayer, the gas networks or a levy on customers or other energy users. DESNZ recognised that “there are all sorts of things you could look at” and that it would need to strike a balance between “current and future, and timing decisions”. In October 2023, the National Infrastructure Commission estimated that the cost of decommissioning the gas networks would be £25 billion. DESNZ said that it will be examining the costs as part of its strategic decisions on hydrogen.⁷⁰

35. Although DESNZ clarified that gas networks will be needed for some considerable time, it accepted that it needed to increase its work to look at future decommissioning. The NAO found that DESNZ’s work on the costs and feasibility of gas network decommissioning was in the initial stages, and its understanding was therefore limited. DESNZ indicated that it had a consultation underway with Ofgem to identify the early issues around decommissioning the gas network.⁷¹ Our previous reports have demonstrated that a limited upfront understanding of the costs of decommissioning in other sectors such

63 [DHH0050](#)

64 [DHH0053](#)

65 [DHH0003](#)

66 Q 94; C&AG’s Report, para 2.10

67 Qq 94, 98

68 [DHH0036](#), [DHH0046](#), [DHH0050](#); C&AG’s Report, para 24c

69 [DHH0036](#); C&AG’s Report, paras 12, 2.20

70 Qq 104–105; National Infrastructure Commission, [Arup - Future of Great Britain’s gas network](#), October 2023, p.11

71 Qq 103–103; C&AG’s Report, para 2.20

as nuclear and oil and gas have required more taxpayers' money to meet significant additional costs. In the nuclear sector, for example, taxpayers had to top up the cost of decommissioning seven nuclear stations with £10.7 billion, as existing funds did not keep up with the increased costs.⁷²

Decarbonising power generation

36. Decarbonising electricity generation is crucial to the government's net zero strategy, including decarbonising home heating. If, as the government expects, most homes switch their heating systems to heat pumps or heat networks, it is important that these are powered by clean sources of electricity to achieve decarbonisation. In 2021, the government set an ambition that by 2035 all electricity should be generated using clean sources, subject to security of supply, while meeting an expected increase in electricity demand of up to 60%. This means phasing out polluting types of electricity generation, such as gas-fired power stations and replacing them with a new mix of zero and low-carbon generation, including wind, solar and nuclear power.⁷³

37. We noted that renewable energy sources such as solar and wind are determined by the weather, making them intermittent; a view supported by Hydrogen UK. DESNZ recognised that electricity-based heating may change existing patterns in demand for electricity. It said that it therefore needed to make sure the power system can reliably manage peaks and troughs in both supply and demand for electricity throughout the day. DESNZ explained that this was likely to require new low-carbon technologies that provide flexible sources of energy, especially in the winter months, such as gas-fired power stations with carbon capture, hydrogen power or long-duration storage.⁷⁴

38. We examined, in a separate inquiry, DESNZ's ambitions for decarbonising the power sector and concluded that it lacked an overarching delivery plan that would provide confidence to the private sector to invest in new and upgraded infrastructure. We also warned that this made it difficult for DESNZ to understand the decisions and timings it must take to achieve its ambition to decarbonise the power sector by 2035.⁷⁵ Yet we observed at the time of our evidence session that DESNZ still did not have a delivery plan, despite us calling for it to produce one by autumn 2023 at the latest. DESNZ told us that it now expected it to be available in "the next couple of months". Originally, DESNZ had planned to prepare a first draft of its delivery plan by October 2022.⁷⁶

39. DESNZ told us that, since our inquiry into decarbonising the power sector, it had shifted its emphasis towards the importance of spatial planning. It explained that this involved considering both overall energy demand at a local level, such as for electric vehicles as well as heating; and how to connect low-carbon generation to individual homes.

72 Committee of Public Accounts, [Public cost of decommissioning oil and gas infrastructure](#), Eighty-Ninth Report of Session 2017–19, HC 1742, 27 March 2019; Committee of Public Accounts, [The Nuclear Decommissioning Authority's management of the Magnox contract](#), Twenty-Eighth Report of Session 2019–21, HC 653, 27 November 2020; Committee of Public Accounts, [Future of the Advanced Gas-cooled Reactors](#), Third Report of Session 2022–23, HC 118, 20 May 2022

73 C&AG's Report, [Decarbonising the power sector](#), Session 2022–23, HC 1131, 1 March 2023, para 1

74 Qq 73–74, 79, 97, 109; [DHH0036](#)

75 Committee of Public Accounts, [Decarbonising the power sector](#), Fifty-Ninth Report of Session 2022–23, HC 1003, June 2023

76 Qq 1, 2, 107–108; Committee of Public Accounts, [Decarbonising the power sector](#), Fifty-Ninth Report of Session 2022–23, HC 1003, June 2023; C&AG's Report, [Decarbonising the power sector](#), Session 2022–23, HC 1131, 1 March 2023, para 9

DESNZ said that work was underway with the National Infrastructure Commission to look at how to build capacity in the distribution network operators to manage the increase in demand for energy, both nationally and at the street level. It added that Ofgem had also started work to identify areas where there will be particularly high levels of demand for energy.⁷⁷

Formal minutes

Thursday 23 May 2024

Members present

Sir Geoffrey Clifton-Brown, in the Chair

Mr Jonathan Djanogly

Richard Fuller

Peter Grant

Sarah Olney

Matt Warman

Declaration of interests

The following declarations of interest relating to the inquiry were made:

24 April 2024

Olivia Blake declared the following interest: that a family member had a pecuniary interest in relation to the Committee's inquiry into Decarbonising home heating.

Decarbonising home heating

Draft Report (*Decarbonising home heating*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 39 read and agreed to.

Summary agreed to.

Introduction agreed to.

Conclusions and recommendations agreed to.

Resolved, That the Report be the Thirty-seventh Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available (Standing Order No. 134).

Adjournment

The Committee adjourned.

Witnesses

The following witnesses gave evidence. Transcripts can be viewed on the [inquiry publications page](#) of the Committee's website.

Wednesday 24 April 2024

Jeremy Pocklington CB, Permanent Secretary, Department for Energy Security and Net Zero; **Ben Rimmington**, Director General, Net Zero Buildings and Industry, Department for Energy Security and Net Zero; **David Capper**, Director of Net Zero Buildings, Department for Energy Security and Net Zero

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Published written evidence

The following written evidence was received and can be viewed on the [inquiry publications page](#) of the Committee's website.

DHH numbers are generated by the evidence processing system and so may not be complete.

- 1 Anonymised ([DHH0013](#))
- 2 BUUK ([DHH0009](#))
- 3 Brown, Claire (PhD Researcher, University of Manchester) ([DHH0029](#))
- 4 Building Societies Association ([DHH0015](#))
- 5 Cadent ([DHH0048](#))
- 6 Calor Gas Ltd ([DHH0043](#))
- 7 Centrica ([DHH0053](#))
- 8 Chartered Institute of Housing ([DHH0003](#))
- 9 Cook, Mr Nigel ([DHH0001](#))
- 10 Culmer Raphael ([DHH0039](#))
- 11 Disability Rights UK ([DHH0052](#))
- 12 E3G ([DHH0012](#))
- 13 EDF ([DHH0011](#))
- 14 Energy & Utilities Alliance (EUA) ([DHH0040](#))
- 15 Energy Capital (part of West Midlands Combined Authority) ([DHH0025](#))
- 16 Energy Saving Trust ([DHH0026](#))
- 17 Energy UK ([DHH0033](#))
- 18 Energy and Climate Change Division, School of Engineering, Faculty of Engineering & Physical Sciences, University of Southampton ([DHH0030](#))
- 19 Fuel Poverty Action ([DHH0045](#))
- 20 Good Energy ([DHH0046](#))
- 21 Green Alliance ([DHH0034](#))
- 22 Ground Source Heat Pump Association ([DHH0047](#))
- 23 Heat Pump Association; and Heat Pump Federation ([DHH0008](#))
- 24 Hydrogen UK ([DHH0036](#))
- 25 Independent Networks Association ([DHH0022](#))
- 26 Liquid Gas UK ([DHH0021](#))
- 27 Lowe, Mr Tom (Founding Director, Thermal Storage UK) ([DHH0024](#))
- 28 MCS Service Company ([DHH0037](#))
- 29 Mineral Wool Insulation Manufacturers Association (MIMA) ([DHH0018](#))
- 30 Mitsubishi Electric Europe Living Environmental Systems Division – Residential Product Group ([DHH0023](#))
- 31 National Energy Action ([DHH0020](#))
- 32 National Housing Federation ([DHH0005](#))

- 33 National Insulation Association (NIA) ([DHH0031](#))
- 34 NexGen Heating ([DHH0041](#))
- 35 Northern Housing Consortium ([DHH0032](#))
- 36 OVO Energy ([DHH0017](#))
- 37 Octopus Energy ([DHH0050](#))
- 38 Positive Money ([DHH0007](#))
- 39 Regulatory Assistance Project ([DHH0028](#))
- 40 Rose, Paul (Chief Executive, OFTEC Ltd); and Cronin, Ken (Chief Executive Officer, United Kingdom and Ireland Fuel Distribution) ([DHH0054](#))
- 41 Schneider Electric ([DHH0027](#))
- 42 Scotia Gas Networks (SGN) ([DHH0051](#))
- 43 Scottish Renewables ([DHH0035](#))
- 44 Sustainable Energy Association ([DHH0042](#))
- 45 Taylor, A ([DHH0002](#))
- 46 The Kensa Group ([DHH0016](#))
- 47 The MCS Foundation ([DHH0014](#))
- 48 The Retrofit Academy ([DHH0010](#))
- 49 UK Sustainable Investment and Finance Association (UKSIF) ([DHH0055](#))
- 50 Unite ([DHH0049](#))
- 51 Waller, Dr Alexander (Visiting Professor , American University of Sovereign Nations) ([DHH0004](#))
- 52 Warren, Andrew ([DHH0056](#))
- 53 Witham, Dr Fred ([DHH0019](#))
- 54 Markides, Professor Christos; and Olympios, Dr Andreas (Clean Energy Processes (CEP) Laboratory, Imperial College London) ([DHH0038](#))
- 55 tepeo ([DHH0044](#))

List of Reports from the Committee during the current Parliament

All publications from the Committee are available on the [publications page](#) of the Committee's website.

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2nd	The condition of school buildings	HC 78
3rd	Revising health assessments for disability benefits	HC 79
4th	The Department for Work & Pensions Annual Report and Accounts 2022–23	HC 290
5th	Government's programme of waste reforms	HC 333
6th	Competition in public procurement	HC 385
7th	Resilience to flooding	HC 71
8th	Improving Defence Inventory Management	HC 66
9th	Whole of Government Accounts 2020–21	HC 65
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12th	Cross-government working	HC 75
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17th	Cabinet Office functional savings	HC 423
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20th	Monitoring and responding to companies in distress	HC 425
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24th	NHS Supply Chain and efficiencies in procurement	HC 453
25th	Scrutiny of sound financial practice across Government	HC 673
26th	The BBC's implementation of Across the UK	HC 426
27th	Government resilience: extreme weather	HC 454
28th	Student loans issued to those studying at franchised higher education providers	HC 455

29th	Progress in implementing Universal Credit	HC 458
30th	Non-executive appointments	HC 460
31st	Department of Health and Social Care 2022–23 Annual Report and Accounts	HC 459
32nd	Delivering value from government investment in major projects	HC 456
33rd	Value for money from legal aid	HC 481
36th	Investigation into whistleblowing in the civil service	HC 457
1st Special Report	Eighth Annual Report of the Chair of the Committee of Public Accounts	HC 628

Session 2022–23

Number	Title	Reference
1st	Department for Business, Energy & Industrial Strategy Annual Report and Accounts 2020–21	HC 59
2nd	Lessons from implementing IR35 reforms	HC 60
3rd	The future of the Advanced Gas-cooled Reactors	HC 118
4th	Use of evaluation and modelling in government	HC 254
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18th	Government actions to combat waste crime	HC 33
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20th	Whole of Government Accounts 2019–20	HC 31
21st	Transforming electronic monitoring services	HC 34
22nd	Tackling local air quality breaches	HC 37

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24th	Redevelopment of Defra's animal health infrastructure	HC 42
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26th	The Department for Work and Pensions' Accounts 2021–22 – Fraud and error in the benefits system	HC 44
27th	Evaluating innovation projects in children's social care	HC 38
28th	Improving the Accounting Officer Assessment process	HC 43
29th	The Affordable Homes Programme since 2015	HC 684
30th	Developing workforce skills for a strong economy	HC 685
31st	Managing central government property	HC 48
32nd	Grassroots participation in sport and physical activity	HC 46
33rd	HMRC performance in 2021–22	HC 686
34th	The Creation of the UK Infrastructure Bank	HC 45
35th	Introducing Integrated Care Systems	HC 47
36th	The Defence digital strategy	HC 727
37th	Support for vulnerable adolescents	HC 730
38th	Managing NHS backlogs and waiting times in England	HC 729
39th	Excess Votes 2021–22	HC 1132
40th	COVID employment support schemes	HC 810
41st	Driving licence backlogs at the DVLA	HC 735
42nd	The Restart Scheme for long-term unemployed people	HC 733
43rd	Progress combatting fraud	HC 40
44th	The Digital Services Tax	HC 732
45th	Department for Business, Energy & Industrial Strategy Annual Report and Accounts 2021–22	HC 1254
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