



House of Commons
Environmental Audit Committee

Accelerating the transition from fossil fuels and securing energy supplies

Fourth Report of Session 2022–23

*Report, together with formal minutes relating
to the report*

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Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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Summary

The UK remains dependent on fossil fuels for 78% of its energy needs—to heat homes, fuel vehicles and generate over a third of its electricity. This dependence has left the country exposed to the biggest global fossil fuel price shock since the 1970s. Putin’s unprovoked invasion of Ukraine and weaponisation of gas supplies caused oil prices to spike and wholesale gas prices to surge to sustained new highs. Prices for petrol and diesel at the pump in the UK hit record levels and household energy bills have soared. Energy bills would have reached even more eye-watering levels this winter had the Government not intervened to temporarily cap the unit price of gas and electricity. This cap has prevented nearly four million people from finding themselves in fuel poverty this January.

The Government acted swiftly to publish a British Energy Security Strategy following the invasion of Ukraine and the resulting gas supply crisis. We commend it on its rapid response and the interventions it has made to protect people and businesses this winter. The Strategy’s ambition on decarbonising the electricity system is welcome, and it sets strong and stretching targets for the roll-out of low-carbon electricity generation from solar, offshore wind and nuclear.

There are, however, significant gaps in the Strategy. It is in essence an energy supply strategy, with much of its focus on electricity generation and oil and gas supply. To deliver genuine energy security, the strategy should have placed far greater emphasis on energy saving measures. The UK’s oil-dependent transport sector should also have been included. Boosting energy efficiency efforts is the quickest way to reduce reliance on imports, protect households and cut climate-changing emissions. Ministers missed a crucial window of opportunity during the warmer months to accelerate energy efficiency measures that could permanently protect UK citizens from the impact of volatile oil and gas prices. The number of energy efficiency installations in 2022 compares poorly with figures from Government backed energy efficiency schemes eight to ten years ago.

We welcome the target set by the Chancellor to reduce energy demand by 15% by 2030. The promise of £6bn future energy efficiency funding is also welcome, but those in fuel poverty cannot afford three winters of delay. It is a false economy to hold this money back at a time when households are struggling and the taxpayer is having to spend billions to subsidise energy bills. The Chancellor should allocate a proportion of the Energy Profits Levy revenue to bringing forward this energy efficiency funding now to fulfil the Government’s manifesto commitment to invest £9 billion in energy efficiency. A national ‘war effort’ on energy saving and efficiency is required. Upgrading homes to Energy Performance Certificate C or above must be treated as a national priority to enhance the UK’s energy security, reduce bills and cut emissions from the country’s leaky and draughty building stock.

There were some notable gaps on renewable energy in the strategy: the short-term potential of onshore wind and the long-term potential of tidal power were not given as much focus as other technologies. We welcome the Government’s commitment to consult on proposed changes to national planning policy to relax the *de facto* prohibition that has existed for onshore wind since 2015, while recognising that constraints remain. In its promised new Net Zero strategy the Government should set stated ambitions for

onshore wind and tidal energy in gigawatts of generating capacity as it has for other low-carbon technologies like solar, offshore wind and nuclear. We also recommend that the Treasury examine how a low-carbon investment allowance could be introduced for electricity producers paying the new temporary tax of 45%, similar to the one that applies to oil and gas producers.

Tackling the immediate energy security and affordability issues caused by the war in Ukraine does not entail abandoning climate ambitions or putting them on pause. During the net zero transition the UK must nevertheless continue to be able to access oil and gas to ensure that the country can continue to heat its homes, fuel its transport and generate a declining proportion of its power. To show its continued commitment to climate leadership we recommend that the Government consult on setting a clear date for ending new oil and gas licensing rounds in the North Sea: this date should fall well before 2050.

The upstream emissions reductions targets currently set under the North Sea Transition Deal are not stretching enough. More rapid action will be required to reduce production emissions by 68% in the current decade in line with the Government's commitments under the Paris Agreement. Oil and gas companies must accelerate their efforts to electrify offshore platforms, stop flaring and address methane leakage. We are disappointed to observe that only two electrification projects are expected to be commissioned by 2027. We recommend that the North Sea Transition Authority uses its powers to insist on the electrification for all new oil and gas projects due to be licenced in the 33rd licensing round. The routine flaring of unwanted fossil gas must also be banned outright, as it has been by Norway since 1971.

There are many solutions to this energy crisis that deliver synergies between affordability, security and sustainability. Accelerating the transition away from fossil fuels will enhance the UK's energy security, shield households from future energy shocks, and reduce the ability of aggressive and repressive regimes to use oil and gas supplies as an economic weapon.

1 Energy and climate security

1. The UK relies on energy to fuel its transport, heat its buildings, generate electricity and power industry and businesses. At present 78% of this energy comes from fossil fuels—oil, gas and a small amount of coal.¹ The burning of these high-carbon fuels in combustion engines, boilers, and power stations is responsible for the majority of the UK’s territorial emissions of climate-changing greenhouse gases.²

2. The UK’s dependence on oil and gas has left it exposed to the biggest global fossil fuel price shock since the 1970s.³ The annual UK gas and electricity price increases to April 2022 were the largest ever recorded in a series going back to 1970, and have continued to rise as Russia has restricted the supply of gas to continental Europe. Prices for petrol and diesel in the UK also hit recent record highs in 2022.⁴ Household energy bills would have reached even more eye-watering levels in this winter had the Government not intervened to cap the unit price of gas and electricity.

3. In this introductory chapter we set out the scope of this inquiry and outline the ‘energy trilemma’ of affordability, security, and climate challenges facing the UK. This provides the context for the following chapters, in which we will scrutinise the Government’s British Energy Security Strategy and its policies on oil and gas extraction on the UK Continental Shelf, which have been the focus of our inquiry. We expect the recommendations in this report to inform the Government’s revised Net Zero Strategy which it is required to publish by the end of March 2023.

About this inquiry

4. In early 2022 the Committee agreed to launch an inquiry to consider the transitional role of oil and gas in the UK’s energy mix and how to phase out financial support for fossil fuel and limit temperature increases to 1.5°C in line with climate change commitments made at the G7 in Carbis Bay in June 2021 and at COP26 in Glasgow in November 2021. As we prepared the inquiry in February 2022, Russia launched its unprovoked invasion of Ukraine. Oil and gas prices surged following the invasion, plunging the UK into its worst energy price shock since the 1973 oil embargo. Given the context of the war in Ukraine and looming energy price crisis, we agreed that the inquiry should also scrutinise the Government’s British Energy Security Strategy and how to insulate households from record fossil fuel prices.

The scope of our scrutiny

5. We launched our inquiry into *Accelerating the Transition from Fossil Fuels and Securing Energy Supplies* on 31st March 2022. The inquiry has focused its scrutiny on three UK Government policy initiatives:

- the British Energy Security Strategy;

1 Gov.uk, Digest of UK Energy Statistics (DUKES): energy, [DUKES 2022 Chapter 1: Energy](#) [Date accessed 29 July 2022]

2 Climate Change Committee, [The Sixth Carbon Budget: The UK’s path to Net Zero](#), December 2020

3 Green Alliance ([ATFF0017](#))

4 Guardian, [UK petrol and diesel prices hit record highs](#), 18 May 2022

- the North Sea Transition Deal, and
- the Energy Profits Levy and associated Investment Allowance.

The Energy Bill was introduced to the House of Lords in July 2022, in the later stages of this inquiry. We have therefore not considered its particular provisions. Nevertheless, many of our conclusions and recommendations will be relevant to the scrutiny of that legislation, as its progress through Parliament continues.

The evidence we have gathered

6. We received 65 written evidence submissions. We conducted five evidence hearings; hearing from academics, NGOs, industry analysts and industry representatives, including representatives of two of the ‘Big Six’ energy retailers and three of the largest oil and gas producers in the UK.⁵ At the outset of the inquiry the Committee heard presentations from key organisations working on issues around the UK Continental Shelf.⁶ The then Secretary of State for Business, Energy and Industrial Strategy (BEIS), the Rt Hon Kwasi Kwarteng MP, and the regulator (the North Sea Transition Authority) were confirmed to appear before the Committee on 22nd July 2022. Both withdrew on the morning the evidence session was scheduled. We were pleased to be able to reschedule hearings with the Authority and the newly-appointed Minister for Climate at BEIS, Rt Hon Graham Stuart MP, in September and October respectively.

7. Our specialist adviser for this inquiry has been Professor Jim Watson, of the Institute for Sustainable Resources, University College London.⁷ We would like to thank him for his invaluable advice and expertise.

5 Transcripts of these hearings can be found here: <https://committees.parliament.uk/work/6649/accelerating-the-transition-from-fossil-fuels-and-securing-energy-supplies/publications/oral-evidence/>

6 At the outset of the inquiry the committee heard presentations from the British Geological Survey, the North Sea Transition Authority, Offshore Energies UK (previously known as Oil and Gas UK) and the Overseas Development Institute.

7 Professor Watson made the following declaration of interests on his appointment:
Research funding from UK Research and Innovation (UK Energy Research Centre; grant on Greening the Recovery in Ghana and Zambia) and UK government (Research Director of Climate Compatible Growth programme funded by FCDO). The UCL Institute for Sustainable Resources (where I am Director) also receives research funding from other sources including the European Commission, the Wellcome Trust, Aldersgate Group and BEIS.

Advisory roles: Chair, UKRI Steering Group for Greenhouse Gas Removals Demonstrator (GGR-D) programme (unpaid); Executive Committee member, Tyler Prize for Environmental Achievement (unpaid); Chair, Technical Advisory Group, World Bank Energy Sector Management Assistance Programme (paid); Judge, Queens Awards: Sustainable Development (unpaid); advisory board member, Carbon Connect.

Other: Member, British Institute for Energy Economics; Fellow, Academy of Social Sciences; Shareholder in the Brighton Energy Co-op (£500); Family supporter, Greenpeace UK; Costs of 2022 Conservative Party Conference pass paid for by Offshore Energies UK, to speak on a panel they sponsored on UK energy security organised by Bright Blue.

Ending the energy trilemma

8. In the following sections we set out the energy security, affordability, and climate challenges facing the UK. These interlocking challenges have been described as the ‘energy trilemma’. We have heard a range of perspectives during the inquiry on the order of priority in which the trilemma’s elements ought to be addressed.⁸ Over the course of the report, we identify a number of policy areas where synergies can be found to end the energy trilemma and address affordability, security and climate benefits at the same time. We introduce the concepts and key issues below as context for chapters two and three, which will examine the UK Government’s British Energy Security Strategy and its North Sea Transition Deal.

Energy security

9. Definitions of energy security commonly include some combination of the availability, affordability, acceptability and accessibility of energy.⁹ The physical availability and affordability of energy supplies is at the core of the most widely accepted definitions.¹⁰ The International Energy Agency (IEA) defines energy security as ‘the uninterrupted availability of energy sources at an affordable price.’¹¹ Others define energy security more widely, to include the acceptability of energy.¹² Including acceptability in the definition incorporates the idea that the use of energy from certain sources may be politically unacceptable because of factors including the environmental impact of extracting the energy, the practices of a particular regime controlling the source, or other geopolitical concerns.¹³

10. In recent years successive UK administrations have placed a primary emphasis on national and international markets to deliver energy security. For instance, expenditure on domestic gas storage came to be seen as uneconomic because the costs were thought to outweigh the benefits in terms of increased security.¹⁴ The invasion of Ukraine in February 2022 has led to a significant shift in energy security strategies across Europe, as Western countries have moved to reduce reliance on Russian energy imports and Russia has restricted gas supplies to Europe. The UK Government is no exception, and the British Energy Security Strategy, published in April 2022, indicated a renewed focus on energy security issues which we discuss further in chapter two.

Fears of tightening gas supplies to Europe

11. In June 2022 the Russian Federation restricted the volume of gas flowing through the Nord Stream 1 pipeline to Germany to 40% of its typical volume. In July, Russia further

8 Ranging from Institute of Economic Affairs ([ATFF0028](#)) and Mr Clive Moffatt (Consultant at Moffatt Associates) ([ATFF0001](#)) to Uplift ([ATFF0021](#)) and Dr Fergus Green (Lecturer in Political Theory & Public Policy at University College London) ([ATFF0032](#)).

9 Parliamentary Office of Science and Technology, [Energy Security](#), POST Note 676, August 2022

10 Ang, B. W. et al. (2015). [Energy security: Definitions, dimensions and indexes](#). *Renew. Sustain. Energy Rev.*, Vol 42, 1077–1093.

11 International Energy Agency, ‘[Energy security](#)’ [Date accessed 27 May 2022]

12 Cherp, A. et al, [The concept of energy security: Beyond the four As](#), *Energy Policy*, Vol 75, 415–421, 2014; Paravantis, J. A. et al, [A Geopolitical Review of Definitions, Dimensions and Indicators of Energy Security](#), 9th International Conference on Information, Intelligence, Systems and Applications (IISA), 2018

13 Paravantis et al. 2018, [A Geopolitical Review of Definitions, Dimensions and Indicators of Energy Security](#)

14 Energy and Climate Change Committee, [UK Energy Supply: Security or Independence?](#), Eighth Report of Session 2010–12, HC 1065

restricted the volume, this time to 20% of normal levels.¹⁵ Several European countries dependent on this gas supply for heating and power generation responded by revisiting plans to close coal-fired or nuclear power stations and introducing emergency measures on energy efficiency to preserve gas stocks in preparation for winter.¹⁶ EU Member States filled gas storage facilities during the summer months¹⁷ and in July agreed to take measures to reduce gas demand by 15% overall so as to reduce reliance on Russian gas.¹⁸ The UK has been able to support European energy security during 2022 by using its significant regasification capacity to increase the flow of regasified Liquefied Natural Gas (LNG) to continental Europe via gas interconnectors.¹⁹ In September, a number of explosions were detonated on the underwater Nordstream 1 pipeline connecting Russia to Germany. This triggered four gas leaks—two in Denmark’s exclusive economic zone and two in Sweden’s—causing what may have been the single largest release of methane in history.²⁰

UK reliance on Russian energy

12. The UK was less dependent on gas and oil originating from Russia than many other European countries.²¹ Imports from Russia accounted for around 45% of the EU’s gas imports in 2021²², but less than 4% of total UK gas supply in 2021. In 2021, Russia accounted for 8% of the UK’s oil imports, and 20% of its imports of petroleum products.²³ In 2022, direct Russian imports of both oil and gas have significantly contracted as the Government and companies have moved to reduce reliance on Russian energy imports. The vast majority of UK gas supplies come from the UK’s North Sea fields, by pipeline from Norway, or by seaborne tanker as LNG from countries such as the United States and Qatar. Although it does not rely directly on Russian energy supplies, the UK’s continued dependence on fossil fuels leaves it heavily exposed to volatility on international commodity markets for oil and gas. The wholesale price of gas drives the price of energy supplied to domestic and commercial customers in the UK.

Box 1: The link between wholesale gas prices and retail electricity prices

High wholesale gas prices have driven high electricity prices because electricity prices are currently set at the price of the marginal generator, which at present is gas.²⁴ The Government has promised to address this issue, and to investigate how to decouple electricity prices from gas prices, in its Review of Electricity Market Arrangements (REMA). The review was launched in July 2022 and complements the pledge in the Energy Security Strategy to ‘rebalance’ the costs placed on energy bills away from electricity to incentivise economy-wide electrification.²⁵

15 Parliamentary Office of Science and Technology, [Energy Security](#), POST Note 676, August 2022

16 FT.com, [Germans told to conserve energy as Russia cuts gas flows to Europe](#), 16 June 2022

17 Reuters, [‘EU to require countries to fill gas storage 90% before winter’](#), March 2022

18 Council of the European Union, [Member states commit to reducing gas demand by 15% next winter](#), 26 July 2022

19 [Letter from the Executive Director of the International Energy Agency to the Chair of the Committee](#), dated 22 November 2022

20 CNBC, [All you need to know about the Nord Stream gas leaks — and why Europe suspects ‘gross sabotage’](#), 11 October 2022

21 [Letter from the Executive Director of the International Energy Agency to the Chair of the Committee](#), dated 22 November 2022

22 IEA, [A 10-Point Plan to Reduce the European Union’s Reliance on Russian Natural Gas](#), March 2022

23 Gov.uk, [Digest of UK Energy Statistics Annual data for UK, 2021](#), 28th July 2022

24 Parliamentary Office of Science and Technology, [Energy Security](#), POST Note 676, August 2022

25 Gov.uk, [British Energy Security Strategy](#), April 2022

13. The UK's reliance on a global market for oil and gas also exposes it to the potential risk of geopolitical or economic supply disruptions.²⁶ An energy security risk assessment commissioned in 2017 by the Department for Business, Energy and Industrial Strategy expressly modelled scenarios of Russian supply restrictions. The Department was warned that in situations of shortages caused by geopolitical tensions there would be a 'possibility of politically-driven non-market interventions' that could make it harder to secure scarce gas supplies by simply paying a higher market rate.²⁷

The UK's dependence on fossil fuels

14. The UK remains dependent on fossil energy for over three-quarters of its energy needs. It has made progress in reducing the proportion of fossil fuels burnt to generate electricity as renewable energy generation has increased and coal has been phased out as a source of power. Fossil gas is nevertheless still used to generate a significant share of the UK's electricity supply: in 2021 the share was just under 40%.²⁸ The UK also remains dependent on gas to heat the majority of domestic and commercial properties, and on oil to fuel road transport, aviation and shipping.

15. In 2021, the share of primary energy consumption (across transport, industry, heating and electricity) from fossil fuels was 78.3%.²⁹ The overall breakdown of fossil fuel consumption in this energy mix is:

- **Gas (42.8% of total primary energy consumption in 2021):** Gas is typically used for space and water heating in domestic and commercial properties as well as for domestic cooking in appliances such as ovens and hobs. It is also burnt to generate electricity.
- **Oil (32.1%):** The transport sector is the primary use for petroleum products in the UK, in 2021.³⁰ Aviation is powered entirely by petroleum. Marine vessels are powered entirely by diesel. Oil is also used to heat properties which are not connected to a gas grid, principally in rural areas of Great Britain and extensively in Northern Ireland, which has an energy infrastructure different from that of Great Britain.
- **Coal (3.4%):** A small proportion of coal is still used to generate electricity. The UK is phasing out the use of coal for this purpose by 2024. It has recently made temporary provisions to extend the life of some coal generation to ensure power stations are able to provide a "winter contingency" service to the UK power system from October 2022 until the end of March 2023.³¹ Coal is also used in some industrial processes.³²

16. The UK therefore remains dependent for its energy security on reliable supplies of domestically-produced and imported gas and oil. The UK gas system has inputs from

26 Parliamentary Office of Science and Technology, [Energy Security](#), POST Note 676, August 2022

27 Gov.uk, [CEPA: A review of gas security of supply within Great Britain's gas market - from the present to 2035: A Report to the Department for Business, Energy and Industrial Strategy](#), 2017

28 Gov.uk, [UK Energy In Brief 2022](#), P.28

29 Gov.uk, Digest of UK Energy Statistics (DUKES): energy, [DUKES 2022 Chapter 1: Energy](#) [Date accessed 29th July 2022]

30 Gov.uk, [Digest of UK Energy Statistics Annual data for UK, 2021](#), 28th July 2022

31 Drax, [Six-month extension of coal operations at request of UK Government](#), July 2022

32 Gov.uk, [UK Energy in Brief 2022](#), July 2022

several different sources, including: domestic UK production (e.g North Sea), domestic UK storage, pipeline imports from Norway, and LNG imports from the rest of the world.³³ Together all of these sources make up the mix in the UK gas transmission system.

UK energy production and dependence on imports

17. The UK has been a major fossil fuel producer since the 1970s, when oil and gas fields were first developed in the North Sea. For most of the twenty-five years from 1979, the UK was a net exporter of energy.³⁴ As reserves depleted, output declined and the UK became a net importer of oil and gas in 2004, as Figure 1 shows. The UK continues to import more oil and gas than it exports.³⁵ In 2021 Norwegian imports of gas exceeded UK domestic production for the first time.³⁶ Norway now supplies 63% of the gas imported to the UK.³⁷ It also supplies 25% of the UK's oil imports.

Figure 1: Net UK energy import dependency, 1970–2021



Source: UK Government, [Digest of UK Energy Statistics \(DUKES\) 2021](#), p. 5

Stakeholder views on energy security

18. We received a range of views on the priorities for UK energy security in our written and oral evidence. The founder of the UK Gas Security Group, Clive Moffatt, argued that the Russian invasion of the Ukraine had underlined the need for Government to ‘reset longer term energy policy with the focus on national security and affordability’.³⁸ Will Webster, from the oil and gas industry body Offshore Energies UK, suggested that the war in Ukraine had changed the energy security equation. He argued that the UK could not simply rely on a global market for energy. The war had shown the importance of physical control of energy supplies:

33 Communication from the North Sea Transition Authority to the Committee Specialist.

34 House of Commons Library paper, [Energy imports and Exports](#), CBP 4046, 19 October 2018

35 House of Commons Library paper, [Energy imports and Exports](#), CBP 4046, 19 October 2018

36 Gov.uk, [Digest of UK Energy Statistics Annual data for UK, 2021](#), 28 July 2022

37 Gov.uk, [Digest of UK Energy Statistics Annual data for UK, 2021](#), 28 July 2022

38 Mr Clive Moffatt (Consultant at Moffatt Associates) ([ATFF0001](#))

Energy security is an element of national security and a lot of that is the benefit of having your energy at the right end of the pipeline and not the wrong end of it from a physical security perspective.³⁹

19. Offshore Energies UK argued that without new licensing, exploration and investment, domestic oil and gas production would decline by around 15% per year.⁴⁰ This would leave 80% of the UK's gas demand and 70% of oil demand to be met through imports by 2030.⁴¹ Climate campaign group Uplift contested this, arguing that the UK's energy security was 'not directly proportionate to the domestic production of oil and gas.'⁴² When Uplift's founder Tessa Khan gave evidence to us just days after the record-breaking heatwave in July, she emphasised this:

The real solution to energy security in this country—leaving aside the very powerful climate imperative that we have seen evidence of in the last 48 hours in the UK—is reducing demand, which we have great potential to do given how much energy is wasted in the UK as a result of the fact that we have among the leakiest housing stock in western Europe in particular. And, of course, unleashing the full potential of our renewable energy sources, which we have in abundance and which at the moment are four times cheaper than gas.⁴³

20. EDF's Director of Strategy and Corporate Affairs, Paul Spence, insisted to us that the 'big problem that we are facing' was not access to or availability of energy, but its affordability: "It is not a problem of molecules [of gas]; it is a problem of pounds."⁴⁴ A range of stakeholders also pointed out that the domestic production of oil and gas did not protect consumers from higher prices because prices are set on international markets.⁴⁵ We examine the affordability aspect of energy security below.

Energy affordability

Box 2: Affordable energy

Affordable energy is recognised as a key human need under the United Nations Sustainable Development Goals (SDGs). Under SDG 7 the UK has committed to ensuring access to affordable, reliable, and sustainable energy for all.

21. The UK is experiencing a fossil fuel price shock on a scale not seen since the oil embargo of the 1970s. This has been caused by a steep rise in the wholesale price of fossil fuels used for transport, heating and electricity since 2021.⁴⁶ In the oral evidence we took in the summer of 2022 we heard warnings about the potential impact of the fossil fuel price hike. Tessa Khan predicted that the UK was 'on the brink of a historic energy affordability crisis'.⁴⁷ The chief executive of E.ON, the largest electricity supplier in the

39 [Q70](#)

40 Offshore Energies UK ([ATFF0047](#))

41 Offshore Energies UK ([ATFF0047](#))

42 Uplift ([ATFF0021](#))

43 [Q231](#)

44 [Q10](#)

45 Anonymous ([ATFF0003](#)); Royal Institute of British Architects ([ATFF0025](#)); UCL Energy Institute and UCL Institute for Sustainable Resources ([ATFF0026](#)); [Q116](#)

46 Energy Intensive Users Group ([ATFF0010](#))

47 [Q231](#)

UK, told us that the impact of the price rises was ‘devastating on customers’;⁴⁸ the scale of the rises was unprecedented and that he had seen ‘nothing like it’ in his thirty years in the industry’.⁴⁹ Both E.ON and EDF warned that the proportion of their customers struggling to pay their bills and falling into fuel poverty was rising steeply.

Box 3: Fossil fuel price volatility since 2021

Both oil and gas prices have experienced volatility in the last eighteen months as economies emerged from the pandemic, Putin invaded Ukraine and Russia went on to restrict supplies of gas. Global oil prices spiked following the invasion in February 2022. In the UK this caused average prices at the pumps to hit record highs: diesel reached 199.09p per litre in June and petrol reached 191.53p per litre in July.⁵⁰ Since July petrol and diesel prices have fallen back to lower levels.⁵¹ The wholesale gas market—which determines the price of domestic gas and electricity bills—remains volatile, given the unpredictable situation with gas supplies. The annual increases in household energy bills between April 2021 to April 2022 were the largest ever recorded on a series going back to 1970. The energy price cap set by the regulator Ofgem for household dual fuel bills increased by 12% in October 2021 and 54% in April 2022 to £1,971 based on rises in the price of wholesale gas which occurred before the dislocation of supplies following the invasion of Ukraine.⁵² In August 2022 Ofgem announced that the price cap from October 2022 would rise again to £3,549 per year for an average household.⁵³ Ofgem recently announced that the nominal price cap for January 2023 is to be £4,279.⁵⁴ This is what an average dual fuel household would be paying this winter if the Government had not acted to protect bill payers through the Energy Price Guarantee.

Fuel poverty in the UK

22. The unprecedented scale of the energy price rises from the autumn of 2021 has pushed millions more households into fuel poverty. In its initial submission to our inquiry in May 2022, the fuel poverty charity National Energy Action (NEA) estimated that the number of households spending 10% or more of their income on energy in the UK had risen from 4 million to 4.5 million following Ofgem’s energy price cap increase in autumn 2021, and estimated 6.5 million households to be in fuel poverty following the April 2022 cap rise.⁵⁵ In September 2022 NEA provided an updated estimate, based on projected energy prices during the winter of 2022. NEA advised us that the number of households spending 10% or more of their incomes on energy would have reached around 8.8 million in October 2022 and 10.6 million in January 2023 had the Government not intervened to cap the unit price of energy.⁵⁶

48 [Q2](#)

49 [Q2](#)

50 Fleet News, [Average price of diesel up by 10p per litre](#), October 2022

51 RAC, [Average petrol price falls too slowly despite a 9p reduction in July](#), 3 August 2022

52 House of Commons Library, [Domestic energy prices Research Briefing](#), 27 May 2022

53 Ofgem, [Ofgem updates price cap level and tightens up rules on suppliers](#), 26 August 2022

54 Ofgem, [Latest energy price cap announced by Ofgem](#), 24 November 2022

55 National Energy Action ([ATFF0018](#))

56 National Energy Action ([ATFF0062](#))

Box 4: Household fuel poverty in England

Fuel poverty is a devolved matter, with each administration having individual policy targets, measurement and outputs. A household in England is considered to be in fuel poverty if:

- (1) it is housed in a property with an energy efficiency rating of band D or below, and
- (2) after paying for energy, the residual household income is below 60 per cent of the median UK household income (usually termed the “poverty line”).⁵⁷

A property with an Energy Efficiency Rating of C (or above) cannot be defined as being in fuel poverty regardless of their income level or energy prices.

The devolved administrations in Scotland, Wales and Northern Ireland have each adopted their own definitions of fuel poverty but generally consider a household to be fuel poor if more than 10% of household income is needed to heat their home.⁵⁸

UK Government support for energy bill payments

23. The Government responded to the energy price shock by providing financial support to bill payers. In May 2022 the then Chancellor of the Exchequer announced a temporary Energy Profits Levy on oil and gas firms in the UK to help fund an Energy Bills Support Scheme to deliver a £400 discount to eligible households in England, Wales and Scotland over the winter months.⁵⁹ The Government also introduced a £150 council tax rebate for certain households.

24. In September 2022 the Government announced an Energy Price Guarantee, which would have the effect of capping the unit price of gas and electricity from 1st October.⁶⁰ The Government said that a typical UK household could expect to pay on average the equivalent of £2,500 a year for its energy as a result of the scheme.⁶¹ This support is to last until April 2023.⁶² The then Prime Minister also announced that the Government would temporarily suspend the so-called “green levies” on household bills, a measure estimated to save around £150 per household. Energy efficiency schemes, which had previously been funded from levies on bills, would now be funded from taxation.

25. The support provided by the Government has limited the number of households that are expected to fall into fuel poverty this winter. The NEA estimates that 6.7 million households are currently in fuel poverty following the introduction of the Energy Price Guarantee in October.⁶³ According to these estimates, Government intervention has therefore saved nearly 4 million households from fuel poverty in the winter of 2022.

57 [Fuel Poverty Methodology Handbook 2022 - LILEE with projection](#), February 2022

58 gov.scot, July 2019; gov.wales, [Fuel poverty estimates for Wales: 2018](#), April 2022; ni.gov.uk, [Fuel poverty | Department for Communities](#) [Date accessed 31st May 2022]

59 Gov.uk, [£400 energy bills discount to support households this winter](#), 29 July 2022

60 Gov.uk, [Energy Price Guarantee](#), updated 29 November 2022

61 Gov.uk, [Government announces Energy Price Guarantee for families and businesses while urgently taking action to reform broken energy market](#), 8 September 2022

62 Gov.uk, [Government announces Energy Price Guarantee for families and businesses while urgently taking action to reform broken energy market](#), 8 September 2022

63 National Energy Action, [‘Fuel poverty statistics explainer’](#), November 2022

Poor energy efficiency in domestic properties

26. The poor energy efficiency of UK homes was highlighted again and again in evidence as an area where the Government needed to focus more of its attention. E3G's Lisa Fischer suggested that households in band D and below were incurring an 'inefficiency penalty' of around £900 on average per year (in June 2022 prices).⁶⁴ Stakeholders pointed out that, while welcome, the Government's interventions to support bill payers will only help households through the immediate winter, whereas support on energy efficiency could permanently protect households from higher bills. Dr Fergus Green, of University College London, argued that the logical response to an oil and gas supply shock resulting in high prices ought to be a prioritisation of efforts to reduce demand for oil and gas, and that this should be seen as a national security priority as well as an economic and ecological one.⁶⁵

27. In the Autumn Statement delivered on 17th November 2022 the incoming Chancellor of the Exchequer, Rt Hon Jeremy Hunt MP, acknowledged the importance of energy efficiency to the UK's energy and climate security:

Over the long term, there is only one way to stop ourselves being at the mercy of international gas prices: energy independence combined with energy efficiency—energy independence so neither Putin nor anyone else can use energy to blackmail us, and energy efficiency to reduce demand and climate impact as much as possible.⁶⁶

The Chancellor pledged a further £6 billion investment on energy efficiency that will be delivered from 2025. He also announced the formation of a new Energy Efficiency Taskforce, which will support the delivery of a new national ambition to reduce energy consumption from buildings and industry by 15% by 2030.⁶⁷ We examine energy efficiency further in chapter two.

Climate change

28. Climate change is the most pressing environmental challenge that humanity is facing. In August 2021 the Intergovernmental Panel on Climate Change issued its starkest warning yet on the dangers posed by climate change, leading the UN Secretary-General Antonio Guterres to characterise the scientific warnings as 'Code Red for humanity'. The IPCC warned that unless there were immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting global warming to close to 1.5°C or even 2°C would be beyond reach.⁶⁸

Achieving the goals of the Paris Agreement

29. Under the presidency of the UK and Italy, the Glasgow Climate Pact reached at COP26 in November 2021 strengthened the focus of Paris Agreement signatories on the goal of limiting global temperature rise to 1.5°C. The UK pushed for countries to

64 [Q14](#)

65 Dr Fergus Green (Lecturer in Political Theory and Public Policy at University College London) ([ATFF0032](#))

66 *Official Report*, 17 November 2022, [col. 851](#)

67 Gov.uk, [Autumn Statement 2022](#), 17 November 2022

68 Intergovernmental Panel on Climate Change, '[Climate change widespread, rapid, and intensifying](#)', 9 August 2021

submit strengthened Nationally Determined Contributions as part of its efforts under the Presidency, and the UK itself submitted a new NDC committing the UK to reduce economy-wide greenhouse gas emissions by at least 68% by 2030 compared to 1990 levels.⁶⁹

Box 5: The 2015 Paris Agreement

The Paris Agreement was agreed by 192 countries plus the European Union at the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change. The Agreement set out the international community's goal to keep the increase in global average temperature to 'well below 2°C' above pre-industrial levels, and to 'pursue efforts to limit the temperature increase to 1.5°C' in recognition that this would significantly reduce the risks of climate change.⁷⁰ The Agreement also commits parties to the principle of equity in recognition of the common but differentiated responsibilities of nations when it comes to cutting greenhouse gas emissions, in light of different national circumstances.

Source: UNFCCC, [Paris Agreement](#), 2015

30. Despite the call to strengthen Nationally Determined Contributions (NDCs), progress since COP26 was declared as 'woefully inadequate' in the UN Emissions Gap Report for 2022, published in the run up to COP27.⁷¹ The report's authors analysed the 166 national climate pledges currently published by states under the Paris Agreement process. They found that even if all of these climate pledges were fulfilled, the world would still be on track for a temperature rise of between 2.4 and 2.6°C by the end of the century.⁷²

Climate impacts and extreme weather in the UK

31. Warming on the scale forecast would have severe impacts on the UK and countries around the world.⁷³ The world has heated by around 1.1°C since pre-industrial times.⁷⁴ This is already making extreme weather events, such as heatwaves, droughts, and extreme rainfall, more frequent and intense across the globe.⁷⁵ In the week we took evidence from the fossil fuel companies bp and Shell, the UK sweltered in a record-breaking heatwave. On 19th July 2022 temperatures in east Lincolnshire reached 40.3°C. This was the highest temperature ever recorded in the UK, exceeding the previous UK temperature record of 38.7°C set in 2019.⁷⁶ The record temperatures caused transport disruption as roads, rails and runways buckled; fires broke out and power cuts took place as network infrastructure overheated.⁷⁷ The prolonged heatwave during July and August caused a drought across England, depleting rivers, reservoirs and aquifers.⁷⁸

69 Gov.uk, [United Kingdom of Great Britain and Northern Ireland's Nationally Determined Contribution](#), 2020

70 UNFCCC.int, [Paris Agreement](#), 12 December 2015

71 UNEP, [Emissions Gap report 2022 key messages](#), 27 October 2022

72 UNEP, [Emissions Gap Report 2022](#), 27 October 2022

73 HM Government, [UK Climate Change Risk Assessment 2022](#), January 2022

74 IPCC, [IPCC Sixth Assessment Report: Climate Change 2021: The Physical Science Basis: Summary for Policymakers](#), 9 August 2021

75 IPCC, [Climate Change 2022, WGII Impacts, Adaptation and Vulnerability Summary for Policymakers](#), March 2022

76 Met Office, [Record high temperatures verified](#), Thu 28 Jul 2022

77 New Civil Engineer, [How did UK infrastructure cope with record temperatures?](#) 21 July 2022

78 BBC News, [UK Heatwave: Official drought declared across large parts of England](#), 12 August 2022

Climate security

32. It is increasingly acknowledged that climate change has national security implications.⁷⁹ The Government's Integrated Review of Security, Defence, Development and Foreign Policy, published in March 2021, warned that on current trajectories climate impacts:

... will cause increasing damage: more frequent and intense events such as extreme heat, storms and rain, leading to increased flooding, landslides and other impacts such as wildfires. This can amplify displacement and migration—increasing food and water insecurity—and damage ecosystems.⁸⁰

The threat to the UK's food security from climate impacts at home and abroad is an issue we intend to examine at greater length in an inquiry during 2023.

The UK's international and domestic climate change targets

33. Despite the increasingly apparent risks from climate change, the UK's current emissions reduction plans fall short of the acceleration needed to fulfil its international and domestic legal commitments. To stay on the path to net zero by 2050 the UK must meet the following commitments during the 2020s and 2030s:

- The UK's Nationally Determined Contribution (NDC) submitted in 2021 under the Paris Agreement commits the UK to reduce economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels.
- Domestically the UK is committed to a trajectory under the Sixth Carbon Budget (2033–37) to cut emissions by 78% by 2035 compared to 1990 levels. Meeting the budget will put the UK on track to achieve net zero by 2050 and is consistent with the Paris goal to pursue efforts to limit global temperature rises to 1.5°C.⁸¹

Accelerating the transition

34. To achieve these objectives, the rate at which UK emissions are reduced must be accelerated from the 19 million tonnes of carbon dioxide equivalent (MtCO₂e) reduction achieved per year on average since 2012 to around 21 MtCO₂e per year.⁸² Paul Spence from EDF emphasised the need to accelerate the transition. He said that the Government was 'doing a number of things right', but:

... we need to do all of the things that we are talking about at a pace that we have not achieved anything like in the past. We are talking in some areas 10 times the pace we have been going, in other areas five times the pace we have been going, and that is true across energy efficiency, electrification of the transport network, the rollout of heat pumps, the rate of expansion that

79 Grantham Research Institute on Climate Change and the Environment, London School of Economics ([ATFF0055](#)); HM Government, [Global Britain in a competitive age: The Integrated Review of Security, Defence, Development and Foreign Policy](#), March 2021

80 HM Government, [Global Britain in a competitive age: The Integrated Review of Security, Defence, Development and Foreign Policy](#), March 2021

81 Gov.uk, [UK enshrines new target in law to slash emissions by 78% by 2035](#), 20 April 2021

82 Climate Change Committee, [The Sixth Carbon Budget: The UK's path to Net Zero](#), December 2020, p.60

we need to go through if we are to have an affordable and resilient supply. It is a national response and we need that sense of urgency across all of the components.⁸³

Tessa Khan of Uplift echoed this. She argued that the UK could halve its reliance on gas imports in ten years if it put its ‘shoulders to the wheel on energy efficiency, renewables and electrification.’⁸⁴

35. The Climate Change Committee (CCC), the statutory independent climate advisor to the UK Government and Parliament, points out that ‘the 2020s are the crucial decade’ when emissions need to be reduced. Action is required across all sectors of the economy without delay.⁸⁵ The CCC has identified significant risks in the Government’s plans for meeting the UK’s NDC by 2030 and the Sixth Carbon Budget for the period 2033–37. In July 2022, the High Court ruled that the Government’s Net Zero Strategy, published in October 2021, failed to meet the government’s obligations under the Climate Change Act to produce detailed policies that show how the UK’s carbon budgets would be met.⁸⁶ The High Court ordered that the Strategy be revised and reissued by the end of March 2023.⁸⁷

Box 6: A ‘balanced pathway’ to net zero

The Climate Change Committee (CCC) has developed scenarios to explore a range of ways to achieve net zero by 2050. Among these scenarios is what it calls ‘a balanced pathway towards Net Zero’ for the UK.⁸⁸ This scenario was the basis of the CCC’s Sixth Carbon Budget recommendation to Government. The Balanced Pathway makes moderate assumptions on behavioural change and innovation. The CCC say that this pathway allows time for societal choices to contribute and the necessary scale-up of supply chains, skills, business models and infrastructure during the 2020s. Nevertheless, it ‘represents a decisive transition to Net Zero with over 60% of the necessary reduction to Net Zero achieved in the coming 15 years.’⁸⁹

Overall, this pathway represents a 78% reduction in UK territorial emissions between 1990 and 2035. This will require fossil fuels to be phased out across much of our energy systems. The CCC envisages demand for oil falling by 85% and for fossil gas by 70% by 2050. By this time petroleum would mainly be used in aviation, with gas being used with Carbon Capture and Storage for power generation and industrial processes and phased out of use in buildings.⁹⁰ The CCC calculated in 2020, before the massive increase in fossil fuel prices, that the extra capital investment required to deliver the balanced pathway would be recouped by the savings in operational fuel costs.⁹¹ As it is the CCC’s central scenario, the Balanced Pathway to Net Zero is also the scenario that we have used to inform this report.

83 [Q16](#)

84 [Q231](#)

85 Climate Change Committee, [The Sixth Carbon Budget: The UK’s path to Net Zero](#), December 2020, p.24

86 ClientEarth, ‘[Historic High Court ruling finds UK government’s climate strategy ‘unlawful’](#)’, 18 July 2022

87 White and Case, ‘[Landmark High Court decision that the UK’s Net Zero Strategy is unlawful](#)’, 31 August 2022

88 Climate Change Committee, [The Sixth Carbon Budget: The UK’s path to Net Zero](#), December 2020

89 Climate Change Committee, [The Sixth Carbon Budget: The UK’s path to Net Zero](#), December 2020, p.59

90 Climate Change Committee, [The Sixth Carbon Budget: The UK’s path to Net Zero](#), December 2020, p.72

91 Climate Change Committee, [The Sixth Carbon Budget: The UK’s path to Net Zero](#), December 2020, p.21

Our view on energy and climate security

36. The UK is experiencing its biggest energy crisis since the 1970s following major geopolitical instability during a year of worryingly extreme weather. Gas markets look likely to remain volatile for the foreseeable future and the UK remains exposed economically to oil and gas supply restrictions because of its continued dependence on fossil fuels.

37. The UK has become used to reliable global energy markets providing a large proportion of its energy needs. Vladimir Putin's apparent weaponisation of gas supplies has shown that the physical accessibility of energy supplies remains a crucial policy consideration, at least in the short to medium term. The UK Government needs to ensure that citizens and businesses have access to secure and affordable energy while at the same time doing its fair share towards limiting global temperature increase to 1.5°C, in line with its common, but differentiated responsibilities as a signatory to the Paris Agreement and the Glasgow Climate Pact.

38. Whilst the UK continues to be committed to phasing out the use of coal for electricity generation by 2024, the Government has recently announced its intention to allow the opening of a new coal mine at Whitehaven in Cumbria. The coking coal to be mined there has limited application in the UK steel industry, and 85% of the coal is planned for export to Europe. The UK Government needs to consider the impact of this decision on its ability to exert international influence with regard to the phasing out of unabated coal.

39. Climate breakdown threatens lives, livelihoods and infrastructure, and taking steps to ensure continued climate stability must be a national security priority for any government. The increasing frequency and ferocity of extreme weather events, floods, droughts and heatwaves which is manifest at the current 1.1°C average heating should serve as an alarm call. The impact that these weather extremes can have on national infrastructure has recently been all too apparent: there were striking examples of energy generating facilities across Europe being affected by the heatwave and drought in the summer of 2022. The world is currently on track to exceed the 1.5°C threshold that the Paris Agreement was intended to prevent.

40. Tackling the immediate energy security and affordability issues caused by the war in Ukraine does not entail abandoning climate ambitions or putting them on pause. The energy trilemma can be solved by tackling all three issues together. There are many opportunities to achieve synergies between affordability, security and sustainability. Accelerating the transition away from fossil fuels will enhance the UK's energy security and reduce the ability of aggressive or repressive regimes to use oil and gas supplies as an economic weapon. It will also help to protect households from volatile fossil fuel prices permanently and will reduce the fiscal burden of financial support to households through this and any future energy crisis.

2 The British Energy Security Strategy

41. The Government published its British Energy Security Strategy on 7th April 2022, shortly after we launched this inquiry. In this Chapter we scrutinise its measures and summarise the views we heard from stakeholders on the Strategy. We offer a number of recommendations to improve the Strategy: we expect that these will also inform Parliamentary scrutiny of the Energy Bill and the Government's revision of its Net Zero Strategy.

42. The British Energy Security Strategy was published just six weeks after the Russian Federation launched an unprovoked invasion of Ukraine and followed already steep increases in the wholesale price of gas on global markets. The Strategy, rapidly assembled by the Prime Minister's Office and the Department for Business, Energy and Industrial Strategy, set out a vision of a 'long term solution' to address the UK's 'underlying vulnerability to international oil and gas prices by reducing its dependence on imported oil and gas'.⁹² The Strategy:

- acknowledged that the 'first step is to improve energy efficiency'⁹³ and reaffirmed the Government's existing policies to improve the efficiency of buildings, especially homes;
- envisaged securing 95% of electricity from low-carbon sources by 2030 on the route to the Government's target of full decarbonisation of the electricity system by 2035;
- set an ambition to deliver 50 gigawatts (GW) of power annually from offshore wind by 2030, 70GW of power annually from solar by 2035, and a new fleet of nuclear power stations to generate 24GW annually by 2050;
- pledged the North Sea as 'a foundation of our energy security' and pledges to reduce the UK's reliance on imported fossil fuels by fully utilising the reserves of oil and gas in the North Sea;⁹⁴
- confirmed the launch of a 'Net Zero compatible' North Sea oil and gas licensing round, which we will examine in Chapter Three.⁹⁵

43. The Strategy sits alongside other Government net zero policy papers, and lists a number of areas where progress is being delivered against the Government's Ten Point Plan for a Green Industrial Revolution, launched by the then Prime Minister, Rt Hon Boris Johnson MP, in November 2020. It should be noted that the Department for Business Energy and Industrial Strategy also took prompt action in the spring of 2022 to ensure that three coal-fired power stations, due to be taken off the system in 2024, were on standby to generate electricity should the energy security situation worsen.⁹⁶

92 Gov.uk, [British Energy Security Strategy](#), 7 April 2022, p.5

93 Gov.uk, [British Energy Security Strategy](#), 7 April 2022, p.5

94 Gov.uk, [British Energy Security Strategy](#), 7 April 2022

95 Gov.uk, [British Energy Security Strategy](#), April 2022

96 [Q111](#)

Box 7: Definitions of the energy system

The Government seems to have defined the ‘energy system’ in narrow terms as electricity, fossil fuel extraction and heating in its Energy Security Strategy. The Strategy did not include a dedicated section on transport despite the surge in oil prices and the UK’s continued dependence on oil for surface transport, shipping and aviation. Transport makes up 32.1% of the UK’s overall energy mix and accounts for around 29% of total UK greenhouse gas emissions. These gaps have been pointed out in evidence to the inquiry and in this report we will consider a fuller picture of UK energy security including transport and the efficiency of buildings.

Stakeholder views of the Strategy

44. Stakeholders welcomed the timely publication of the Government’s Energy Security Strategy and praised elements of its approach and ambition.⁹⁷ The targets set for the roll-out of certain forms of low-carbon electricity were seen by many stakeholders as strong and suitably stretching.⁹⁸ There appeared to be a consensus among many of our witnesses, however, that there were gaps in the strategy. It was generally thought to have been heavily focused on supply-side measures, which led some stakeholders to suggest that it was primarily an ‘energy supply strategy’.⁹⁹ Several observed that it could have offered quicker solutions to the energy crisis by focusing on demand reduction and on faster supply-side solutions: it was pointed out that the strategy had instead concentrated on ‘large scale projects with very long delivery timescales and quite high delivery risks.’¹⁰⁰

45. A number of common themes emerged in critiques of the strategy:

- On the demand side, many stakeholders agreed that the Strategy failed to prioritise and accelerate energy saving and efficiency measures that could reduce reliance on imports, save citizens money and cut emissions most rapidly.
- On the supply side, the Strategy neglected to prioritise sufficiently the cheapest and quickest forms of renewable energy to deploy, in particular onshore wind. Some also argued that the Strategy had neglected other promising renewable technologies, such as tidal power, that had the potential to provide predictable and clean power supplies at certain locations on the UK’s coastline.¹⁰¹
- Some argued that the Energy Security Strategy reflected ‘a 20th century approach to energy security’ and did not pay sufficient regard to the potential to create a smart, flexible, and digitally enabled grid.¹⁰²

97 EDF ([ATFF0038](#))

98 Newcastle University ([ATFF0015](#)); Green Alliance ([ATFF0017](#)); EDF ([ATFF0038](#)); Stephenson Institute for Renewable Energy at University of Liverpool ([ATFF0042](#)); E.ON ([ATFF0004](#))

99 E.ON ([ATFF0004](#)); [Q16](#)

100 [Q14](#); Energy Saving Trust ([ATFF0053](#)); Green Alliance ([ATFF0017](#))

101 Anonymous ([ATFF0003](#)); UK Marine Energy Council ([ATFF0050](#)); Unite the Union ([ATFF0051](#)); Orbital Marine Power ([ATFF0052](#)); Tidal Engineering and Environmental Services Ltd ([ATFF0065](#))

102 [Q14](#)

On the Strategy's pledge to launch a new round of oil and gas licencing there were mixed views:

- On one hand, the industry,¹⁰³ regulator,¹⁰⁴ and Government¹⁰⁵ have argued that further licensing is needed to enhance the UK's energy security and that this will remain in line with net zero scenarios; because UK production has lower upstream emissions than some (but not all) of the oil and gas imported into the UK,¹⁰⁶ and it is taking place in a mature basin that will continue on a trajectory of decline, which will require continuing development if reliance on imports for residual supply is to be avoided.¹⁰⁷
- On the other hand, the Climate Change Committee,¹⁰⁸ campaigners,¹⁰⁹ and academics¹¹⁰ have cautioned that while new licensing might be compatible with domestic climate targets; it could put more oil and gas onto global markets, thereby potentially contributing to the world breaching the 1.5°C temperature goal that the UK Government signed up to at COP21 in Paris and reaffirmed at COP26 in Glasgow.

In the following sections we examine these critiques above in more detail. The role of oil and gas production in the UK's energy security and its transition to net zero will be discussed in Chapter Three.

Our overall view on the British Energy Security Strategy

46. The Government acted swiftly to publish a British Energy Security Strategy following the invasion of Ukraine and the resulting gas supply crisis. We commend it on its rapid response. The Strategy has some merits. Its ambition on decarbonising the electricity system is welcome, and it sets strong and stretching targets for the roll-out of low-carbon electricity generation in the coming decade.

47. There are, however, significant gaps in the Strategy. It is in essence an energy supply strategy, with much of its focus on electricity generation and oil and gas supply. To deliver genuine energy security, the strategy should have placed far greater emphasis on energy saving measures. Transport should also have been included.

103 Offshore Energies UK ([ATFF0047](#)); [Transcript of hearing with industry body Offshore Energies UK, 8 June 2022](#)

104 North Sea Transition Authority ([ATFF0058](#)); [Transcript of hearing with NSTA Chief Executive Andy Samuel, 7 September 2022](#)

105 Department for Business, Energy and Industrial Strategy ([ATFF0056](#)); [Transcript of hearing with Climate Minister Graham Stuart, 12 October 2022](#)

106 We note that Norwegian oil and gas imports have lower upstream emissions and Norway now accounts for 63% of total gas imports to the UK.

107 Offshore Energies UK ([ATFF0047](#)); North Sea Transition Authority ([ATFF0058](#)); Department for Business, Energy and Industrial Strategy ([ATFF0056](#))

108 CCC, [Letter: Climate Compatibility of New Oil and Gas Fields](#), March 2021

109 Uplift ([ATFF0021](#)); Oil Change International ([ATFF0022](#)); Greenpeace UK ([ATFF0023](#)); E3G (Third Generation Environmentalism) ([ATFF0048](#)); Platform London ([ATFF0011](#))

110 UCL Energy Institute & UCL Institute for Sustainable Resources ([ATFF0026](#)); [Transcript of hearing with industry body UCL Energy Institute, 8 June 2022](#)

Demand side measures in the Strategy

48. Most notable among the gaps in the Strategy is the lack of acceleration on energy efficiency measures. Shortly before the Energy Security Strategy was published, the then Chancellor of the Exchequer, Rt Hon Rishi Sunak MP, had announced a reduction in VAT on energy saving materials such as insulation, solar panels and heat pumps from 5% to zero for 5 years, with a reduced rate to apply from April 2027.¹¹¹ The Strategy itself contained no new initiatives on energy efficiency. It was reported at the time that the Treasury had vetoed proposals for fresh funding to accelerate energy efficiency schemes.¹¹²

49. During the second quarter of 2022 there were also signs of delay in delivering existing efficiency schemes. Energy retailers complained to us that the fourth phase of the Energy Company Obligation, ECO4, which had been scheduled for implementation in April 2022,¹¹³ had still not had the relevant legislation laid before Parliament for approval by June.¹¹⁴ The draft legislation was eventually approved by both Houses and entered into force in late July.¹¹⁵

The role of energy saving and efficiency in energy security

50. Buildings accounted for 89 MtCO₂e—20% of UK emissions—in 2021.¹¹⁶ Many stakeholders pointed out that the easiest, quickest and cheapest way to reduce reliance on fossil fuel imports, protect households from high prices and accelerate the transition to net zero would be to reduce demand and save energy in homes, businesses and other buildings. The CCC has said that ‘reducing energy demand in UK buildings is now the biggest gap in current Government energy policy’.¹¹⁷

‘A missed opportunity’

51. The Energy Saving Trust acknowledged that the Strategy was ‘highly ambitious’ in its long term aims to pivot towards offshore wind, nuclear and hydrogen energy production, but warned that the Strategy did not meet the urgency of the immediate affordability crisis because it omitted ‘to focus on [demand reduction and efficiency] measures, which would have supported people in the near term’.¹¹⁸ The measures in the Strategy would neither reduce bills nor increase supplies in the short term, according to the Trust.¹¹⁹ It said that an effective energy security strategy must consider demand as well as supply side issues.

111 Gov.uk, [BEIS in the Spring Statement 2022](#), 24 March 2022. The [Value Added Tax \(Installation of Energy-Saving Materials\) Order 2022](#) introduced a temporary relief from VAT in the form of a zero rate to be applied to the supply of installation of energy-saving materials in England and Wales and Scotland. The relief remains in force for the period from 1st April 2022 until 31st March 2027. The Order also widens the scope of the zero rate (from 1st April 2022 to 31st March 2027) and reduced rate (from 1st April 2027) for the installation of energy-saving materials in England and Wales and Scotland.

112 The Times, [E.ON UK leads attack on new energy strategy](#), 8 April 2022

113 Gov.uk, [Energy Company Obligation ECO4: 2022 -2026 - Department for Business, Energy and Industrial Strategy - Citizen Space](#), September 2021. The Government [replied to the consultation on ECO4](#) on 1 April 2022.

114 EDF ([ATFF0038](#))

115 The Electricity and Gas (Energy Company Obligation) Order 2022 ([SI 2022/875](#))

116 CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022

117 CCC, [Letter: Reducing energy demand in buildings in response to the energy price crisis](#), 9 November 2022

118 Energy Saving Trust ([ATFF0053](#))

119 Energy Saving Trust ([ATFF0053](#))

52. This was a view echoed by other stakeholders. EDF's Paul Spence told the Committee that there was a 'missed opportunity' to go further and faster on energy efficiency as part of the security strategy.¹²⁰ The Chief Executive Officer of energy retailer E.ON UK, Michael Lewis, pleaded for more focus on energy efficiency as a solution to the crisis which would have multiple benefits:

Our plea to the Government has always been to push hard on energy efficiency because that is the proven way, the only silver bullet for this crisis, that will reduce prices, reduce energy consumption and contribute to net zero sustainably.¹²¹

53. The Energy Saving Trust called on the Government to develop a 'complimentary demand strategy' with a plan for a sustained nationwide energy efficiency drive.¹²² E.ON's Chief Executive, Michael Lewis, suggested that a sustained energy efficiency programme could potentially reduce by 25% the amount of energy used in UK homes—the equivalent of the output from six nuclear power stations, each with the capacity of Hinkley Point C.¹²³ He said that there needed to be a mix of 'carrots and sticks' driven by:

... an overall framework of getting the entire UK housing stock up to the highest level of energy efficiency, converting them to heat pumps and installing localised generation, solar PV.¹²⁴

Energy performance of UK homes

54. The UK is said to have some of the oldest, draughtiest and most energy inefficient housing stock in the world. At the end of September 2022, around 59% of homes in England were rated D or below on their Energy Performance Certificate:

- 9,172,974 homes in England were rated at A, B or C for their energy performance;
- 13,215,904 were rated at bands D to G.¹²⁵

55. The Grantham Institute pointed out that many of these households were paying for heating and electricity which was wasted through poor insulation and inefficient appliances.¹²⁶ In its initial submission to us [in May 2022], E3G estimated that households living in band D or below properties were incurring an inefficiency penalty of around £900 per year on average.¹²⁷ E.ON argued in April 2022 that at the prices current then, upgrading a home from EPC D to EPC C could save households up to £500 a year.¹²⁸ These estimated savings are clearly likely to be higher following the increases in domestic energy prices since the spring of 2022.

120 [Q16](#)

121 [Q2](#)

122 Energy Saving Trust ([ATFF0053](#))

123 [Q16](#); It should be noted that this illustrative example assumes that the electrical energy generated by the nuclear power stations was converted into heat.

124 [Q21](#)

125 Department for Levelling Up, Housing and Communities, [Live tables on Energy Performance of Buildings Certificates, September 2022](#). Some homes do not have an EPC: this applies if they have not been let or sold since the commencement of the EPC scheme, or if they have been recently built.

126 Grantham Research Institute on Climate Change and the Environment, London School of Economics ([ATFF0055](#))

127 [Q14](#)

128 E.ON ([ATFF0004](#))

56. Despite the clear need to reduce emissions from buildings and to save households money on their fuel bills, the Government's current fuel poverty target does not set a clear target for improving homes to Band C or above. It restated this target in its submission to us:

The fuel poverty target is to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum energy efficiency rating of Band C, by 2030.¹²⁹

Our view on a target to upgrade homes

57. **The Government's current fuel poverty target 'to ensure that as many fuel-poor homes as is reasonably practicable achieve a minimum energy efficiency rating of band C, by 2030' is vague and unspecific. Informed by the CCC's Sixth Carbon Budget advice, we recommend that the new Energy Efficiency Taskforce is directed to advise the Government on appropriate interim targets to lift 100% of domestic properties to EPC C by 2035. Improving homes to EPC C or above will reduce the UK's reliance on energy imports and cut carbon emissions while delivering a wealth of co-benefits, including warmer homes, improved health outcomes, and a job-creating boost to local tradespeople.**

Existing energy efficiency schemes

58. Successive governments have struggled to devise effective energy efficiency schemes. Under the Coalition Government the Green Deal failed to offer attractive enough loans to entice large numbers of households to sign up. The National Audit Office found that the scheme, which cost taxpayers £240 million, did not generate additional energy savings because the design and implementation did not persuade householders that energy efficiency measures were worth paying for.¹³⁰ More recently, the Green Homes Grant was poorly implemented and beset by administrative problems and delays which undermined the scheme's ambition and proved counterproductive.¹³¹ Given this poor record, a number of stakeholders argued that boosting funding via established delivery mechanisms would be the most effective way to rapidly scale up the delivery of energy efficiency measures.¹³²

The Energy Company Obligation: 'a proven delivery mechanism'

59. The Energy Company Obligation (ECO) is a Government-mandated energy efficiency scheme, originally launched in 2013, to help reduce carbon emissions and alleviate fuel poverty across Great Britain.¹³³ In the nine years since its launch in the first quarter of 2013 to the end of the third quarter of 2022, around 3.6 million measures were installed in 2.5 million households across ECO. These figures include the small number of measures installed under the Coalition Government's Green Deal scheme.¹³⁴

129 Department for Business, Energy and Industrial Strategy ([ATFF0056](#))

130 National Audit Office, [Green Deal and Energy Company Obligation Report – Value for money](#), 14 Apr 2016

131 Environmental Audit Committee, [Energy efficiency of existing homes report](#), March 2021

132 E.ON ([ATFF0004](#)) ; Green Alliance ([ATFF0017](#)); Royal Institute of British Architects ([ATFF0025](#)); EDF ([ATFF0038](#)); UK100 ([ATFF0043](#))

133 Ofgem, [Energy Company Obligation \(ECO\)](#) [Date accessed 15 August 2022]

134 Gov.uk, [Household Energy Efficiency Great Britain, Quarter 3 \(July to September\) 2022](#), November 2022

60. The ECO3 scheme closed on 31st March 2022. The ECO4 Order came into force on 27th July 2022: it applies to measures installed from 1st April 2022 and is to cover a four year period until 31st March 2026. It has increased in value from the £640m per year under ECO3 to £1bn per year. In the Growth Plan, published in September 2022 under the Truss administration, an additional £1bn was pledged over three years from April 2023¹³⁵ to expand the scheme, which is to be known as ‘ECO+’. The Government told us in October 2022 that it would consult on the details of this new scheme ‘later this autumn’.¹³⁶

Our view on the effectiveness of energy efficiency schemes

61. **Poor implementation has been a recurring issue for energy efficiency schemes for owner occupiers in England, which has undermined confidence among consumers and contractors. The Green Deal failed to offer sufficiently attractive loans to incentivise large scale take up. More recently, the Green Homes Grant was administered shambolically. The scale of the current fossil fuel price shock crisis requires a rapid acceleration of energy efficiency measures and a commitment to effective delivery.**

62. **The Government must first act to increase the funding of schemes that are already in place and have a proven track record of effective delivery. The £1 billion of further funding that the Government has provided to the Energy Company Obligation scheme over the next three years is welcome, but it is not commensurate with the scale or urgency of the energy security challenge. With over six million households now in fuel poverty, action on energy efficiency needs to be ramped up urgently.**

Potential to increase the number of installations via ECO and other schemes

63. The Government published Household Energy Efficiency Statistics in October 2022. These included the number of energy efficiency measures installed under the ECO scheme since April 2022 when the Government’s Energy Security Strategy was published and ECO4 had been expected to be in place to replace ECO3.

64. The number of installations over the five months from April compares poorly with figures from when the ECO scheme was at its peak eight years ago. In the five months following the launch of the Energy Security Strategy (from April to the end of August) just over 31,000 energy efficiency measures were installed via ECO3 (in its final months) and ECO4 (commencing this year). A comparison with figures from the five-month period between April and August 2014 shows that during this period—under the first ECO scheme and the less successful Green Deal—over 288,000 energy efficiency measures were installed: nine times more installations than during this year’s energy crisis.¹³⁷

135 Gov.uk, [The Growth Plan](#), 23 September 2022

136 [Letter from BEIS Climate Minister Rt Hon Graham Stuart MP to the Committee](#), 31 October 2022

137 Gov.uk, [Household Energy Efficiency Statistics](#), headline release October 2022

Table 1: Number of energy efficiency measures installed through ECO3 and ECO4 by installation month, April to end of August 2022

Installation month	Total number of 'Energy Company Obligation 3 (ECO3) Interim' measures installed	Total number of ECO4 measures installed
April 2022	5,535	3
May 2022	9,168	215
June 2022	10,885	911
July 2022		1,231
August 2022		3,389
Total	25,588	5,749
Overall total April - August 2022		31,337

Source: Gov.uk, Household Energy Efficiency Statistics, headline release Oct 2022

Table 2: Number of energy efficiency measures installed through ECO and under the Green Deal Framework, by installation month, April to end of August 2014

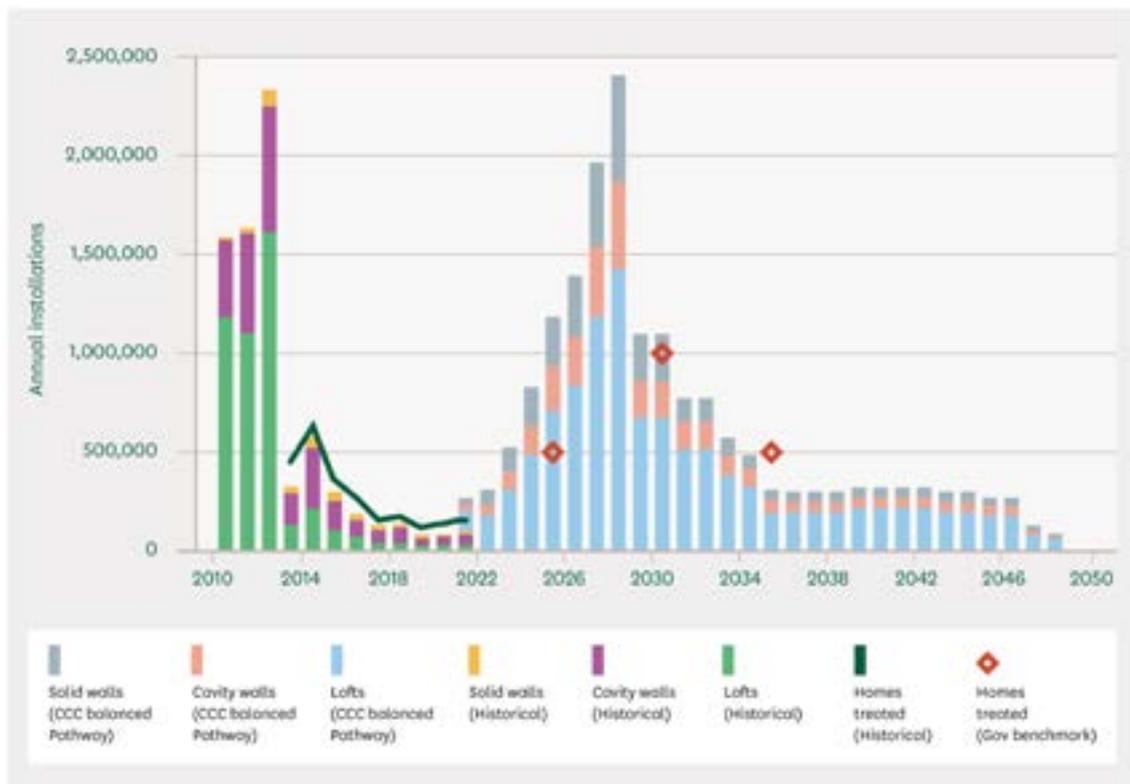
Installation month	Energy Company Obligation (ECO)	Total number of installations (including ECO, cashback & Green Deal)
April 2014	57,365	58,717
May 2014	58,703	60,231
June 2014	53,334	56,335
July 2014	54,198	59,477
August 2014	48,458	53,284
Overall total April - August 2014		288,044

Source: Gov.uk, Household Energy Efficiency Statistics, headline release Oct 2022

65. The annual number of energy efficiency measures installed in UK homes through Government backed schemes peaked in 2012 at 2.3 million installations. In 2021, fewer than 100,000 were installed.¹³⁸ Some of this reduction will be accounted for by the earlier adoption of more cost-effective and simple to install measures such as loft insulation. Funding was also reduced for energy efficiency schemes.

66. While early iterations of the scheme did have the benefit of addressing the ‘low hanging fruit’ in terms of installations; the large gap between the numbers in 2014 and 2022, and the number of homes which still have poor energy efficiency ratings, indicate that there is considerable latent potential to expand and accelerate the scheme. According to the CCC, the number of home energy efficiency upgrades needs to increase to levels last seen in the early 2010s to put the UK on a trajectory to achieve its future carbon budgets.¹³⁹ This is illustrated in Figure 2 below.

Figure 2: Energy efficiency installations 2010–2022 and projected pathway



Source: CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022

Driving energy efficiency improvements in the able to pay sector

67. Michael Lewis pointed out that the existing energy efficiency schemes, such as ECO and the Green Homes Grant Local Authority Scheme, were addressing domestic energy efficiency improvements among energy company customers who were in social housing and in fuel poverty. He argued that Government intervention was needed to push the mortgage market to drive energy efficiency improvements in the ‘able to pay’ segment of households at the point when homes were purchased.¹⁴⁰ He said:

138 CCC, [Letter: Reducing energy demand in buildings in response to the energy price crisis](#), 9 November 2022, p.1

139 CCC, [Letter: Reducing energy demand in buildings in response to the energy price crisis](#), 9 November 2022

140 [Q19](#); [Q21](#)

We have a £275 billion a year mortgage market. If you could tap into just 3% of that you could upgrade every home in the country to what we call the future energy home standard. We would advocate a system whereby when you buy a house—and by the way there are about 20,000 houses transacted every week, which is roughly how many we need to upgrade by 2030—you would have an energy audit that says, “These are the things that you have to do to take your home to the best possible energy efficiency standard you can and to electrify it wherever possible”. You then present that to your mortgage provider and they should provide the finance to do it. Once you have done that you may get some financial incentives from Government, maybe stamp duty or council tax incentives.¹⁴¹

Green mortgages

68. The Government’s Green Finance Strategy, published in 2019, set out its intention to grow the market for green finance products to support home energy performance improvements. Between November 2020 and February 2021, the Department for Business, Energy and Industrial Strategy carried out a consultation on how an obligation on lenders could be used to improve the energy performance of domestic properties with mortgages. Over eighteen months on from the close of that consultation the Government is yet to publish its response.

Our view on ECO+ and green mortgages

69. **The current ECO scheme is not delivering anywhere near the numbers of energy efficiency improvements it did at its peak a decade ago. The Government needs to ensure that ECO+ is properly funded to deliver hundreds of thousands if not millions of improvements every year for the remainder of this decade. We recommend that the Government set a target to build capacity in the energy efficiency sector, with an objective to deliver at least 1 million installations a year by 2025 and 2.5 million a year by the end of the decade. The Government should direct the newly-announced Energy Efficiency Taskforce to estimate the extent of additional funding required to achieve such a timetable.**

70. **The Government must also urgently bring forward measures to incentivise energy efficiency improvements via the mortgage market. The Department for Business, Energy and Industrial Strategy conducted a consultation on how an obligation on lenders could be introduced to improve the energy performance of domestic properties with mortgages. This consultation closed in February 2021: but more than 18 months afterwards the Government has yet to come forward with concrete proposals to kick-start a retrofit revolution in this part of the housing market. We are disappointed at this delay and recommend that the Department now fast track its response to that consultation and publish detailed policy proposals on green mortgages not later than the end of February 2023. If the Government has not published these proposals by the time the response to this report is due, we recommend that Ministers set out a timetable for doing so by the end of March 2023.**

71. In response to the Committee's report on *Energy Efficiency of Existing Homes*, published in March 2021, the Government said that it was considering what further action might be required to catalyse the market for a wide range of attractive and low-cost green finance products. Yet it said that the variation of stamp duty rates to incentivise green mortgages was not being considered, as to do so would risk the Exchequer's revenue. *We recommend that the Government direct the Energy Efficiency Taskforce to seek stakeholder views on how variations to the rate of stamp duty could be used to progressively incentivise energy efficiency improvements without jeopardising tax revenues.*

The Government's response to criticisms of energy efficiency measures in the Strategy

72. The Minister for Energy and Climate, Rt Hon Graham Stuart MP, told us in October 2022 that he recognised that 'managing demand is crucial to security, affordability and net zero'.¹⁴² He acknowledged that '... the [...] Strategy is primarily focused on new actions to secure a cleaner supply of sources of energy at home'.¹⁴³ He nevertheless insisted that action was also being taken on energy efficiency:

... we have gone further than any previous Government on energy efficiency. We have committed an additional £3.9 billion of new funding for decarbonising heat in buildings, bringing existing Government spending to a total of £6.6 billion across the lifetime of this Parliament. This will fund the next three years of the Social Housing Decarbonisation Fund and the home upgrade grant scheme. Of course, the Energy Company Obligation, the ECO, has been extended from 2022 to 2026 and its value has been boosted from £640 million to £1 billion a year. This will help an extra 450,000 families with green measures, such as insulation, with average energy bill savings of around £300 a year, which in the current circumstances is more acute than ever and important. Scaling up consumer advice and information services to help households to understand how to reduce their energy demand is also an important thing that we are doing.¹⁴⁴

Measures announced in the autumn of 2022

73. In the wake of the precipitous rises in energy prices over the summer of 2022, the Government announced a number of energy efficiency initiatives. Funding is still falling short of overall manifesto commitments. The 2019 Conservative manifesto pledged £9.2 billion to help lower bills by investing in the energy efficiency of homes, schools and hospitals; the Government has provided £6.6 billion in this Parliament to date.¹⁴⁵

74. In September 2022 the Government announced that it would make up to £1.5 billion available through the Social Housing Decarbonisation Fund and Home Upgrade Grant schemes, allowing social housing providers and local authorities to submit bids for funding to upgrade the properties of around 130,000 low-income and social households.¹⁴⁶ In the

142 [Q376](#)

143 [Q417](#)

144 [Q417](#)

145 Conservatives.com, [Conservative party 2019 Manifesto](#), p.55

146 Gov.uk, [£1.5 billion to improve energy efficiency and slash bills](#), 29 September 2022

Autumn Statement delivered in November 2022, the new Chancellor of the Exchequer, Rt Hon Jeremy Hunt MP, announced a new national ambition to reduce energy consumption from buildings and industry by 15% by 2030.¹⁴⁷ He also announced the establishment of a new Energy Efficiency Taskforce that the Government would charge with driving improvements in energy efficiency to bring down bills for households, businesses, and the public sector.¹⁴⁸ The Chancellor also announced that new government funding worth £6 billion would be made available for energy efficiency from 2025 to 2028. The cost to the taxpayer of the Energy Price Guarantee (EPG) and other schemes offering financial support to bill payers is estimated to reach as much as £66 billion by April 2023.¹⁴⁹

Our view on energy efficiency

75. We welcome the new interim target set by the Government in the Autumn Statement to reduce energy demand in this country by 15% by 2030. This goes some way to plugging the gap in the Energy Security Strategy which did not address reducing demand. We nevertheless regret that Ministers missed a crucial window of opportunity during the warmer months of 2022 to accelerate energy efficiency measures that could have helped to give permanent protection from the impact of volatile oil and gas prices to thousands more UK households.

76. The promise of £6bn further funding from the Chancellor is welcome, but those in fuel poverty cannot afford three winters of delay. We believe it is a false economy to hold this money back at a time when households are struggling, and the taxpayer is having to spend billions to subsidise energy bills. *The extra money promised on energy efficiency should be brought forward now to fulfil the Government’s manifesto commitment, not begin to be spent after a two year interval. We recommend that the Government launch a national ‘war effort’ push on energy saving and efficiency. The Government must treat the upgrading of all homes in England at band D or below to band C as a national priority to ensure affordability, enhance the UK’s energy security and reduce the high emissions from the country’s leaky and draughty building stock.*

77. The Energy Efficiency Taskforce announced in November 2022, if appropriately resourced and commissioned, has the potential to make a significant practical contribution to policy implementation. In our view it would be well placed to advise Ministers in the Departments for Business, Energy and Industrial Strategy and Levelling Up Housing and Communities on the best means to achieve the step change in measures to decarbonise domestic and commercial property that the CCC has advocated. *We recommend that the remit of the Energy Efficiency Taskforce expressly include the provision of advice to Ministers on any and all measures—including primary and secondary legislation, codes of practice and guidance—which in the Taskforce’s view will contribute to the swiftest possible implementation of energy efficiency measures at the scale the current situation demands.*

78. The Government can take further practical measures to make its policy on energy efficiency more effective. The current system of Energy Performance Certificates still requires a thorough overhaul to ensure that they represent an accurate assessment of the improved energy performance of buildings. *We recommend that the Government*

147 Gov.uk, [Autumn Statement 2022](#), 17 November 2022

148 Gov.uk, BEIS in the Autumn Statement, 18 November 2022

149 CCC, [Letter: Reducing energy demand in buildings in response to the energy price crisis](#), 9 November 2022

bring forward amendments to the Energy Bill, currently in the House of Lords, to provide for a more effective rating system. The Government has also promised to publish a consultation on the Energy Performance of Buildings (England and Wales) Regulations before the end of 2022. If this has not been published by the time the Government responds to this report, we recommend that it sets out an explanation for the delay and sets a new urgent deadline for publication of the consultation, along with a timetable for the publication of its response and policy decisions, which should be issued no later than the end of 2023.

Supply side issues in the Strategy

79. The British Energy Supply Strategy focused heavily on supply-side measures, with sections dedicated to offshore wind, solar, nuclear, hydrogen, and oil and gas production. E.ON's Chief Executive, Michael Lewis, observed that it was in effect an 'energy supply strategy'.¹⁵⁰

80. Energy academics at the University of Newcastle welcomed the focus on delivering greater levels of renewables because they will 'form the basis for future energy security, consumer price stability and mitigating climate change'.¹⁵¹ EDF also welcomed the 'ambitious targets' in the strategy for offshore wind and nuclear and proposals to remove planning barriers associated with the delivery of offshore wind.¹⁵²

A note on the extent of our scrutiny

81. The scope of this inquiry, and the pressing nature of the current energy crisis, did not allow us to examine in detail the potential role of each of the technologies covered in the Strategy. Our ongoing examination of technological innovations and climate change has previously examined hydrogen and tidal power, and we are currently examining onshore solar energy. We are also concluding a separate inquiry into sustainable aviation and shipping, which is looking at reducing emissions from these important transport sectors. Colleagues on other committees are also conducting detailed scrutiny of the future electricity mix and of the role of nuclear.¹⁵³

82. On the supply side, E3G told us that the Strategy had failed to prioritise the introduction of low-carbon technologies with the fastest deployment times and had instead focused too heavily on technologies and 'largescale projects with very long delivery timescales and quite high delivery risks'.¹⁵⁴ The founder of Ecotricity, Dale Vince OBE, told us that one of the problems with the Government's energy security strategy was its reliance on nuclear power:

A large component of [the Strategy] is directed to nuclear, 25% by 2050. It takes 10 years to plan one of those, 10 years to build and another 10 years to get your carbon back. Renewable energy, onshore wind and solar can be

150 E.ON ([ATFF0004](#)); [Q16](#)

151 Newcastle University ([ATFF0015](#))

152 EDF ([ATFF0038](#))

153 Details of this Committee's inquiries into aspects of technological innovations and climate change are available [on the Committee's website](#). See also the Business, Energy and Industrial Strategy Committee's inquiry into the [Decarbonisation of the power sector](#) and the Science and Technology Committee's inquiry into [Delivering nuclear power](#).

154 [Q14](#); E3G (Third Generation Environmentalism) ([ATFF0048](#)); EDF ([ATFF0038](#))

built within one to two years. It is not 10 years. It is very fast and we could make it faster. I think in the Government's energy strategy they talk about making offshore wind faster, down to one year. We could easily do that with onshore.¹⁵⁵

83. Some stakeholders questioned the Government's apparent reluctance in the strategy to prioritise the quickest and cheapest renewable technologies—particularly onshore wind.¹⁵⁶ Lisa Fischer from E3G argued that the Strategy reflected 'a 20th century approach to energy security.'¹⁵⁷ Dale Vince supported the development of onshore renewables:

Onshore wind is our cheapest, fastest form of renewable energy and it is currently shut out of the planning system by the [...] Government. That is a real problem. It is a political decision and it does not make any sense, given our need to get to zero carbon and to do it as cost effectively and as quickly as possible. Onshore solar, the field version, not the rooftop version, is as equally fast and cheap, or almost as cheap, as onshore wind and has enormous capacity as well.¹⁵⁸

Wind energy

Offshore wind

84. The British Energy Security Strategy envisaged a major role for offshore wind in the UK's electricity mix, with an ambition to deliver up to 50GW by 2030, including up to 5GW from innovative floating wind. Offshore wind is a low-carbon success story which the Government can be proud of. Generating capacity has massively increased in the UK since 2010—expanding by 19 GW from 5.4 GW in 2010 to 24 GW in 2019¹⁵⁹—and costs have dramatically reduced. The technology achieved a strike price of £37.35 per megawatt hour (MWh) in the most recent fourth round of Contracts for Difference (CfD) auctions.¹⁶⁰

Onshore wind

85. The Government acknowledges in the Strategy that onshore wind is one of the cheapest forms of renewable power: but it has been at best tentative in its support for the technology. While onshore wind has been included in the fourth and fifth rounds of CfD auctions, the current planning system in England has established conditions for approval of onshore wind installations which mean that they face a *de facto* ban in many areas of England (and Wales and Northern Ireland): the conditions in force in December 2022 are set out in Box 8 below. All the onshore wind projects awarded contracts in the fourth round of CfD are in Scotland. Bidding in the fifth round of CfD is due to commence in March 2023.

155 [Q115](#)

156 [EDF \(ATFF0038\)](#)

157 [Q14](#)

158 [Q116](#)

159 Gov.uk, Wind powered electricity in the UK [Date accessed 4 December 2022]

160 Gov.uk, [Contracts for Difference Allocation Round 4 results](#), July 2022

86. The current installed capacity of onshore wind is 15 GW. To date, the Government has not set an ambition for delivering a major increase in onshore wind. Several stakeholders, including the Energy Saving Trust, EDF, Green Alliance and E3G told us that this was a missed opportunity to accelerate the roll out of cheap renewable energy.¹⁶¹

87. In the British Energy Security Strategy the Government stated that it would not change the current planning regulations for onshore wind. However, it did pledge to consult on developing local partnerships to deliver benefits to communities which could demonstrate support for onshore wind in their area:

In the more densely populated England, the Government recognises the range of views on onshore wind. Our plans will prioritise putting local communities in control. We will not introduce wholesale changes to current planning regulations for onshore wind but will consult this year on developing local partnerships for a limited number of supportive communities who wish to host new onshore wind infrastructure in return for benefits, including lower energy bills. The consultation will consider how clear support can be demonstrated by local communities, local authorities and MPs.¹⁶²

Box 8: Existing planning rules on onshore wind

In June 2015, the Government issued a Written Ministerial Statement setting out policy on onshore wind farms.¹⁶³ The content of the statement was later incorporated into the National Planning Policy Framework (NPPF).¹⁶⁴ This introduced a *de facto* ban on onshore wind in the planning system. Under the revised framework, onshore wind projects may be developed only if they meet two criteria:

- (1) the development site is in an area identified as suitable for wind energy development in a local or neighbourhood plan; and
- (2) following consultation, it can be demonstrated that the planning impacts identified by affected local communities have been fully addressed and therefore the proposal has their backing.

88. On 6 December 2022, the Government made a further commitment to launch a consultation on proposed changes to national planning policy to explore how local authorities demonstrate local support and respond to views of their communities when considering onshore wind development in England.¹⁶⁵ The changes introduced in 2016, which made onshore wind development applications subject to the control of local authorities rather than the Nationally Significant Infrastructure Project process, are to remain in place.¹⁶⁶

161 Green Alliance ([ATFF0017](#)); EDF ([ATFF0038](#)); Energy Saving Trust ([ATFF0053](#)); E3G (Third Generation Environmentalism) ([ATFF0048](#))

162 Gov.uk, [British Energy Security Strategy](#) April 2022

163 The procedure for local planning authorities to follow from June 2015 was set out by the then Secretary of State for Communities and Local Government in a written Ministerial statement on 18 June 2015: [Official Report, column 9WS](#). Further details on the policy are contained in the House of Commons Library briefing paper [Planning for onshore wind \(CBP 4370\)](#), July 2016.

164 Windemer, R, [The impact of the 2015 onshore wind policy change for local planning authorities in England: Preliminary survey results](#), Centre for Sustainable Planning and Environments, UWE Bristol 2022

165 Gov.uk, [Government to launch consultation on local support on onshore wind](#), 6 December 2022

166 Gov.uk, [Government to launch consultation on local support on onshore wind](#), 6 December 2022

Our view on onshore renewables

89. **On the supply side, we welcome the clear and ambitious targets that the Government has set in the Energy Security Strategy for the roll out of low-carbon electricity generation. We are concerned that the Government is not doing enough to remove the barriers preventing the cheapest and quickest onshore low-carbon technologies from being rapidly deployed. A number of witnesses have raised the challenges that low-carbon generators face in securing appropriate grid connections and how to manage latency in certain types of renewables. These are clearly significant issues, which the committee may wish to consider in the future.**

90. **We are encouraged that the Government has now included one of the cheapest forms of renewable energy—onshore wind—in Contracts for Difference auctions and will consult on proposed changes to national planning policy to relax the *de facto* prohibition that has existed for the technology since 2015. We welcome these moves, while recognising that constraints remain. *We recommend that the Government’s proposals establish clear guidelines to provide benefits for local communities in areas that accept onshore wind farms, including potentially reduced electricity bills. The Government should also set a clear ambition to expand its generating capacity from onshore wind by 2035 in line with the goals it has set for other technologies in the British Energy Security Strategy.***

Solar energy

91. The British Energy Security Strategy stated an ambition to increase solar energy generation capacity by up to 70GW by 2035, five times what it is at present.¹⁶⁷ In September 2022, 14.2 GW of solar capacity was installed across the UK, of which 55% came from ground-mounted or standalone solar installations.¹⁶⁸

92. Researchers from the University of Liverpool told us that solar photovoltaic (PV) technology was currently on par with onshore wind as the cheapest ways to generate low-carbon electricity, with the levelised cost of energy continuing to fall over time.¹⁶⁹ They point out that the advantage of renewable forms of energy like solar—compared with fossil fuels—is that once installed, the price of solar PV is stable since the running cost lies only in operation and maintenance and does not depend on fuel costs.

93. Newcastle University’s Centre for Energy welcomed the Government’s plans to increase solar PV capacity, because ‘in concert with on-shore and off-shore wind will make a real difference to both electricity prices and climate change’: but pointed out that the increase in the renewables share ‘on a scale hitherto unseen’ would require more strategic planning.¹⁷⁰

94. The University of Liverpool’s researchers calculated that the UK would need to double the rate of installation achieved by the Coalition Government’s Feed In Tariff (FIT) scheme to meet the Government’s ambition of 70GW by 2035.¹⁷¹ At the height of the FIT scheme—between December 2011 and March 2012—solar PV was being installed at a

167 Gov.uk, [British Energy Security Strategy](#) April 2022, p.30

168 Gov.uk [Solar photovoltaics deployment October 2022](#)

169 Stephenson Institute for Renewable Energy, University of Liverpool ([ATFF0042](#))

170 Newcastle University ([ATFF0015](#))

171 University of Liverpool researchers ([ATFF0042](#))

monthly rate which would deliver a capacity of 150 megawatt peak (MWp).¹⁷² To achieve the capacity envisaged in the Strategy by 2030, they estimate that an average monthly installation rate of 361 MWp will be required. The researchers indicate the peaks that Germany achieved in its rate of solar installation in 2011 and 2012 when it installed 680 MWp per month, as evidence that these sort of rates are achievable in a larger but broadly comparable country. As recently as 2019 Germany was recording rates of solar installation of 320 MWp per month.

95. University of Liverpool researchers highlighted polling which demonstrated the popularity of solar and other renewable energy sources with the public. They noted that the popularity of solar development is particularly strong for rooftop solar, where they say the ‘multifunctional land use’ is seen as a key benefit. Public support for large scale solar farms is less strong.¹⁷³

Solar installations and the planning system

96. The planning rules governing the use of land for solar farms are summarised in Box 8. Most solar farms in England occupy grade 3b agricultural land. During the Conservative party leadership campaign there was discussion of limiting the land available for solar farms in the countryside. A reclassification of ‘best and most versatile’ (BMV) to include grade 3b land would result in solar farms being restricted from 41% total land and 58% of agricultural land in England.¹⁷⁴ Much of the land at grades 4 and 5 is situated in upland areas unsuitable for solar farms.¹⁷⁵

Box 9: Existing planning rules for ground mounted solar

Ground-mounted solar installations (i.e solar farms) with capacity great than 50MW are considered Nationally Significant Infrastructure Projects and must obtain a Development Consent Order from the Secretary of State before construction. Solar farms with capacity of under 50MW are subject to approval by local planning authorities.¹⁷⁶ Planning authorities develop their local plans based on the National Planning Policy Framework (NPPF).

The most recent NPPF was published in July 2021 and was due to be updated in 2022. It classed solar farms as ‘essential infrastructure’, meaning that they can be built in flood risk zones.¹⁷⁷ It did not include specifications for the grades of agricultural land upon which ground-mounted solar should be installed. However, the Planning Practice Guidance (PPG) on renewable and low carbon energy states that solar farms should be focussed on previously developed and non-agricultural land, provided it is not of high environmental value. For solar installations affecting greenfield sites, the PPG states that planning authorities should consider whether the use of agricultural land is necessary.¹⁷⁸ The PPG also establishes a ‘strong presumption’ against solar farms on the best and most versatile (BMV) agricultural land: land classified at grades 1, 2 and 3a falls into this category.¹⁷⁹

172 MWp is a unit of measurement for the maximum output of power from solar photovoltaic (PV) panels where the output varies according to the available sunlight.

173 University of Liverpool researchers ([ATFF0042](#))

174 The Guardian [Ministers hope to ban solar projects from most English farms](#)(2022)

175 Gov.uk. Guide to assessing development proposals on agricultural land, 2021

176 House of Commons Library (2022) [Planning for solar farms and battery storage solutions](#)

177 UK Government (2021) [National Planning Policy Framework](#)

178 UK Government (2022) [Renewable and low carbon energy](#)

179 The then Secretary of State for Environment, Food and Rural Affairs, Rt Hon George Eustice MP, [wrote to the Committee on 6 September 2022](#) to clarify the situation regarding planning guidance and field-scale solar arrays.

97. Analysis by Carbon Brief indicates that to reach the 70GW solar target set in the Energy Security Strategy through utility-scale solar installations (commonly known as ‘solar farms’), up to 0.3% of UK land area would need to be occupied by such installations, an area equivalent to 0.5% of UK farmland.¹⁸⁰ Dale Vince argued that the requirement for land was low in percentage terms, emphasising that ‘to get to 100% green electricity using the wind and the sun onshore, we need [just] 1% of our land area’.¹⁸¹

98. E.ON’s chief executive called for a massive expansion of solar and ‘in particular rooftop solar PV’. He said that ‘for new build houses, it is a no brainer and should be done immediately’ but that incentives also needed to be introduced to encourage more solar installations on existing properties.¹⁸² The Centre for Energy at Newcastle University argued that a dedicated solar energy deployment roadmap would be necessary: it envisaged that this would entail contributions from government, industry, researchers and the National Grid.¹⁸³ We note that the Government’s introduction of a zero-rate of VAT for the installation of certain Energy Saving Materials in March 2022 effectively provides a 20% discount on the installation of solar PV.

99. The Committee is currently conducting a short inquiry into onshore solar energy, during which we expect to consider in greater depth the potential contribution of onshore solar to the UK’s future energy security.

Our view on solar

100. It is unclear whether Ministers will maintain the current position whereby grade 3b agricultural land is available for ground-mounted solar installations. We recognise that the Government must balance the needs of energy security with biodiversity protection and food production. Nevertheless, moves to limit the land available for solar installations will make it harder to achieve the Government’s stated ambition in the British Energy Security Strategy to increase solar capacity to 70GW by 2035. We recommend that the Government set out, in its response to this report, its assessment of the likely impact that reducing the classes of land available for ground mounted solar would have on its ability to achieve its own target of 70GW target by 2035.

Potential of tidal power

101. Several submissions to the inquiry championed the potential of tidal stream, tidal range and hydropower technology to contribute to the UK’s energy security and net zero push. These complement the written and oral evidence we received in our 2021 examination of the role of tidal technologies in addressing climate change.¹⁸⁴ The UK Marine Energy Council argued that tidal stream energy was entirely predictable, could be deployed quickly, could potentially provide 11% of the UK’s electricity demand, and, as a baseload-style energy resource, could directly displace imports.¹⁸⁵ It suggested that it would be possible for a tidal stream farm with planning consent to be constructed in three years.

180 Carbon Brief [Factcheck: Is solar power a ‘threat’ to UK farmland?](#) 25 August 2022

181 [Q116](#)

182 [Q16](#)

183 Newcastle University ([ATFF0015](#))

184 The evidence and correspondence published as part of the Committee’s examination of [Technological innovations and climate change: tidal power](#) can be found on the Committee’s website.

185 UK Marine Energy Council ([ATFF0050](#))

102. Securing generating capacity from tidal range installations has in the past been deemed either too expensive or too environmentally damaging: the Government decided not to support the Swansea Bay tidal lagoon project because “the costs that would be incurred by consumers and taxpayers would be so much higher than alternative sources of low carbon power that it would be irresponsible to enter into a contract with the provider.”¹⁸⁶ Professor Chris Binnie, a water engineer involved in the West Somerset Lagoon Tidal Range scheme, told us that recent developments had increased tidal range energy outputs to the extent that tidal range was now of similar cost to nuclear and offshore wind once whole life costs, such as inflation, interconnection and intermittency costs were included. He further suggested that careful site selection and other actions could not only mitigate damage to habits, but could even provide environmental net gain.¹⁸⁷

103. The Institute for Economic Affairs was more sceptical, cautioning that tidal and hydropower technologies would remain niche opportunities given limited sites with advantaged geography.¹⁸⁸ Dale Vince welcomed Government support for tidal and geothermal energy, but pointed out that it was not deliverable in the near term and would instead be a prospect for the medium term. He emphasised that: ‘Right now, staring us right in the face, is onshore wind and solar, the fastest, cheapest, cleanest form of energy that we can make.’¹⁸⁹

Our view on the role of tidal power in providing clean predictable power

104. **As an island nation the UK has abundant tidal energy resources that could be tapped, yet tidal technologies received scant attention in the British Energy Security Strategy. We have been told that tidal range energy projects are now capable of being delivered at a similar overall cost to nuclear and offshore wind. Tidal stream and tidal range technologies have the significant benefit that tidal flows are entirely predictable and can therefore deliver a consistently reliable year-round source of clean electricity.**

105. **We welcome the inclusion of tidal power in Contracts for Difference auctions which has resulted in 40MW of clean power from tides being awarded contracts. Tidal and other marine energy projects should be a vital component of the Government’s strategies for delivering both net zero and energy security. *We recommend that the Government incorporate, as part of the revised net zero strategy to be published by March 2023, an approach to developing tidal and marine energy that includes a stated ambition for the sector set out in gigawatts of generating capacity. The UK should be aiming to generate a significant proportion of its power from these sources by the middle of the 2030s. This approach must be extremely sensitive to biodiversity considerations given the obvious risks of disrupting important habitats, and the Government should make this clear in planning guidance.***

186 Oral statement on Energy Policy by Rt Hon Greg Clark MP, Secretary of State for Business, Energy and Industrial Strategy, *Official Report*, 25 June 2018, [cols 634–36](#)

187 Tidal Engineering and Environmental Services Ltd ([ATFF0065](#))

188 Institute of Economic Affairs ([ATFF0028](#))

189 [Q116](#)

Energy security in the 21st century

106. In the British Energy Security Strategy the Government said that it was aiming to ‘smarten up’ the electricity system:

- with more flexible pricing, through Time of Use tariffs and battery storage through electric vehicles; and
- by ensuring all new homes are designed so that smart meters can be fitted from the outset, in advance of the Future Homes and Future Buildings Standards by 2024.

The Strategy as a whole seemed to take as an unquestioned premise the argument that the UK could only secure a sufficient baseload of reliable power by drawing on nuclear power.

107. The Strategy sets out a long-term ambition to ensure ‘up to a quarter of our power consumed in Great Britain is from nuclear’ by 2050. EDF, which is constructing two new nuclear reactors at Hinkley Point C in Somerset, says that while renewables are expected to provide the bulk of power in future, new nuclear and other consistent forms of low carbon power remain essential to deliver secure and reliable supplies throughout the year.¹⁹⁰ EDF argued that the costs of nuclear would fall for future nuclear as more reactors are built in the UK.¹⁹¹ Small Modular Reactors could be another potential source of baseload generating capacity to help achieve the nuclear generation ambition set out in the British Energy Security Strategy.¹⁹²

108. Upgrading the electricity grid is a crucial prerequisite to the achievement of net zero. Gas-burning turbines are currently used as flexible source of electricity generation that can be deployed to balance between overall demand and non-flexible renewable and nuclear electricity generation.¹⁹³ In 2021, gas power plants generated 40% of UK electricity. The electricity company SSE plc pointed out that ‘if renewables are to provide the backbone of the future energy system there needs to be greater emphasis on technologies that provide flexibility.’¹⁹⁴

109. Digitisation of the electricity system provides an opportunity for dynamic demand management to play a greater role in balancing the system. Greater roll out of smart digital technology—such as smart meters and internet enabled appliances—will be required to help adjust demand in line with prices automatically. The National Grid Electricity System Operator told us in June that it was examining the scope for greater flexibility and conducting a number of trials to look at how to ‘make peak demand more flexible’.¹⁹⁵

Our view on a twenty-first century grid

110. The British Energy Security Strategy appears to reflect a 20th century approach to energy security, prioritising the construction of big, centralised power generation facilities to meet fixed demand. A move to a smarter, more flexible, digitally-enabled grid, which technological innovations now make possible, holds exciting potential to

190 EDF ([ATFF0038](#))

191 [Q33](#)

192 Urenco Limited ([ATFF0008](#))

193 Parliamentary Office of Science and Technology, [Energy Security](#), POST Note 676, August 2022

194 SSE plc ([ATFF0037](#))

195 [Q114](#)

smooth demand peaks by flexing demand up and down in a way that was hitherto impossible. Developments in this area could have important implications for other elements of the Government’s energy strategy—for instance, how much baseload electricity is necessary and how much grid distribution capacity is needed to connect a more dispersed generation network. *We recommend that the Government provides a progress report in 2023 on the joint Ofgem and BEIS Smart Systems and Flexibility Plan and incorporates any relevant actions from this report into its ongoing efforts to enhance energy security and decarbonise the electricity grid.*

111. The converted Drax power station provides 12% of the UK’s renewable power from the burning of wood pellets. This source of power is reliable and flexible and supports more intermittent renewables, such as wind and solar. However, we note that concerns have been raised about its sustainability and short-term climate impact of burning wood pellets. We are currently examining these concerns as part of a separate inquiry.

Heating

112. Heating is another important area of energy use which was largely overlooked in the British Energy Security Strategy, despite remaining largely dependent on fossil gas. Gas boilers are still the dominant domestic heating system in the UK (with 86% of homes using natural gas in England).¹⁹⁶

113. The UK Government set out its plans to decarbonise heating in October 2021 in the Heat and Buildings Strategy.¹⁹⁷ The British Energy Security Strategy reaffirmed the Government’s intention to phase out the sale of new and replacement gas boilers by 2035. But the Energy Saving Trust pointed out to us that with fewer than 250,000 heat pumps in operation in 2019, ‘we are some distance from meeting the UK government’s target of 600,000 installations yearly and the CCC’s recommended 900,000 yearly target.’¹⁹⁸

114. The Energy Saving Trust believed that the Government’s boiler replacement targets could be more ambitious. It also warned that details around the delivery of these targets were lacking. It called for an accelerated programme to replace gas boilers with low carbon heating. One option, it suggested, would be to expand the Boiler Upgrade Scheme to support an increased number of low carbon heating installations each year, as the current scheme is designed only to support approximately 30,000 heat pumps over three years.¹⁹⁹

115. We put the concerns about the rate of heat pump installation to Climate Minister Graham Stuart when he gave evidence in October 2022. He later wrote to indicate that there had been 55,000 heat pump installations in the UK in 2021, ‘showing significant growth on 2020.’²⁰⁰ He argued that a range of measures would support further growth in deployment towards the Government’s target of 600,000 installations a year by 2028, including:

- Supporting early switching and retrofit deployment through the Boiler Upgrade Scheme;

196 Gov.uk, Heat and Buildings Strategy

197 Gov.uk, Heat and Buildings Strategy, October 2021

198 Energy Saving Trust (ATFF0053)

199 Energy Saving Trust (ATFF0053)

200 [Letter from BEIS Climate Minister Rt Hon Graham Stuart MP to the Committee](#), 31 October 2022

- providing targeted support to help vulnerable consumers make the transition to clean heat, through the Sustainable Warmth competition and Social Housing Decarbonisation Scheme;
- making low-carbon heat standard in new buildings through the Future Homes Standard and Future Building Standard from 2025; and
- accelerating deployment growth through a rising industry standard: the Clean Heat Market Mechanism”.²⁰¹

We note that there is still a very considerable gap between the current rate of installation and the Government’s target of 600,000 installations a year. We will continue to monitor the progress of installations against Government targets.

The role of planning and building regulations in accelerating the transition

Barriers to accelerating the transition

116. A number of stakeholders spoke about the length of time it took for grid connections to be made as a major barrier to accelerating the roll out of low-carbon energy.²⁰² The British Energy Security Strategy highlighted concerns that it could take as long as 10 years to secure the licences and permissions required to erect an offshore wind farm. In the Strategy the Government promised to reduce consent times for offshore wind projects from four years to one year. It also pledged to strengthen the Renewable National Policy Statements to reflect the importance of energy security and net zero.²⁰³ EDF’s Paul Spence called for a greater emphasis to be placed on net zero in planning decisions.²⁰⁴

The Future Homes Standard

117. The Future Homes Standard will complement the current Building Regulations to ensure that new homes built from 2025 produce less carbon emissions. A new requirement based on the primary energy consumption of the house will become the main target for designers.²⁰⁵ This will help to act as an incentive for solar installations in housing developments.²⁰⁶

118. Some submissions suggested that the Future Homes Standard could be strengthened to accelerate the transition from fossil fuels and enhance energy security.²⁰⁷ The MCS Charitable Foundation suggested that the Standard, due in 2025, should also ensure strict energy efficiency requirements are built in. It could also ensure that, as a minimum, solar PV and heat pumps are incorporated into all new builds, along with ensuring the Government meets its ambition to phase out the installation of all fossil fuel boilers by 2035 at the latest.²⁰⁸

201 [Letter from BEIS Climate Minister Rt Hon Graham Stuart MP to the Committee](#), 31 October 2022

202 Q28

203 Gov.uk, [British Energy Security Strategy](#), April 2022, p.17

204 Q28

205 UK Government (2021) [The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings](#)

206 Solar Energy UK (2021) [Future homes are solar homes](#)

207 MCS Charitable Foundation ([ATFF0007](#)); Actuate UK ([ATFF0049](#))

208 MCS Charitable Foundation ([ATFF0007](#))

Our view on the Future Homes Standard

119. **If the classes of land available for ground-mounted solar are further restricted, it will make it all the more imperative to mandate the widespread deployment of rooftop solar in new developments where there are appropriate south facing aspects. We recommend that the Future Homes Standard requires developers to fit solar PV as standard where it is possible.**

Transport and energy security

120. In 2021, transport was the biggest consumer of energy in the UK²⁰⁹ and surface transport was the highest emitting sector, contributing to 23% (101 MtCO₂e) of UK emissions.²¹⁰ When aviation and shipping are included, transport accounted for around 29% of total UK emissions in 2021.²¹¹ Most of these emissions come from the burning of oil as a fuel in the form of petrol, diesel or kerosene.

Transport in the British Energy Security Strategy

121. Although the sector remains heavily dependent on oil, transport was largely overlooked in the British Energy Security Strategy. The Strategy did highlight in its table of progress against the ‘ten-point plan’ that the Government has:

- Funded 1,678 zero emission buses;
- Launched Active Travel England, increasing cycling by 75%, and
- Consulted on introduction of a UK Sustainable Aviation Fuel (SAF) mandate, requiring jet fuel suppliers to blend an increasing proportion of SAF into aviation fuel from 2025.²¹²

122. The Strategy focused primarily on plans to increase low-carbon electricity generation and the Government’s intention to launch further licencing rounds for domestic oil and gas production in the North Sea. Measures to reduce dependence on petrol and diesel by creating a more energy efficient transport system were not included. In the Autumn Statement the Chancellor of the Exchequer announced a new national ambition to reduce energy consumption from buildings and industry by 15% by 2030. Again, transport was not included.

Transport remains dependent on oil

123. The UK’s cars represent the largest energy consumers in road transport and consume over 90 per cent of petrol.²¹³ Electric car registrations are rising, with 29,372 new registrations of battery-electric cars in November 2022, a market share of 20.6% of all new car registrations. Despite encouraging increases in the sales of new electric cars,²¹⁴ it

209 Gov.uk, [Digest of UK Energy Statistics Annual data for UK, 2021](#), 28th July 2022, p.4

210 CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022, p.112

211 CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022, p.112

212 Gov.uk, [British Energy Security Strategy](#), April 2022

213 Gov.uk, [Energy Consumption in the UK](#), October 2022

214 In 2021, battery electric cars accounted for 12% of new car sales. Battery electric vans accounted for only 3.6%; Climate Change Committee, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022, page 122.

is estimated that only 3.9% of road vehicles in Britain were electric in 2021.²¹⁵ Electricity consumption remains a minuscule component of overall energy consumption in road transport at 0.07 out of 36.8 Mtoe, although it is rapidly growing: increasing by 67.4 per cent between 2020 and 2021.²¹⁶ The Government is to end the sale of petrol and diesel vehicles in 2030. Existing petrol and diesel vehicles will still be road legal after this date and it is likely that a large number of these vehicles will still be on UK roads throughout the 2030s. Transport and Environment told us that the Government should take further medium and long term steps to switch the road fleet to an electric fleet as quickly as possible.²¹⁷

124. The aviation sector is likely to remain dependent on kerosene oil for decades to come. Emissions from aviation have risen steeply since 1990, and in 2019 (before a dramatic decline in flying due to the pandemic) were at the highest they had ever been (38 MtCO₂e).²¹⁸

125. Until 2022, a significant proportion of oil and diesel consumed in the UK was imported directly from Russia. In 2021, just under a fifth of UK diesel originated in Russia, while the UK had also sourced around 5% of its jet fuel supply from Russia.²¹⁹

Countervailing trends in traffic and efficiency of transport

126. In recent years, several trends in road transport emissions have been moving in the wrong direction:²²⁰ traffic has been rising, car efficiency has been stalling and the cost of lower-carbon alternatives has been increasing:

- Road transport demand has risen over the last decade with a large increase in van travel due in part to the growth of online shopping.²²¹
- Demand for bigger, heavier vehicles has led to the newest petrol and diesel cars on UK roads producing more carbon dioxide than older vehicles.²²²
- Over the last decade the cost of lower carbon rail (32.9%) and bus fares (60.4% increase since 2012) have been allowed to steadily rise relative to the cost of motoring (32.7% since 2012)—with only a recent steep rise in the cost of petrol and diesel closing the gap.²²³

127. The Government pledged to tackle some of these issues in its Decarbonising Transport plan published in July 2021.²²⁴ Transport and Environment told us that the British Energy Security Strategy was a ‘missed opportunity’ to accelerate the transition away from a reliance on oil in transport.²²⁵ It told us that:

The majority of transport emissions come from car use, and there were no measures on getting drivers to drive more efficiently, speeding up the

215 [Electric Vehicle Statistics 2022: State of the Industry | The Eco Experts](#) [accessed 12/07/22]

216 Gov.uk, [Energy consumption in the UK 2022](#), October 2022

217 Transport and Environment (ATFF0061)

218 Transport and Environment (ATFF0061)

219 Transport Environment, [Eliminating the UK’s Reliance on Russian Oil](#), March 2022

220 Climate Change Committee, [Progress in reducing emissions: 2021 report to parliament](#), June 2021

221 Climate Change Committee, [Progress in reducing emissions: 2021 report to parliament](#), June 2021, p.110

222 The Guardian, [New cars producing more carbon dioxide than older models](#), 28 Feb 2020

223 RAC Foundation, [Transport price index](#) [Date accessed 14 July 2022]

224 Gov.uk, [Decarbonising Transport: a better, greener Britain](#), 14 July 2021

225 Transport and Environment (ATFF0061)

transition to electric vehicles (which are powered by home-grown electricity, rather than foreign oil), nor moving people out of cars onto public transport and cycling.

128. These points were echoed by the Chief Economist of the Climate Change Committee, Mike Thompson. While the take up of electric vehicles was ‘progressing well’²²⁶, there was more that could be done on demand reduction and energy efficiency if the Government wanted to accelerate the transition from fossil fuels in transport:

The big gap [on transport] is on the demand side. That is where the Government have said lots of warm words. They have said how they would like to shift more people to walking and cycling. They would like higher occupancy and more efficient use of the fleet there. They would like to move people to public transport. However, they have not given any targets for that. They have not said what reduction in mileage they are looking for from the cars or what reduction in use they are looking for. We do not know what they are aiming for and they have not, frankly, brought in any policies to deliver it. Again, it is this story of good on ambition but poor when we get into delivery. They need to take the good ambition of the transport decarbonisation plan and translate it through to delivery by actually doing things on the ground and being clear on what they are trying to achieve by doing it.²²⁷

Measures to reduce dependence on oil imports

129. Transport and Environment pointed out that policies could be introduced quickly to reduce UK oil demand in the short term.²²⁸ It suggested a raft of measures in a policy paper produced in response to the war in Ukraine. These included short-term measures, such as immediately starting a public information campaign on how to drive more efficiently, through to longer-term measures such as increasing ambition levels in the upcoming zero emission vehicle (ZEV) mandate.²²⁹

130. Following the Russian invasion of Ukraine, the International Energy Agency (IEA) swiftly released two sets of policy suggestions to reduce rapidly global demand for oil and EU demand for gas respectively.²³⁰ The IEA plan to cut oil use focused heavily on demand reduction as a way to reduce fossil fuel consumption:

- Work from home for three days a week where possible
- Reduce speed limits on highways by at least 10 km/h
- Car-free Sundays in large cities
- Make public transport cheaper, incentivise walking and cycling
- Urge car sharing and practices that decrease fuel use

226 CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022, p.33

227 Q280

228 Transport and Environment (ATFF0061)

229 Transport and Environment (ATFF0061)

230 International Energy Agency, [A 10-Point Plan to Cut Oil Use](#) and [A 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas](#) (March 2022)

- Alternate private car use in large cities
- Promote efficient use of freight trucks and goods delivery
- Prefer high-speed and night trains to planes where possible
- Avoid business travel when alternatives exist
- Hasten adoption of electric and more efficient vehicles

The IEA estimated that if these measures were implemented in full they could cut oil demand by 2.7 million barrels a day globally. The plan also stated that:

Adopting the immediate and longer-term recommendations would put the countries on track for a decline in oil demand consistent with what is required to reach net zero emissions by 2050.²³¹

Our view on transport and energy security

131. Despite the UK's heavy dependence on oil for transport, and transport's status as the highest emitting sector, it is barely mentioned in the British Energy Security Strategy and was left out of the new national ambition to reduce energy consumption by 15% by 2030. We acknowledge the Government's leadership in setting a date to end the sale of petrol and diesel vehicles in 2030 and the encouraging rate of growth in the sale of electric vehicles. We note however that it may take many years for a full turnover of the vehicle fleet and that transport emissions have flatlined for the last decade. For the UK to meet its successive carbon budgets under the Climate Change Act 2008 and the Paris Agreement, transport emissions must start coming down more rapidly.

132. The best way to reduce the UK's future exposure to volatility in the price of oil is to reduce oil consumption. The rapid growth in electric car sales is encouraging, but it will take many years to replace petrol and diesel vehicles. More must be done to improve the energy efficiency of our transport system and reduce its contribution to climate change in the meantime. The International Energy Agency and other bodies have identified a range of demand side measures that the Government could use to cut oil use, make public transport more affordable and reduce transport emissions. *We recommend that the Department for Transport consult on measures, such as those listed in the IEA's ten-point plan, that it could introduce in the UK to improve energy security, reduce oil demand and cut climate-changing emissions from transport.*

231 IEA, [A ten point plan to cut oil use](#)

Cross-government coordination on energy security and net zero

133. The principal gaps in the British Energy Security Strategy that have been identified in this chapter—on transport and energy efficiency in buildings—indicate wider issues of cross-Government coordination, action and leadership on climate change.

134. The Department for Business, Energy and Industrial Strategy (BEIS) has overall responsibility in government for achieving Net Zero and is responsible for ensuring cross-government arrangements are working effectively. It also has policy responsibility for some of the highest-emitting sectors of the economy, such as the power and industrial sectors, as well as being joint policy lead for buildings.²³² BEIS led on producing the British Energy Security Strategy in collaboration with the Prime Minister's office.

135. The Institute for Government has previously warned that BEIS, the department leading on net zero, struggles to hold other departments to account for their poor performance, for instance in housing or transport. It has called for co-ordination on net zero to be transferred to a new unit in the Cabinet Office, allowing BEIS to focus on the energy sector and industry, and for the Treasury to play a central role alongside the new unit.²³³

136. The UK's contribution to the UNFCCC COP Presidency required substantial cross-Government coordination to ensure a consistency in domestic policy commensurate with the diplomatic effort which the then COP President, Rt Hon Alok Sharma MP, was exerting to demand greater climate ambitions from other Parties to the Convention. The Cabinet post held by the COP President was abolished on 25th October and the UK Presidency formally ceased at the opening of COP27 on 6th November. Our Chair asked the Prime Minister how he intended to manage the cross-Government coordination necessary to deliver the UK's nationally determined contribution. The Prime Minister undertook to drive the coordination effort personally:

I personally will drive this through Government—in conjunction with the Secretary of State for Business, Energy and Industrial Strategy and with our climate change Minister—but this is something that pervades all aspects of Government now, and we have to change our thinking on this. It is not the work of any one Department or any one Minister; if we are going to make this commitment work, we are all going to have to play our part.²³⁴

Moving beyond decarbonisation of electricity

137. Successive Governments have been successful in reducing UK greenhouse gas emissions by around 47% below 1990 levels to 447 MtCO₂e in 2021, with most of the progress taking place in the electricity sector.²³⁵ The average carbon intensity of the grid fell from nearly 500 grams of CO₂ per kilowatt hour (KWh) in 2009 to 200 gCO₂ / KWh in 2019.²³⁶ The policy success in electricity has been generated by a combination of carbon

232 National Audit Office, [Achieving net zero](#), December 2020, page 20, 158, 258, and 268.

233 IfG, [Net Zero: How government can meet its net zero target](#), September 2020, p. 8, 40, 69

234 *Official Report*, 9 November 2022, col. 263. See also Liaison Committee, [Oral evidence from the Prime Minister](#), 20 December 2022, HC 947, Q30

235 CCC, [Progress in reducing emissions: 2021 Report to Parliament](#), June 2021

236 CCC, [Progress in reducing emissions: 2021 Report to Parliament](#), June 2021, p.60

pricing, guaranteed price contracts (known as ‘contracts for difference’) for large low-carbon electricity generators such as off-shore wind farms, feed-in tariffs for domestic solar installations, and improvements in appliance standards reducing demand.

138. The CCC has repeatedly pointed out in recent progress reports to Parliament that greater policy effort is now needed in other areas to reduce emissions across the rest of the economy.²³⁷ The UK’s recent record on reducing emissions from transport and buildings is particularly poor. Progress in reducing surface transport emissions flatlined between 2010 and 2019.²³⁸ The CCC recently warned the Government that:

Building emissions have stagnated over the past decade, in large part due to under-investment in energy efficiency. A decade ago 2.3 million energy efficiency measures were installed annually through Government backed schemes. In 2021, fewer than 100,000 were installed. Reducing energy demand in UK buildings is now the biggest gap in current Government energy policy.²³⁹

Our view on the importance of effective cross-government coordination

139. **The Department for Business, Energy and Industrial Strategy has overall responsibility for net zero delivery, but the gaps in its British Energy Security Strategy suggest that it is failing to drive the departments responsible for other high emitting sectors, such as transport and buildings, to accelerate their own contribution to energy security and the reduction of greenhouse gas emissions.**

140. **In light of the Prime Minister’s confirmation at the Despatch Box to the Chair of this committee that he will personally drive cross-government action on climate change, we recommend that the Prime Minister directs the Secretary of State for Business, Energy and Industrial Strategy to work with his counterparts in the Department for Levelling Up, Housing and Communities and the Department for Transport to seek further contributions from their departments to the national effort to enhance the UK’s energy security and reduce energy wastage. This cross-government work on energy security should inform the new and revised Net Zero Strategy that the Government is required to publish by March 2023. We further recommend that these Departments contribute to a comprehensive update to the British Energy Security Strategy in the spring of 2023. In that update the Government should indicate its progress in reducing direct and indirect reliance on Russian imports, securing energy supplies and improving energy efficiency.**

237 CCC, [Progress in reducing emissions: 2021 Report to Parliament](#), June 2021

238 CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022 page 115

239 CCC, [Letter: Reducing energy demand in buildings in response to the energy price crisis](#), 9 November 2022

3 North Sea oil and gas in transition

141. In this final chapter we examine the role of domestic oil and gas extraction in the transition to net zero. We scrutinise the Government's North Sea Transition Deal and current efforts to reduce operational emissions of oil and gas production. We also consider the impact of the Energy Profits Levy and Investment Allowance announced in the spring of 2022 and revised in the Autumn Statement. We offer recommendations on the targets and governance in the Deal and how the Government and the regulator can drive progress.

Box 10: The North Sea Transition Authority (formerly the Oil and Gas Authority)

In 2022, the Oil and Gas Authority, the regulator responsible for issuing extraction licences and approving projects in the UK Continental Shelf, changed its name to the North Sea Transition Authority (NSTA). This reflects its evolving role in the energy transition, overseeing production emissions reduction targets in the oil and gas sector and issuing licences and permits for carbon storage projects.²⁴⁰ The NSTA holds offshore and onshore petroleum licensing rounds, inviting applications from companies and awarding licences to successful bids.

Oil and gas production in the UK

142. The UK has been a major oil and gas producer since the 1970s.²⁴¹ This has provided £350 billion in production tax revenues, high quality jobs, energy security and economic benefits for the country.²⁴² North Sea production peaked around the turn of the century, and the UK switched from being a net exporter to a net importer in 2004.²⁴³ The UK's reliance on imported fossil fuels has increased since then.²⁴⁴

143. Today the North Sea is primarily an oil basin.²⁴⁵ The Chief Executive of the North Sea Transition Authority, Andy Samuel, told us that it was estimated that around 14.5 billion barrels of oil and gas (measured in oil equivalent) remained in the UK Continental Shelf.²⁴⁶ This is comprised of:

- **4 billion barrels of oil equivalent (bnboe)** reserves which have been approved and sanctioned;
- **6.4 bnboe** of resources from known investment opportunities in existing and proposed new fields; and
- **4 bnboe** of resources in potential exploration.²⁴⁷

144. Around 70% of this is oil and 30% is gas.²⁴⁸ The regulator points out that not all of these reserves and resources will go on to be developed, for technical and economic reasons. Oil and gas production on the UK Continental Shelf was equivalent to 500

240 North Sea Transition Authority ([ATFF0058](#))

241 OECD, [OECD Inventory of Support Measures for Fossil Fuels: Country Notes: UK](#)

242 Gov.uk, [North Sea Transition Deal](#), March 2021

243 OECD, [OECD Inventory of Support Measures for Fossil Fuels: Country Notes: UK](#); SEI, IISD, ODI, E3G, and UNEP, [The Production Gap Report 2021](#), (2021).

244 OECD, [OECD Inventory of Support Measures for Fossil Fuels: Country Notes: UK](#)

245 [Q215](#)

246 [Q327](#)

247 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

248 [Q327](#)

million bnboe in 2021.²⁴⁹ This is equivalent to 82% of domestic oil consumption and 38% of gas consumption, according to the industry body Offshore Energies UK.²⁵⁰ Much of the extracted oil is exported, and some of this comes back to the UK in a refined form.²⁵¹

Projects in the pipeline

145. Currently 277 offshore oil and gas fields are in operation on the UK Continental Shelf.²⁵² These fields have all been licensed and approved by the NSTA (or under its previous title as the Oil and Gas Authority) and other relevant regulators, and are producing hydrocarbons. A further 35 licensed oil and gas projects are in the pipeline, either under construction or in the planning stage:

- 8 projects have received Field Development Plan (FDP) approval and are under construction (but not yet producing), these include Shell's Jackdaw project and the Abigail and Tommeliten A fields;
- A further 27 licensed oil and gas projects do not yet have FDP approval, but are in various stages of progress, including Equinor's Rosebank project and the Cambo oil field.²⁵³

146. There have been 32 previous offshore licensing rounds. The UK last awarded oil and gas licences in 2020 (in the 32nd Offshore Licensing Round). In the British Energy Security Strategy the Government announced that the North Sea Transition Authority would launch the 33rd Offshore Licensing Round in the autumn of 2022. On 22nd September the Government announced that the proposed licensing round had passed the Climate Compatibility Checkpoint. On 7th October the NSTA invited applications for licences to explore and potentially develop 898 blocks and part-blocks in the North Sea which it said could lead to over 100 licences being awarded.

Applying for new licences

147. The Petroleum Act 1998 vests all rights to the UK's petroleum resources in the Crown, but provides that the North Sea Transition Authority (NSTA) can grant licences. Licences confer exclusive rights to 'search and bore for and get' petroleum.²⁵⁴ Oil and gas operators must obtain a licence from the NSTA before they can explore for, drill for or produce petroleum offshore on the UK Continental Shelf.²⁵⁵

249 Offshore Energies UK ([ATFF0047](#))

250 Offshore Energies UK ([ATFF0047](#))

251 [Q217](#)

252 NSTA email communication with the committee specialist, 30 August 2022

253 NSTA email communication with the committee specialist, August and December 2022

254 NSTA, email communication with the Committee Specialist, 30 August 2022

255 Gov.uk, [Designing a climate compatibility checkpoint for future oil and gas licensing in the UK Continental Shelf Consultation Document](#), Closing date: 28 February 2022

Box 11: The Climate Compatibility Checkpoint

In September 2020, the Secretary of State for Business, Energy and Industrial Strategy (BEIS) launched a review into whether the continued award of new licences for oil and gas exploration is consistent with the UK's wider climate objectives. These objectives include carbon budgets, the UK's Nationally Determined Contribution (NDC), and the statutory target to achieve net zero by 2050. The review concluded with the publication of the North Sea Transition Deal in March 2021. It found that 'continued licensing for oil and gas is not inherently incompatible with the UK's climate objectives.'²⁵⁶ However, it was acknowledged that this might not always be the case in future. The review recommended that a 'checkpoint' be introduced, to evaluate the compatibility of future licensing rounds with the UK's climate objectives.²⁵⁷

The Department consulted on the design of a 'climate compatibility checkpoint' to evaluate the compatibility of future licensing rounds with the UK's climate commitments.²⁵⁸ The consultation on the checkpoint ran from 20 December 2021 to 28 February 2022 and sought views on six potential climate compatibility tests. Shell and bp submitted responses to the consultation. Both companies argued that the proposed tests 5 and 6, which focused on scope 3 emissions and the production gap, should not be included in the Checkpoint.²⁵⁹

The Government published its response to the Climate Compatibility Checkpoint consultation on 22 September 2022.²⁶⁰ Ministers decided to include tests 1, 2 and 3 in the checkpoint design:

- 1: Reductions in operational greenhouse gas emissions from the sector vs. commitments;
- 2: Reductions in operational greenhouse gas emissions from the sector benchmarked internationally; and
- 3: Status of the UK as a net importer or exporter of oil and gas.

148. Before full scale commercial drilling can commence, an operator must produce a field development plan and obtain further consents from the NSTA. These are subject to environmental and Health and Safety Executive assessments.²⁶¹ These 'production licences' consist of three 'terms':

- an initial term for exploration;
- a second term for development, and;
- a final, third term for production.

149. Licences are awarded following a competitive licensing round. These rounds happen at regular intervals up to once per year, allowing prospective licence holders to bid for specific licence areas. To hold a licensing round the NSTA will consider all available 'open' unlicensed blocks in the offshore UK Continental Shelf. Following consultation with a number of other agencies, including: the Department for Business, Energy and

256 Gov.uk, [Designing a climate compatibility checkpoint for future oil and gas licensing in the UK Continental Shelf Consultation Document](#), December 2021, p.7

257 BEIS/OEUK, North Sea Transition Deal: One Year On,

258 BEIS/OEUK, North Sea Transition Deal: One Year On,

259 Shell submission to BEIS consultation, 'Designing a climate compatibility checkpoint for future oil and gas licensing in the UK Continental Shelf', 2022; bp response to BEIS, Designing a climate compatibility checkpoint for future oil and gas licensing in the UK Continental Shelf

260 BEIS, [Designing a Climate Compatibility Checkpoint for Future Oil and Gas Licensing in the UK Continental Shelf Government Response to the consultation](#), September 2022

261 Gov.uk, [Designing a climate compatibility checkpoint for future oil and gas licensing in the UK Continental Shelf Consultation Document](#), Closing date: 28 February 2022

Industrial Strategy, The Crown Estate, Crown Estate Scotland, Marine Scotland, Marine Management Organisation, and the Ministry of Defence; the NSTA will decide what open blocks to offer in a particular round. Applicants apply for the open blocks, by submitting technical, environmental and financial reports. In order to be awarded a licence by the NSTA, applicants must meet various criteria on capabilities and governance. Since 2004 ‘the average time from licence award to production is approximately 5 years’, according to the NSTA. This includes both old and new discoveries.²⁶²

The role of oil and gas in the transition

150. We heard a range of different perspectives on the role of oil and gas in maintaining energy security during the transition to net zero. On the one hand, some industry representatives, the Government and the regulator have argued that oil and gas will continue to be required during the net zero transition and that domestic production and exploration is essential for energy security. On the other hand, climate campaigners, academics and the International Energy Agency have raised questions about whether licensing new oil and gas extraction is compatible with global efforts to limit temperature increases to 1.5°C in line with the Paris Agreement.

Arguments for continued oil and gas extraction licencing

151. We heard from a number of industry representatives during the inquiry. Offshore Energies UK (OEUK) argued that that ‘new licensing and investment will allow for a managed transition and is consistent with long term targets’.²⁶³ Its Energy Policy Manager, Will Webster, told us in June 2022:

When we put together the North Sea transition deal, looking at how we would invest both in oil and gas and new technologies, we are not looking to increase production. Therefore, even with the investment that we have planned, it will still fall at about 5% a year. The way that we have set it up is that it declines in parallel with our demand so that we end up in 2050 with both demand and supply being around 25% or 30% of what it is today. However, to do that you still need to invest in exploration, appraisal and production. If we do not, we are going to be in a situation, particularly on gas by 2030, where there will not be much left to speak of at all and we will be almost 100%²⁶⁴ reliant on imports.²⁶⁵

152. The industry points to scenarios, such as the Climate Change Committee’s balanced pathway to net zero, to support its argument.²⁶⁶ The balanced pathway suggests that even in 2050 there will still be a requirement for fossil fuels in difficult to decarbonise sectors, such as in aviation and in industrial processes with CCS fitted. This scenario suggests that the residual demand for oil could be around 15% of what it is now with gas demand at 30% of current levels.²⁶⁷ This scenario is used as the basis for the CCC’s Sixth Carbon Budget analysis and allows for some production emissions from new fields.²⁶⁸ However,

262 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

263 Offshore Energies UK (ATFF0047); [Q60](#)

264 In its written evidence Offshore Energies UK cited a lower figure of 80%: Offshore Energies UK ([ATFF0047](#))

265 [Q52](#)

266 For a description of the ‘balanced pathway’ see Box 6 in Chapter one

267 CCC, [The Sixth Carbon Budget: The UK’s path to Net Zero](#), December 2020, p.72

268 CCC, [Letter: Climate Compatibility of New Oil and Gas Fields](#), March 2021

the CCC's Balanced Net Zero Pathway envisages a 68% reduction in North Sea oil and gas operational emissions by 2030.²⁶⁹ The scenarios in the Government's Net Zero Strategy also accommodate new fields and involve higher emissions from the oil and gas sectors.

153. bp's Head of Country for the UK and Senior Vice President for Europe, Louise Kingham, told us that continued oil and gas production would be essential as the UK rolled out the technology necessary for the transition:

All credible scenarios say that we still need oil and gas for energy production today as we work on the transition and build up the opportunities to produce more home-grown, low-carbon energy here in the UK, which is reflected in the British Energy Security Strategy as the medium-term ambition given that many of these projects take time to come to fruition. It is about balancing those two challenges, particularly growing security but also moving as quickly as we can, accelerating as fast as we can, to develop the pipeline of low-carbon energy that is so important for the future.²⁷⁰

Shell's UK country chair, David Bunch, echoed Louise Kingham. He pointed out that the CCC's Balanced Net Zero Pathway still had a requirement for oil and gas, and warned that 'we currently produce less than 50% of that gas indigenously'.²⁷¹ Shell argued that the UK's energy security debate should not be framed as an 'either/or' between renewables and North Sea oil and gas.²⁷²

154. The NSTA made the case that meeting some of the UK's demand through continued domestic production had economic, energy security and emissions benefits:

UK demand for oil and gas currently exceeds domestic production and is expected to do so for decades to come, even when potential contribution from new projects is included. The UK will continue to be a net importer of both oil and gas, including Liquefied Natural Gas which (as per NSTA analysis) has over 2.5 times the total carbon footprint of domestic production at the point of consumption. Domestically produced resources benefit the UK's economy, increases energy security options, and ensures we retain influence to continuously make production cleaner.²⁷³

These arguments have been reinforced by the recent decision to enter an Energy Security and Affordability Partnership with the United States. This will see the US double the amount of LNG it exports to the UK to at least 9–10 billion cubic metres, with an emissions intensity significantly higher than domestically produced gas, according to the NSTA.²⁷⁴

155. The Government's vision is for a net zero compatible oil and gas sector that continues supplying the UK during the transition to a low-carbon economy.²⁷⁵ The Department for

269 CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022

270 [Q215](#)

271 [Q222](#)

272 [Q222](#)

273 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

274 Oil and Gas Authority, [Methodology: Emissions Intensity Comparison of UKCS Gas Production and Imported LNG and Pipelined Gas GHG Emission](#) [Dates sent to EAC 5 December 2022]

275 Gov.uk, [British Energy Security Strategy](#) April 2022

Business, Energy and Industrial Strategy stated in its submission that while the UK still needed oil and gas ‘it makes sense’ to utilise domestic resources and retain the economic and employment benefits:

... we will continue to need oil and gas to maintain the security of the UK’s energy supply and sourcing gas locally through the North Sea makes us less dependent on foreign imports. Furthermore, producing gas in the UK has a carbon footprint well under half of that of shipping it in from overseas.²⁷⁶

UK carbon and greenhouse gas emissions intensity

156. One argument commonly put forward for producing oil and gas domestically is that UK production has a lower emissions intensity footprint than some imports.²⁷⁷ However, this argument is not clear cut. The UK currently holds a ‘mid table’ position on carbon emissions intensity²⁷⁸, according to the NSTA’s latest Emissions Monitoring report, and a significant proportion of imports come from Norway, which has lower emissions.²⁷⁹

157. The carbon dioxide intensity of UK oil and gas production in 2021 was 21.5 kgCO₂/boe, according to the NSTA’s Emission Monitoring report 2022.²⁸⁰ According to the regulator, this places the UK slightly higher than the median position of 19.2 kgCO₂/boe in an international benchmark.²⁸¹ When the overall greenhouse gas emission intensity is calculated, including methane and nitrous oxide, the NSTA expects official figures to show that total upstream GHG emissions intensity for oil and gas production in the UK Continental Shelf increased slightly between 2020 and 2021 from 29.1 to around 29.9 kgCO₂e/boe.²⁸² This is lower than several recent years since 2013, but remains higher than in 2010, as can be seen in Figure 3 which shows the GHG emissions intensity.

International benchmarking for gas production

158. Several factors affect emissions intensity. For example, the underlying efficiency of the extraction technique required by site geology. Fossil gas produced in the UK has a lower GHG emissions intensity than fossil gas imported as Liquefied Natural Gas (LNG). Imported LNG had an average intensity of 59 kgCO₂e/boe in 2019, more than double the UK’s according to the NSTA.²⁸³ Norway, which has a similar extraction type to the North Sea, has a lower emission intensity than the UK. The NSTA says that Norwegian gas imported by pipeline had a GHG emissions intensity of 17.2 kgCO₂e/boe in 2019, compared to 22 kgCO₂e/boe for UK gas.²⁸⁴ Norway is the UK’s primary supplier of both gas and oil energy imports.²⁸⁵

276 Department for Business, Energy and Industrial Strategy ([ATFF0056](#))

277 NSTA CEO Andy Samuel [Q320](#); BEIS Climate Minister Graham Stuart [Q376](#)

278 North Sea Transition Authority, [Emissions Monitoring Report 2022](#), p.42

279 Gov.uk, Digest of UK Energy Statistics (DUKES): energy, [DUKES 2022 Chapter 1: Energy](#); Gov.uk, Digest of UK Energy Statistics Annual data for UK, 2021, 28 July 2022

280 North Sea Transition Authority, [Emissions Monitoring Report 2022](#)

281 North Sea Transition Authority, [Emissions Monitoring Report 2022](#)

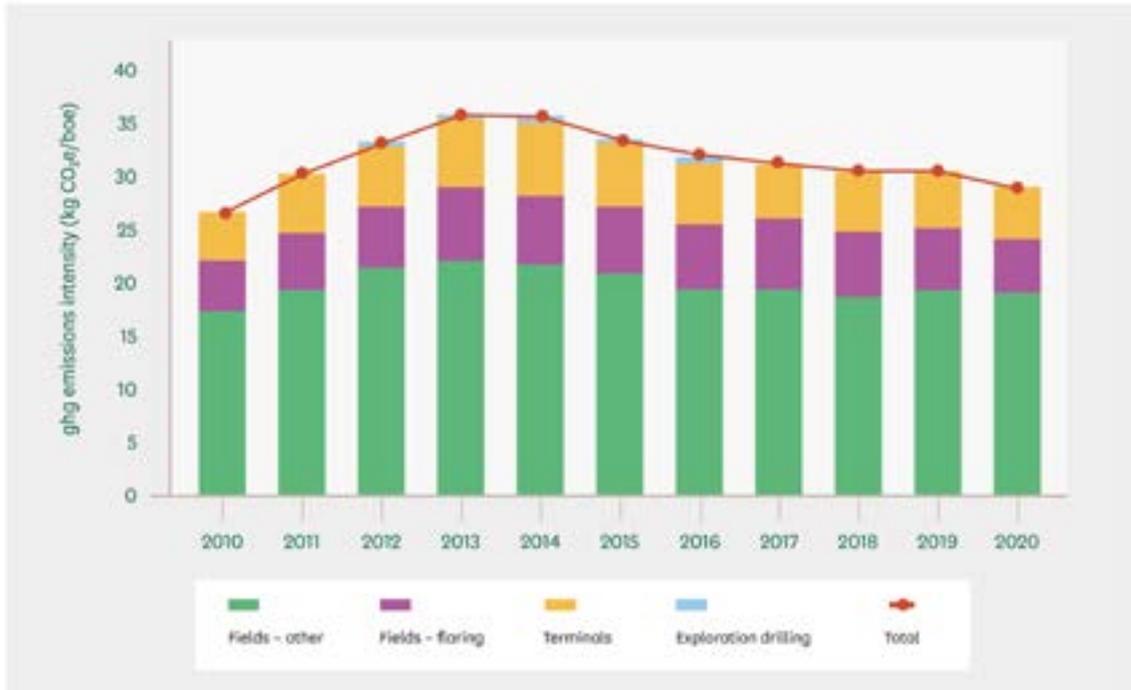
282 North Sea Transition Authority, [Emissions Monitoring Report 2022](#), p.37

283 North Sea Transition Authority press release, [North Sea gas has lower carbon footprint than imported LNG](#), 26 May 2020

284 Oil and Gas Authority, Methodology: Emissions Intensity Comparison of UKCS Gas Production and Imported LNG and Pipelined Gas, 2020

285 Gov.uk, Digest of UK Energy Statistics (DUKES): energy, [DUKES 2022 Chapter 1: Energy](#); Gov.uk, Digest of UK Energy Statistics Annual data for UK, 2021, 28 July 2022

Figure 3: UK Continental Shelf GHG emissions intensity for oil and gas by source and total, 2018–2020



Source: North Sea Transition Authority, [Emissions Monitoring Report 2022](#)

159. Data analysts S&P Global recently offered an explanation for the relative difference between Norwegian and UK GHG emissions intensity:

On average, Norwegian operations were generally younger, or less mature and more productive compared to those in the United Kingdom. Several Norwegian operations also benefited from electrification projects, which tied back to Norway's hydro-dominated power grid, as well as stricter controls on venting and flaring. UK output by comparison tended to be from smaller, more mature, or more technically challenging fields, as well as from fields with older infrastructure and technology, which resulted in lower productivity and, thus, higher GHG intensity.²⁸⁶

As the NSTA notes in its Emissions Monitoring report: 'clearly there is still room for improvement' in the UK Continental Shelf.²⁸⁷

286 S&P Global, The GHG intensity of the North Sea, 28 November 2022

287 North Sea Transition Authority, [Emissions Monitoring Report 2022](#), p.42

Climate compatibility of further oil and gas licencing

160. We received evidence from a number of NGOs campaigning for an end to oil and gas extraction in the UK on climate change grounds.²⁸⁸ Uplift, one of several NGOs campaigning against new fossil fuel developments in the UK Continental Shelf, called for an end to oil and gas expansion and a decline in production. Uplift pointed to “a large and credible body of research, including the International Energy Agency (IEA), Intergovernmental Panel on Climate Change (IPCC), Stockholm Environment Institute (SEI)” which:

[...] demonstrates that the emissions from planned and current investments in global oil and gas production will exceed global carbon budgets for 1.5°C and that global fossil fuel production has peaked and needs to decline.²⁸⁹

The International Energy Agency net zero scenario for the energy sector

161. In May 2021, the International Energy Agency (IEA) published *Net-zero by 2050: A roadmap for the global energy sector* in advance of COP26.²⁹⁰ The report grew out of a COP26 Net Zero Summit co-hosted by the IEA and COP26 President-elect Rt Hon Alok Sharma MP in March 2021. In the report the IEA made the case for a total transformation of energysystems to limit temperature increases to 1.5°C in line with the Paris Agreement.²⁹¹ The net zero pathway the IEA mapped out for the global energy sector suggested that there was ‘no need for investment in new fossil fuel supply’:

Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway, and no new coal mines or mine extensions are required. The unwavering policy focus on climate change in the net zero pathway results in a sharp decline in fossil fuel demand, meaning that the focus for oil and gas producers switches entirely to output—and emissions reductions—from the operation of existing assets.²⁹²

However, the detail of the IEA report provides some caveats that allow for oil and gas investment in existing fields. For example, in the report the IEA suggests that continued investment in existing oil fields is needed and could continue.²⁹³ Nonetheless, the fields for which UK Government approval will be sought over the coming years include new oil and gas fields.

162. The IEA’s global pathway to net zero emissions for the energy sector (its ‘NZE scenario’) requires ‘a major worldwide push to increase energy efficiency’ and a huge decline in the use of fossil fuels for heat, transport and electricity across the world. In its scenario, fossil fuel use would be cut from almost four-fifths of total energy supply today to around one-fifth by 2050.²⁹⁴ Electrification of the economy plays a key role in achieving this objective. The IEA suggests that by 2050 90% of electricity generation worldwide could come from

288 Uplift ([ATFF0021](#)); Oil Change International ([ATFF0022](#)); Greenpeace UK ([ATFF0023](#)); E3G (Third Generation Environmentalism) ([ATFF0048](#)); Platform London ([ATFF0011](#))

289 Uplift ([ATFF0021](#))

290 IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), 28 May 2021

291 IEA, Renewables should overtake coal ‘within five years’ to secure 1.5C goal, 18 May 2021

292 IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), 28 May 2021, p.21

293 IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), 28 May 2021, p.101

294 IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), 28 May 2021, p.18

renewable sources, with wind and solar PV together accounting for nearly 70%. Most of the non-renewable electricity comes from low-carbon nuclear.²⁹⁵ The IEA envisages coal demand declining by 98%, gas demand by 55% and oil by 75% to 24 million barrels per day (mb/d), from around 90 mb/d in 2020.²⁹⁶ Residual demand would be met from existing oil and gas fields.²⁹⁷

Challenges to the IEA scenarios

163. Some stakeholders questioned how realistic the IEA scenarios were. Giving evidence in June 2022, Will Webster from Offshore Energies UK took issue with the IEA position that there should be no new exploration:

The big problem with it is that it is a scenario. It is a piece of modelling and it takes a very aggregated approach to energy supply globally. You have to think as if you could jump right now from 2022 to 2050. We are going to have to go through a dynamic process here. While we are going through that process, we have to try to ensure that people's energy needs are met. That will require maintaining the existing infrastructure, probably in parallel, during that time. Even our gas networks here in the UK will probably go to a big heat-pump sharing in domestic heating, but you cannot say, "Everyone else, wait until you have your heat pump". You are going to have to be served with gas during that time.²⁹⁸

164. Graham Kellas, Senior Vice President for Global Fiscal Research at oil and gas analysts Wood Mackenzie, did not question the IEA's analysis, but did express scepticism about whether the goals of the Paris Agreement would be achieved on current trajectories. He argued that a more likely scenario was for current oil demand and consumption to stay roughly the same out to 2050:

To achieve the Paris goals, it needs to come down by 70% in that time. Yet we are one-fifth of the way through the timeline from 2015 to today and consumption is higher now than it was in 2015. Therefore, it seems that the reality of oil demand globally is that it is at least stable over that period unless things happen, unless things change ... to make a fundamental change to that demand position. From then you look at the supply side because once demand starts to disappear prices will fall naturally. That is when you will find that companies are not interested in looking for or developing new oil and gas fields.²⁹⁹

165. Earlier in the inquiry Dr Steve Pye from University College London's Energy Institute had echoed the view set out in the IEA scenario. He argued that while some oil and gas investment would be needed to manage the decline, new exploration and expansion into new fields and blocks in the North Sea would not be compatible with the UK's international commitments to limit temperature rises to 1.5°C while respecting the principle of equity and the common but differentiated responsibilities enshrined in the Paris Agreement.³⁰⁰

295 IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), 28 May 2021, p.19

296 IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), 28 May 2021, p.21

297 IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), 28 May 2021, p.21

298 [Q70](#)

299 [Q177](#)

300 [Q54-58](#)

The view of the UK oil and gas regulator

166. When asked about the IEA conclusion that there should be no further investment in new fossil fuel supply, NSTA Chief Executive Andy Samuel implied that the IEA was not referring to the development of new oil and gas fields in mature basins such as the North Sea:

The IEA, I think it is often talking about whole new basins. A new field in Brazil is equivalent to a whole basin in the UK. We are so mature, the kind of numbers we are talking about are de minimis on the global scale but they are still significant for the UK.³⁰¹

Mr Samuel emphasised that the forthcoming 33rd Offshore Licensing Round would develop fields near existing production sites, rather than opening up new ‘frontier areas’ for exploration. He said that the great majority of current developments on the UK Continental Shelf were tie-backs to existing infrastructure, which he thought was good from the point of view of reducing environmental emissions.³⁰²

The ‘production gap’

167. The United Nations Environment Programme’s (UNEP) Production Gap Report 2021 found that world governments and energy companies still planned to produce more than double the amount of fossil fuels (including coal) in 2030 than what would be consistent with limiting heating to 1.5°C.³⁰³ In 2030, production plans and projections would lead to around 240% more coal, 71% more gas and 57% more oil than would be consistent with a 1.5°C limit.³⁰⁴ This existing production gap suggests that in order to meet the Paris Agreement limit of 1.5°C, either oil and gas production must be curtailed internationally or carbon capture technologies must be rolled out and scaled up rapidly in this decade.

168. The UNEP report did not provide an assessment of whether each individual country’s projected level of fossil fuel production would be consistent with limiting global warming to 1.5°C or 2°C. UNEP did note that the UK’s planned production (based on 2019/20 information) would lead to a decrease of greater than 5% per year in production by 2030. On this basis the North Sea Transition Authority has argued that the Government’s production plans are compatible with the UNEP report. The Authority has suggested to us that this means ‘overall oil and gas production in the UKCS will decline at a faster rate than the global 1.5C scenarios such as those outlined by UNEP, the Beyond Oil and Gas Alliance (BOGA) and the CCC Balanced Net Zero Pathway.’³⁰⁵

The decline pathway

169. Oil and gas extraction from the UK Continental Shelf has been declining at an average annual rate of 5% since 2000.³⁰⁶ In several submissions it was argued that the UK needed to accelerate the decline pathway of its oil and gas production. A recent modelling

301 [Q330](#)

302 [Q307](#)

303 UN, [Production Gap: 2021 Report](#), 2021

304 UN, [Production Gap: 2021 Report](#), 2021

305 North Sea Transition Authority ([ATFF0058](#))

306 UCL Energy Institute, [Policy Brief: UK oil and gas policy in a 1.5 oC world](#), February 2022

study published by the UCL Energy Institute found that global oil and gas production must decline by 3% each year until 2050 to achieve climate targets. For the UK, the study suggested that oil and gas production must decline by 6% and 7% respectively each year until 2050 to have a 50% chance of limiting climate change to 1.5°C.³⁰⁷ The UCL Energy Institute suggested that the rate of decline in the UK's oil and gas production needed to be faster for two reasons:

- i) a 50% chance to limit temperature rises to 1.5°C has a low probability of success, and
- ii) the modelling assumes the adoption of negative emissions technologies, which currently remain unproven.

170. The North Sea Transition Authority publishes medium-term projections of UK oil and gas production twice a year. These are used by the Office for Budget Responsibility in its fiscal forecasts.³⁰⁸ It also publishes long-term production projections, currently out to 2050. The Authority maintains that even after factoring in new field developments, overall oil and gas production in the UKCS will decline at a faster rate than demand will fall in the CCC's Balanced Net Zero Pathway.³⁰⁹ The NSTA told us that its projections assumed annual declines of 9% for gross UK gas production and 6% for UK oil production out to 2050.³¹⁰ Its projections for future production (used by the CCC and set out in Figure 4 below) include regular future licensing rounds.³¹¹

171. Following his appearance before the Committee on 7 September 2020, NSTA Chief Executive Andy Samuel wrote to us and again emphasised that:

We have compared these projections against a range of net zero scenarios published by independent organisations including UNEP and the IEA. In all cases our analysis shows the UK's projected future production declines at a faster rate than required globally in these net zero scenarios.³¹²

These arguments were mirrored by Climate Minister Graham Stuart in October:

We're an importer net. We'll continue to be, all the way to 2050 when we'll be still be burning oil and gas, hopefully mitigating it, but as part of net zero, that's part of the plan. Our production is predicted to fall faster than the IEA says needs to happen globally.³¹³

172. Some submissions argued that the UK could make do with existing production and that no new oil and gas projects should be commenced at all. Oil Change International contended that the production decline rate from already existing oil and gas fields mirrored the rate of decline in consumption needed to stay below 1.5°C, warning that:

Sinking capital into developing new fields would either trigger even more dangerous levels of warming or require a larger scale of stranded assets, wasting capital that needs to shift into clean energy.³¹⁴

307 Welsby, D., Price J., Pye, S., Ekins, P., [Unextractable fossil fuels in a 1.5°C world](#), September 2021

308 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

309 North Sea Transition Authority ([ATFF0058](#))

310 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

311 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

312 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

313 [Q423](#)

314 Oil Change International ([ATFF0022](#))

Figure 4: UK gas and oil supply compared to CCC Balanced Net Zero Pathway



Source: [CCC letter to BEIS SoS on climate compatibility of new oil and gas](#), Feb 2022

173. Will Webster from Offshore Energies UK insisted that if production was lower in the UK, it would be displaced by production elsewhere and therefore the scope 3 emissions ‘do not really change’.³¹⁵ Indeed, he suggested that there would be savings because of the UK’s lower average production emissions.³¹⁶ Greenpeace, however, challenged ‘proponents of further oil and gas exploration ... to explain how fossil fuels elsewhere in the world will be left in the ground if UK reserves are exploited.’³¹⁷

Compatibility of new licensing with the IEA net zero pathway

174. We asked the International Energy Agency under what circumstances a country licence for new oil and gas exploration and development would still be compatible with the IEA’s net zero pathway for the energy sector. The IEA stated in its response that:

In the Net Zero Emissions by 2050 (NZE) Scenario published in the WEO 2022, declining fossil fuel demand that occurs as result of the rapid scale up in clean energy technologies can be met through continued investment in existing assets and already approved projects but without any new long lead time upstream conventional projects. Meeting this condition, though, comes with consequences that countries need to consider carefully, especially in a world marked by geopolitical tensions. One crucial aspect is an increased reliance over time on a smaller concentration of suppliers. Any additional oil and gas projects, beyond the levels of supply needed in the NZE Scenario, would lead to additional emissions that would need to be compensated by even more robust emissions reductions later on. Any new developments that go ahead would have to prioritise low-emissions technologies across the full supply chain from extraction, processing and transport to end-use.³¹⁸

Our view on oil and gas licencing

175. Vladimir Putin’s aggression in Europe, and the energy crisis that it has provoked, provides a new impetus to accelerate the transition away from polluting fossil fuels. Driving this transition through greater investment in energy efficiency and low-carbon technologies enhances energy security, protects households from fossil fuel price volatility permanently, saves public money and cuts climate-changing emissions.

176. During this transition the UK must nevertheless continue to be able to access oil and gas to ensure that the country can continue to heat its homes, fuel its transport and generate a declining proportion of power. We have found consensus on the overarching need to accelerate the transition from fossil fuels, and the recommendations of this report reflect that. We have different views on the speed with which domestic oil and gas production may need to be phased out and on whether continued oil and gas licensing in the UK is necessary to ensure the country’s energy security, given the current geopolitical tensions. In theory, the UK’s domestic carbon budgets and its

315 [Q76](#)

316 [Q76](#)

317 Greenpeace UK ([ATFF0023](#))

318 The Executive Director of the IEA, Dr Fatih Birol, was unable to attend an evidence session scheduled to take place on 20th October 2022: the IEA subsequently answered in writing the questions we would have addressed to him. [Letter from the Executive Director of the International Energy Agency to EAC](#), dated 22 November 2022

Nationally Determined Contribution targets could still be met if some new UK fields were licensed and developed. We also note that the IEA’s World Energy Outlook 2022 reiterates that new supplies create a ‘clear risk’ to the 1.5°C target.

International leadership and the principle of equity

177. A number of submissions made the point that the UK would be undermining its global leadership position on climate change if it gave the green light for new exploration and production despite the warnings of the UN and IEA that it would exceed 1.5°C.³¹⁹ The CCC made a similar point in its March 2021 letter to the Secretary of State for Business, Energy and Industrial Strategy, warning that there would be an unquantifiable ‘signalling effect’ of the UK continuing to allow extraction and cautioning that this might weaken the UK’s diplomatic efforts to encourage other countries to adopt ambitious climate policies.³²⁰

The principle of equity in the Paris Agreement

Box 12: The Paris Agreement 2015 principle of equity

The 2015 Paris Agreement agreed at COP21 commits signatories to the principle of equity in recognition of the common but differentiated responsibilities of nations when it comes to cutting greenhouse gas emissions, in light of different national circumstances.³²¹

178. In several submissions it was argued that the principle of equity under the Paris Agreement required countries which have benefited from historic use of fossil fuels since the Industrial Revolution—and had therefore contributed more to changing the climate—to phase out production and consumption of fossil fuels more rapidly than developing countries.³²² For example, the UCL Energy Institute argued that:

For the UK, a high-income country who has historically benefited from the development of oil and gas resources but has comparatively little economic dependency on the sector, there is a strong argument for faster production decline (relative to the globally required average) and halting new investment in oil and gas fields. There is a growing literature on the need for considering equity to inform national fossil fuel phase out.³²³ This should be shaped by respective capabilities, historical benefit, and current dependency.³²⁴

Setting an end date for oil and gas licencing

179. Other oil producing countries are setting pathways to phase out the production of fossil fuels. Denmark, France and Ireland have all set end dates for fossil fuel production within their territories.³²⁵ Costa Rica and Denmark created the Beyond Oil and Gas Alliance (BOGA). The Danish Ministry of Climate, Energy and Utilities submitted evidence to us:

319 UCL Energy Institute and UCL Institute for Sustainable Resources ([ATFF0026](#)); [ADD OTHER REFS]

320 CCC, [Letter: Climate Compatibility of New Oil and Gas Fields](#), March 2021

321 UNFCCC, [Paris Agreement](#), 2015

322 Oil Change International ([ATFF0022](#)); Weald Action Group ([ATFF0024](#)); UCL Energy Institute and UCL Institute for Sustainable Resources ([ATFF0026](#))

323 Achakulwisut, P. and Erickson, P, [Comments on how the global production gap can be considered in assessing the climate compatibility of UK’s future oil and gas licencing](#), 2022

324 UCL Energy Institute and UCL Institute for Sustainable Resources ([ATFF0026](#))

325 Platform London ([ATFF0011](#))

the Ministry indicated that in 2020, following several reputable reports making clear that that ‘the reduction in the use of oil and gas must be followed by significant reduction in the production’ the Danish Parliament agreed to cancel the 8th Danish licensing round and all future licensing rounds for oil and gas exploration in the Danish North Sea, and to set 2050 as the end-date of Danish oil and gas production.³²⁶

Our view on international climate leadership

180. The UK Government showed admirable international climate leadership at COP26 in Glasgow, pushing for a renewed resolve to pursue efforts to limit the temperature increase to 1.5°C. When making decisions about future oil and gas licensing, the UK Government must also consider the international context. As the country which launched the first Industrial Revolution, the UK has a historic responsibility to set a leadership example on climate change. The Paris Agreement enshrined an important principle of ‘equity and common but differentiated responsibilities’, which the UK must honour if it is to remain a credible climate leader. *We therefore recommend that the UK set a clear date for ending new oil and gas licensing rounds in the North Sea: this date should fall well before 2050. We further recommend the Government should consult on what this date should be, based on the oil and gas production currently being planned by the UK and other producer states and on the remaining global carbon budget if temperatures are to be limited to 1.5 degrees.*

The North Sea Transition Deal

181. In this section we will scrutinise the North Sea Transition Deal (NSTD) published by the Government in partnership with the industry in March 2021. We will examine the voluntary production emissions targets set out in the Deal and the support set out for workers during the transition. We also scrutinise the mechanisms of accountability and governance put in place overseeing the Deal and the role of the North Sea Transition Authority in that process.

182. The NSTD aims to support ‘the industry’s transition to [...] green energy and a secure future for high-skilled oil and gas workers and the supply chain.’ The Deal consists of Government and sector commitments to invest in cleaner energy technologies, such as platform electrification, hydrogen and carbon capture, usage and storage, and to support for the industry workers affected by the transition. The Deal commits the sector to voluntary targets to reduce emissions from upstream oil and gas production by:

- 10% by 2025;
- 25% by 2027; and
- 50% by 2030 (against a 2018 baseline).³²⁷

However, the commitments in the Deal come with the following caveat:

326 Danish Ministry of Climate, Energy and Utilities ([ATFF0020](#))

327 Gov.uk, [North Sea Transition Deal](#), March 2021

Every effort will be made by both the government and the sector to meet the commitments as set out in this document. However, whilst the commitments in this Deal are undertaken in good faith, we recognise the wide range of uncertainties that may impact on delivery.³²⁸

Despite this caveat, the NSTA, which is charged with overseeing the energy transition on the UK Continental Shelf, insisted to us that in its view ‘50% is the minimum [that] industry should achieve’.³²⁹

Box 13: Joint declaration from energy importers and exporters on reducing greenhouse gas emissions from fossil fuels

During COP27 in November 2022, energy importers and exporters: the United States, European Union, Japan, Canada, Norway, Singapore, and the United Kingdom issued a joint declaration on the need to accelerate the reduction of emissions from fossil fuel supply. The statement recognised that: ‘reliance on unabated fossil fuels leaves us vulnerable to market volatility and geopolitical challenges. We also recognize that under IPCC 1.5°C-aligned scenarios, fossil fuel consumption will persist, at rapidly declining levels, as the global energy transition unfolds. As such, we emphasize that dramatically reducing methane, CO₂, and other greenhouse gas emissions across the fossil fuel energy value chain is a necessary complement to global energy decarbonisation in order to limit warming to 1.5°C. [...] We emphasize that reducing methane and other greenhouse gas emissions from the fossil energy sector enhances energy security by reducing avoidable routine flaring, venting, and leakage that wastes natural gas.’³³⁰

Reaction to the North Sea Transition Deal

183. We heard a range of views of the North Sea Transition deal. The regulator characterised its targets as ‘ambitious’,³³¹ while NGOs complained that the deal represented ‘business as usual’ for the industry.³³² We summarise the key points made in relation to the deal in the sections which follow.

Criticism of North the Sea Transition Deal

184. Green Alliance argued that overall, the Deal reflected the demands of the oil and gas industry, rather than protecting workers and the climate.³³³ This was a view echoed by Silje Ask Lundberg, of Oil Change International, who labelled the North Sea Transition Deal ‘a business-as-usual strategy for the oil and gas sector’.³³⁴ University of Edinburgh researchers complained that the Deal had been dominated by the UK Government and the industry body Offshore Energies UK and had afforded only limited participation to

328 Gov.uk, [North Sea Transition Deal](#), March 2021, p.12

329 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

330 Gov.uk, [Reducing greenhouse gas emissions from fossil fuels: joint declaration from energy importers and exporters](#), November 2022

331 The North Sea Transition Authority describes these targets as ‘ambitious’ in its submission and on its website; North Sea Transition Authority ([ATFF0058](#))

332 [Q61](#)

333 Green Alliance ([ATFF0017](#))

334 [Q61](#)

other key actors in the sector. They claimed that many obvious stakeholders, including the Scottish Government, had been excluded and that the Deal represented ‘a very partial approach’.³³⁵

The CCC’s view on production emissions targets under the North Sea Transition Deal

185. In its most recent progress report to Parliament, the CCC described the Deal’s current targets as ‘unambitious’ as they relied heavily on an ongoing decline in production rather than on decarbonisation efforts. The CCC concluded that more stretching targets were feasible.³³⁶ The Chief Executive of the NSTA acknowledged that ‘the natural decline ... clearly helps’³³⁷ but insisted that:

There is the great work we have been doing with industry on flaring and venting. I have already demonstrated 41%, which I think is something we should celebrate. There is then the very hard work on electrification, so this is clean power to the installations. This is major engineering, a lot of work, a lot of policy support. That is ambitious, to get all of that done, making a substantial difference by 2030. That is the bit that we would say is going to require massive effort.³³⁸

186. Mike Thompson, the CCC’s chief economist, told us that the CCC would not have proposed the 68% target if it did not think it was feasible and necessary. He warned that:

It is not an obvious place to use the slack in the carbon budgets; there isn’t very much. We have been pretty clear in the progress report that the Government should be aiming for the 68%, not the 50%, because they probably will need that to make up for possible slippage elsewhere.³³⁹

187. We asked representatives of Harbour Energy, bp and Shell to commit to accelerating the reduction of production emissions by committing to achieving the 68% target as recommended by the CCC. All three companies declined to do so.³⁴⁰

The Methane Action Plan under the North Sea Transition Deal

188. As part of the North Sea Transition Deal, the sector also committed to establishing a Methane Action Plan. Oil and Gas UK (now Offshore Energies UK) published a plan in 2021 which promised:

- A 50% reduction in methane emissions by 2030;
- no routine flaring by 2030;
- a methane intensity of below 0.2% by 2025, and that;

335 Navraj Ghaleigh (Senior Lecturer in Climate Law at Edinburgh Law School, University of Edinburgh); Stuart Haszeldine (Professor at University of Edinburgh); Andi Sihota (Researcher at University of Edinburgh) (ATFF0040)

336 CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022, p.277

337 [Q334](#)

338 [Q334](#)

339 [Q287](#)

340 [Q291–294](#)

- operators would seek to validate methane quantification wherever practicable.³⁴¹

Box 14: The Global Methane Pledge

Methane is a far more potent climate-warming gas than carbon dioxide, even though it has a shorter cycle in the atmosphere than carbon dioxide. At COP26, a group of countries led by the United States and the European Union announced a Global Methane Pledge with the commitment to collectively reduce global methane emissions by at least 30% by 2030.³⁴²

Monitoring and verification of production emissions

189. Significant uncertainty surrounds attempts to quantify methane emissions from the oil and gas sector. Some stakeholders highlighted the need for better monitoring of the data that informs targets under the North Sea Transition Deal and supports evaluations of progress. E3G referred to evidence which suggests that UK data currently underestimates methane emissions from oil and gas installations.³⁴³ The Methane Action Plan (MAP) points out that:

While some methane emissions are measured and monitored, some are estimated using standard emission factors, or calculated on standard gas compositions.³⁴⁴

190. Not all methane emissions are therefore actually measured: emissions for several fields are instead modelled on the basis of previous studies.³⁴⁵ The MAP requires the UK oil and gas sector to commit to improving the accuracy of methane data through better understanding of methane emissions sources and quantification (both in design and fugitive), defining the industry baseline against which reduction can be measured and agreeing standards for measurement, monitoring and reporting. The MAP states that operators will ‘seek to validate methane quantification wherever practicable’.³⁴⁶

191. We asked Harbour Energy, Shell and bp how they were monitoring and verifying production emissions and whether this was through modelling or actual measurement. Linda Cook of Harbour Energy said that more than 90% of that company’s emissions were accounted through actual measurement and that they were independently verified.³⁴⁷ David Bunch of Shell said that its proportion was similar and that they were independently adjudicated.³⁴⁸ Louise Kingham of bp said that its production emissions were ‘internally and then externally audited on the back of measurements’.³⁴⁹

Our view on the North Sea Transition Deal

192. The emissions targets currently set under the North Sea Transition Deal are not stretching enough. The Climate Change Committee suggests that it is feasible and necessary for oil and gas production emissions to be reduced by 68% by 2030. We

341 Offshore Oil and Gas UK, [Methane Action Plan](#), 2021

342 Gov.uk, [UK Methane Memorandum](#), November 2022

343 E3G (Third Generation Environmentalism) ([ATFF0048](#))

344 OEUK, [OEUK Methane Action Plan 2021](#)

345 E3G (Third Generation Environmentalism) ([ATFF0048](#))

346 Offshore Oil and Gas UK, [Methane Action Plan](#), 2021

347 [Q301](#)

348 [Q301](#)

349 [Q301](#)

agree. The oil and gas industry has been aware of the contribution of its activities to man-made climate change since the 1990s, or earlier. A responsible industry should have been working to clean up its operations with far greater urgency than this timescale suggests. The Government needs to push the industry to go further and faster than its current approach. Challenging targets for the industry to undergo rapid decarbonisation must be introduced without delay. The fossil fuel industry should not be granted the headroom in the UK's carbon budgets that other hard-to-decarbonise sectors may need. *We recommend that the North Sea Transition Deal be modified to include stronger targets and verification arrangements in line with the Government's commitments under the Paris Agreement.*

Governance of the Deal

193. We discussed a number of issues around the governance of the North Sea Transition Deal, including the role of the regulator in holding the industry to account for the targets; the involvement of the industry in governance arrangements; and whether it was appropriate that the targets were voluntary.

Involvement of industry

194. The industry body Offshore Energies UK (OEUK) is closely involved in the governance arrangements for the voluntary Deal. OEUK jointly drafts the annual progress update on the Deal's implementation, with the Department for Business, Energy and Industrial Strategy, and it provides a programme management office for the Deal Delivery Group, the body which drives its practical delivery. OEUK told us that:

The NSTD is overseen by a clear governance structure, supported by OEUK and reporting to regulators and Ministers. This allows both to be held to account for the deliverables agreed in terms of emissions reduction, investment and jobs.³⁵⁰ Some NGOs raised concerns us about these governance arrangements for the Deal. The NGO Platform suggested that they lacked independent oversight.³⁵¹

195. Climate campaign group Uplift claims that the response to a Freedom of Information Act request, which they submitted, appears to show that the NSTD was in effect drafted by Offshore Energies UK (then Oil and Gas UK) and submitted to Government in January 2021.³⁵² They asserted that that 'the structure and asks of this document [were] almost identical to the final deal, rather than reflecting what is needed to meet net-zero goals.'³⁵³

196. Louise Kingham from bp countered that it was normal practice for sector-wide deals with industry to be co-authored with the industry in question. She said she had observed from her previous experience in the energy sector that:

... you had automotive sector deals, offshore wind sector deals, a nuclear sector deal. The transition deal was not the first and I suspect won't be the last. The nature of all of these is that they are co-written with a sector that needs to move and the Government or the regulatory authorities that are

350 Offshore Energies UK ([ATFF0047](#))

351 Platform London ([ATFF0011](#)); Uplift ([ATFF0021](#)); Green Alliance ([ATFF0017](#))

352 Uplift ([ATFF0021](#))

353 Uplift ([ATFF0021](#))

around them. I hope that you are seeing in those conversations that you have your regulators and your Government continuing to push you to raise the bar as the industry, because that is the whole point.³⁵⁴

NSTA monitoring of emissions

197. The North Sea Transition Authority does not have specific powers to sanction the industry if it does not meet the targets set out under the Deal, but it says it can ‘monitor, report on and hold industry to account against the target.’³⁵⁵ The NSTA told us that it had also published a number of new guidance and regulatory documents for the industry, including a Net Zero Stewardship Expectation.³⁵⁶

198. The NSTA began to publish an annual Emissions Monitoring Report in 2021.³⁵⁷ The 2022 report shows that greenhouse gas emissions were cut by an estimated 14.6% to 14.3 million tonnes of CO₂e in 2021, adding to an overall reduction of 21.5% since 2018.³⁵⁸ The report collates various emissions information collected from the industry. The Emissions Monitoring Report is accompanied by a dashboard which allows the user to conduct a more detailed analysis of emissions performance by UK Continental Shelf region, year and type of facility, among other variables. However, it does not identify the operators with the best or worst performance. We asked Andy Samuel about this in September 2022. He said:

I have met with all 30 operators individually and gone through their carbon reduction plans. We issued what is called stewardship expectation. That has very clear guidance around our expectations of operators to be good net zero stewards. Therefore, on request, they all have to prepare for us their emissions reductions plans. [...]. We would like to highlight individual fields and in due course we will name them, but operators will have time to respond with their plans because we think transparency in this area is very helpful.³⁵⁹

Voluntary and mandatory targets

199. A number of campaign groups called for mandatory targets for oil and gas industry decarbonisation. Lisa Fischer from E3G told us that the deal needed strongly improved accountability:

We need independent monitoring and verification. We need mandatory targets and those targets need to be in line with the CCC recommendations. They also need to go just beyond just electrifying platforms but looking at overall volumes of production.³⁶⁰

354 [Q287](#)

355 OGA, [Emissions Monitoring Report](#), October 2021

356 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

357 OGA, [Emissions Monitoring Report](#), October 2021

358 North Sea Transition Authority, [Emissions Monitoring Report 2022](#)

359 [Q353](#)

360 [Q43](#)

Our view on sectoral involvement in the North Sea Transition Deal

200. Sectoral involvement in drafting a deal of this nature is normal. It also makes sense for the industry to be involved in the monitoring and governance of a voluntary deal. However, we are concerned that the targets and accountability arrangements in the Deal are weak and lack the urgent and transformative action which the CCC says is required. In particular, there appear to be few sanctions available to the North Sea Transition Authority in the event that companies do not achieve the production emissions targets they have agreed to meet.

Our view on monitoring progress

201. To date the NSTA has not published the names of those operators lagging behind in reducing their production emissions. This prevents investors, shareholders and other interested parties from being able to appraise the performance of individual companies against their net zero pledges. The NSTA has indicated to us that it would potentially be prepared to use its ‘soft power’ to influence operators by publishing details of the performance of individual operators or companies. *We recommend that the North Sea Transition Authority publish an annual league table in its Emissions Monitoring Report detailing the performance on emissions reduction of individual operators and companies. The Government should signal its support for such an approach, which would encourage action by operators to reduce their upstream emissions.*

Our view on reviewing whether targets should be mandatory

202. Given the urgency of the climate crisis and the need to deliver significant cuts in emissions by 2030 to meet the UK’s current Nationally Determined Contribution under the Paris Agreement, mandatory targets for the reduction of oil and gas operational emissions may well be more appropriate than voluntary targets. *We therefore recommend that the Government, the regulator and the industry should review the provisions of the North Sea Transition Deal during the course of the fourth carbon budget (2023–2027), with a view to ensuring that they are still appropriate and sufficient to contribute to the UK’s obligations. If insufficient progress has been made on electrifying platforms and ending methane emissions during that budget period, we recommend that the Government should set mandatory upstream emissions reduction targets.*

Ensuring a ‘just transition’ for workers

203. The UK’s offshore oil and gas industry employs nearly 150,000 people directly and indirectly.³⁶¹ Oil and gas workers are among those most exposed to the risk of their roles becoming redundant in the transition to a net zero economy, as production declines and the energy transition accelerates. The industry itself has projected a decline in numbers directly employed to around 105,000 by 2030.³⁶² In the Deal itself there is a warning that if the transition is poorly managed it could have significant negative effects on local economies: for instance that of Aberdeen, where a significant proportion of workers are

361 Gov.uk, [North Sea Transition Deal](#), March 2021

362 Gov.uk, [North Sea Transition Deal](#), March 2021, p.41

directly employed by the industry.³⁶³ The Deal recognises that oil and gas workers are an important asset to be utilised in the energy transition because of the transferable skills that can be deployed in offshore operations. The CCC has pointed out that in order to manage the energy transition effectively the Government and industry must ensure that those oil and gas workers whose roles may eventually become redundant are supported to become part of the new low-carbon workforce: for example, retraining to take jobs in carbon capture and storage and offshore renewable energy construction and maintenance operations.³⁶⁴

204. The Government says that through the NSTD it is making progress in aligning cross-sector energy training and standards to facilitate workforce mobility.³⁶⁵ In May 2022, the industry published the Integrated People and Skills Strategy promised in the North Sea Transition Deal in collaboration with the Offshore Petroleum Industry Training Organisation (OPITO), the skills body for the offshore oil and gas sector.³⁶⁶ This set out five strategic priorities which are to be followed up with action plans. OPITO has also launched a skills ‘passport’ to support UK oil and gas workers’ in demonstrating that they have the transferrable skills to transition to greener offshore industries without the need for significant additional certification.³⁶⁷ Shell told us that it had recently committed £100 million to work with academic institutions across the country ‘to help with reskilling in certain disadvantaged and underprivileged areas’ as part of its commitment to reskilling.³⁶⁸

205. Some stakeholders were critical, suggesting that Government and industry plans fell short of what was required to secure a just transition. Evidence we received pointed out that the Deal acknowledged the need for workers to transition, but did not set specific commitments for oil and gas companies to support their workers in terms of retraining, reskilling, compensation or support schemes:³⁶⁹ it also left ‘workers paying for retraining themselves.’³⁷⁰ Greenpeace and others claimed, for instance, that offshore workers were currently expected to pay for their own training—costing on average £1,824 per year—as expensive certification was required when working for a new contractor or on a new project. Greenpeace recommended that the Government act to remove this barrier and regulate offshore training programs. University of Edinburgh academics suggested that the NSTD only met three of the seven Just Transition principles set out as an international standard by the Stockholm Environment Institute.³⁷¹

363 Gov.uk, [North Sea Transition Deal](#), March 2021, p.40

364 CCC, [The Sixth Carbon Budget: The UK’s path to Net Zero](#), Dec 2020

365 Department for Business, Energy and Industrial Strategy ([ATFF0056](#))

366 [Offshoreenergypeopleandskills.co.uk](#), [North Sea Transition Deal: Integrated People and Skills Strategy](#), May 2022

367 [OPITO | News for Industry Standards for Safety, Skills and Competence](#); Navraj Ghaleigh (Senior Lecturer in Climate Law at Edinburgh Law School, University of Edinburgh); Stuart Haszeldine (Professor at University of Edinburgh); Andi Sihota (Researcher at University of Edinburgh) ([ATFF0040](#))

368 [Q279](#)

369 Green Alliance ([ATFF0017](#)); Navraj Ghaleigh (Senior Lecturer in Climate Law at Edinburgh Law School, University of Edinburgh); Stuart Haszeldine (Professor at University of Edinburgh); Andi Sihota (Researcher at University of Edinburgh) ([ATFF0040](#))

370 Green Alliance ([ATFF0017](#))

371 Navraj Ghaleigh (Senior Lecturer in Climate Law at Edinburgh Law School, University of Edinburgh); Stuart Haszeldine (Professor at University of Edinburgh); Andi Sihota (Researcher at University of Edinburgh) ([ATFF0040](#))

Our view on the transition for workers in the oil and gas industry

206. Offshore oil and gas workers have many of the skills that will be needed elsewhere in the economy as the UK accelerates the energy transition. It is vital that Government works with training bodies, unions and the industry to offer adequate support in the transition to retrain and reskill for jobs in the net zero economy. The industry predicts that 45,000 jobs will be lost in oil and gas by 2030, but the North Sea Transition Deal has placed no commitments on companies to support workers in reskilling for new opportunities in the new offshore low-carbon economy. Stakeholders have also raised concerns that workers are currently having to fund their own retraining.

Reducing the operational emissions from the oil and gas industry

207. Around 90% of the emissions associated with oil and gas come from the burning of these products in vehicles, buildings and power stations. These end use emissions are classified as scope 3 emissions. The extraction and refinement processes involved in the production of oil and gas also results in greenhouse emissions (carbon dioxide and methane). These are classified as scope 1 and 2 emissions: as they are emitted within the UK, they are reckoned in the UK's carbon budgets. According to the CCC, greenhouse gas emissions from the UK's domestic fossil fuel supply account for around 8% of the UK's total territorial emissions amounting to 34 MtCO₂e in 2020.³⁷² These emissions result from a combination of refining, oil and gas platforms, oil and gas processing terminals, gas distribution, coal mines (open and closed), and other fossil fuel production. They come from:

- the combustion of hydrocarbons to power platforms—generation of electricity, process heat generation and direct powering of gas compression and pump systems;³⁷³
- 'flaring' to dispose of the gas that comes from oil production that is not captured or used, and
- emissions leakage.

The North Sea Transition Deal envisages that the reduction of production emissions will be achieved by a combination of energy efficiency, electrification, alternative decarbonised energy and the use of carbon capture technologies.³⁷⁴ We examine two of the most important elements of this emissions reduction drive below: electrification and venting/flaring.

Electrification of platforms

208. The largest sources of upstream emissions arise from hydrocarbon-fuelled electricity generation, process heat generation and direct powering of gas compression and pump systems. The Deal pledges to deliver between £2 and £3 billion of investment to allow oil and gas production to be operated using electricity supplied from the main electricity

372 CCC, [The Sixth Carbon Budget Methodology Report](#), December 2020; CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022, p.265

373 Gov.uk, [North Sea Transition Deal](#), March 2021, p.26

374 Gov.uk, [North Sea Transition Deal](#), March 2021

networks and/or directly from renewable resources, such as offshore wind projects built nearby.³⁷⁵ The emissions savings that can be delivered from electrification projects are estimated to range from 40,000 to 2 million tonnes of CO₂ per annum per project.³⁷⁶

209. Electrification of existing offshore assets remains commercially challenging, according to the Deal, with cost estimates per project ranging from £0.2 billion to £2 billion or higher for the largest projects. To deliver the 50% voluntary emission reduction target by 2030, it was estimated that ‘between £2–3 billion of investment will be required to allow the completion of at least one or two of the currently identified electrification projects’.³⁷⁷

210. The Crown Estate Scotland has developed the Innovation and Targeted Oil and Gas (INTOG) leasing round, to support the integration of offshore wind projects into oil and gas installations.³⁷⁸ In its Progress Report to Parliament in 2022 the CCC pointed out that there was no mechanism to provide incentives to drive forward the electrification of oil and gas platforms and that neither the Government nor the NSTA had yet to come up with a plan of action³⁷⁹

211. The NSTA told us that it expected two electrification projects to be commissioned by 2027.³⁸⁰ However, when we asked Andy Samuel how many platforms he expected to be electrified by 2030, he did not provide a number. He said that the regulator was going through this with operators at concept select stage of the approval process and that many of the bigger developments would be ‘future-proofed’ for electrification:

For many of the bigger developments, operators have already committed to us—as they have gone through what we call “concept select”—that they will be future-proof for electrification. For example, in the west of Shetlands, they are engineering into the primary design of the platforms that they can be plugged straight in for electrification, which is big progress.³⁸¹

212. In its follow-up letter to us after the hearing the regulator later told us that it was working with operators to progress major electrification projects in the Central North Sea and Outer Moray Firth, and also listed a number of other initiatives it was engaged in to try and further progress on electrification. These included a £1m electrification concept competition and collaboration with other stakeholders such as the Crown Estate to address enablers for electrification projects and to bring floating offshore wind projects into development that could be used to power platforms:

There are barriers to electrification which sit outside of our control, some of these are technical, some are economic and some are policy, such as grid connections and planning consents.³⁸²

213. We learned that the NSTA asks operators to provide an economic assessment of low carbon generation, including electrification, as part of Concept Select and Field

375 Gov.uk, [North Sea Transition Deal](#), March 2021

376 Gov.uk, [North Sea Transition Deal](#), March 2021

377 Gov.uk, [North Sea Transition Deal](#), March 2021,

378 CCC, [Progress in reducing emissions: 2021 Report to Parliament](#), June 2021

379 Climate Change Committee, [Progress in reducing emissions: 2021 Report to Parliament](#), June 2021, p.279

380 North Sea Transition Authority ([ATFF0058](#))

381 [Q343](#)

382 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

Development Plans (FDP) for new oil and gas projects. The NSTA's role in scrutinising and approving these plans gives it a potential point of leverage to insist that new platforms under development are fully electrified. For existing assets, the NSTA asks operators to write and implement Emission Reduction Action Plans for ongoing and future operations, including for the potential for low-carbon power generation.³⁸³

Flaring and venting

214. Hundreds of millions of tons of greenhouse gases are emitted to the atmosphere every year when unwanted fossil gas is burnt—or flared—during the process of oil and gas recovery.³⁸⁴ The NSTA has issued updated flaring and venting guidance directing companies to design all new developments on the basis of no routine flaring and venting, and to achieve zero flaring and venting for all operators by 2030.³⁸⁵ The North Sea Transition Authority boasted that flaring had been reduced by 41% since 2018.³⁸⁶ We note that Norway banned flaring in 1971.

215. In its 2022 Progress Report to Parliament the CCC expressed concern about whether mechanisms and plans were in place to reduce emissions from fuel supply in line with the pathways needed to achieve the UK's carbon budgets.³⁸⁷ Plans to reduce methane leakage in the gas distribution network were judged to be delivering emissions reductions that aligned with CCC recommendations. However, the CCC argued that the dates to achieve the flaring and venting targets in the North Sea Transition Deal could be brought forward.³⁸⁸

Our view on electrification and flaring and venting

216. **Oil and gas companies must accelerate their efforts to electrify offshore platforms, stop flaring and address methane leakage. We recommend that all oil and gas companies involved in extraction of fossil fuels from areas within the UK's jurisdiction report annually on their progress in decarbonising their activities. We further recommend that the North Sea Transition Authority identify and publish a league table of the best and worst performing companies, so that investors, non-governmental organisations and policymakers can monitor progress.**

217. **We are disappointed to observe that only two electrification projects are expected to be commissioned by 2027. During the development phase of a new project the NSTA approves Concept Select and Field Development Plans. We recommend that the regulator uses its powers at this stage of the project assessment to insist on the electrification for all new projects due to be licenced in the 33rd licensing round.**

218. **The routine flaring of unwanted fossil gas must be banned outright, as it has been by Norway since 1971. We recommend that the Government introduces an amendment to the Energy Bill to provide for a total prohibition on flaring from installations in the**

383 [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

384 Equinor, [Statoil committed to end routine flaring by 2030](#), April 2015

385 North Sea Transition Authority ([ATFF0058](#))

386 [Q331](#) ; [Q334](#); [Follow up letter from North Sea Transition Authority to EAC Chair](#), 23 September 2022

387 CCC, [Progress in reducing emissions: 2021 Report to Parliament](#), June 2021, p.279

388 CCC, [Progress in reducing emissions: 2022 Report to Parliament](#), June 2022, p.279

UK's jurisdiction to be introduced not later than the end of 2025. This would help ensure the UK fulfils commitments it made at COP26 and COP27 under the Global Methane Pledge.

Carbon capture, utilisation and storage

219. Carbon capture and storage technology has now reached sufficient maturity, according to University of Edinburgh researchers, for it to begin playing a part in the UK's decarbonisation efforts, enabling difficult to decarbonise sectors of the economy, such as cement and steel production and other industrial processes to neutralise their emissions.³⁸⁹ A number of large scale projects in operation internationally, which are capturing and storing emissions from several sectors such as power generation, hydrogen production, cement manufacturing and gas processing.³⁹⁰ Despite a lack of 'technical blockages', there are as yet no full scale projects in operation in the UK.³⁹¹

220. Storegga, the lead developer of the Acorn carbon capture and storage (CCS) and hydrogen project, sited at the St Fergus gas terminal in Aberdeenshire, told us that its project could allow 'stranded' emitters 'to effectively transport and store their captured CO₂ to the project where it will be safely managed.' Acorn insists that it can be fully operational from the mid-2020s, and claims that the project can rapidly scale up to meet demand and remove at least 20 million tonnes per annum (mtpa) of CO₂ emissions within the first decade of its operations.³⁹²

221. The Government sees carbon capture utilisation and storage (CCUS) as vital to the energy transition in the UK: this is reflected in the North Sea Transition Deal. The Deal supports the Government commitment to deploying CCUS in a minimum of two clusters by the mid-2020s, and four clusters by 2030 at the latest, with an ambition to capture 10MtCO₂/year by 2030.³⁹³ As part of the Deal, the sector has committed to invest between £2 and £3 billion to build the transport and storage infrastructure for 10 megatonnes of carbon capture each year by 2030.³⁹⁴ The Government has also pledged to establish a revenue mechanism to provide the certainty investors need to deliver industrial carbon capture and hydrogen projects at pace and scale.

222. The NSTA estimates that there is 78 gigatonnes of potential storage off the UK coastline.³⁹⁵ In June 2022 the NSTA conducted the UK's first carbon storage licensing round, with 13 areas off the UK coast utilising a mix of saline aquifers and depleted oil and gas storage fields.³⁹⁶ It received 26 bids from 19 companies across all 13 areas, and plans to award licences early in 2023.

223. Deployment of the technology in the UK has previously been hampered by sudden changes to policy. Academics at the University of Edinburgh pointed out to us that in the

389 Gov.uk, [North Sea Transition Deal](#), March 2021, p.31; University of Edinburgh ([ATFF0030](#))

390 Storegga, Lead Developer of the Acorn Project and the Scottish Cluster ([ATFF0019](#))

391 University of Edinburgh ([ATFF0030](#))

392 Storegga, Lead Developer of the Acorn Project and the Scottish Cluster ([ATFF0019](#))

393 Gov.uk, [The Carbon Capture and Storage Infrastructure Fund: an update on its design](#), Updated 8 November 2021

394 Gov.uk, [North Sea Transition Deal](#), March 2021, p.15

395 North Sea Transition Authority ([ATFF0058](#))

396 Nstauthority.co.uk, [Bids invited in UK's first ever carbon storage licencing round](#), 14 June 2022

late 2000s the UK was in lead position globally, to co-develop CCS with BP in the DF1 (Peterhead-Miller) project. However, ‘serial delays and lack of financial confidence by UK government means that the UK is now 4th in Europe to develop CCS.’³⁹⁷

Our view on carbon capture, utilisation and storage

224. It is encouraging that the North Sea Transition Authority is in the process of issuing licences to CCUS projects in the UK. We support the North Sea Transition Deal’s intention to drive forward the deployment of this technology which will be essential in decarbonising heavy industry. *The Government must ensure that there is certainty for the industry: there must be no repetition of the sudden withdrawal of Government support which previously disrupted the development of CCUS projects in the UK.*

The taxation regime for the oil and gas sector

225. In this section we outline the current taxation regime for oil and gas, and examine the impact of the Energy Profits Levy and the associated Investment Allowance on North Sea oil and gas development.

226. Companies operating in the UK Continental Shelf pay three separate profit-based taxes on oil and gas production:

- ring-fenced corporation tax, charged at 30%;
- petroleum revenue tax, and
- a supplementary 10% charge.³⁹⁸

227. The legislative provision for these taxes is in the Finance Act 2016.³⁹⁹ Wood Mackenzie’s Graham Kellas explained the special ring-fenced tax regime governing the industry:

Every oil and gas company pays corporation tax [...] but in the North Sea, they pay under separate rules. It is called a ring-fence. The oil and gas extraction activity is ringfenced from any other economic activity that a company undertakes. It also is subject to a different rate. Whereas the current corporation tax for most industries is 19%, in the North Sea it is 30%. However, there is a balance there which is that, whereas in most industries you will depreciate your capital allowance as a deduction over time at 18% of the remaining value each year, in the offshore oil and gas business you can offset 100% of your capital costs in the year that they are incurred. [...] The supplementary charge is an additional tax, only payable by North Sea oil and gas producers, which is currently at a 10% rate.⁴⁰⁰

The ring-fenced corporate income tax reliefs allow fossil fuel companies to deduct from their taxable profits;

397 Navraj Ghaleigh, Stuart Haszeldine, and Andi Sihota - University of Edinburgh ([ATFF0030](#))

398 House of Commons Library briefing, [Taxation of North Sea oil and gas](#), 10 June 2022

399 Cwenergy.co.uk, [United Kingdom Oil and Gas Taxation](#) [Pre 2020 page – date accessed 13 July 2022]

400 [Q186](#)

- i) the costs of decommissioning old infrastructure, and
- ii) capital expenditure on new plant and machinery.

Box 15: International commitments regarding support for fossil fuels

The UK has made international commitments to end financial support for fossil fuels. These include the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (Aichi target 3), as well as the Sustainable Development Goals (Goal 12) and agreements made by the G7. Most recently, as a party to COP26 in Glasgow, the UK committed to “phasing down” inefficient fossil fuel subsidies.⁴⁰¹

228. A number of the submissions we received at the start of our inquiry argued that the fossil fuel industry in the UK was subject to a favourable tax regime. Common Wealth suggested in its submission, made before the Investment Allowance was announced, that the tax reliefs in place offered:

... strong incentives for further exploration and extraction of the oil and gas from the UK continental shelf (essentially, the North Sea), as companies receive tax reliefs for both new investment and decommissioning costs for fully exploited fields and assets.⁴⁰²

Offshore Energies UK insisted that the UK Government did not financially support the oil and gas sector. In April 2022 the Department for Business, Energy and Industrial Strategy told us that:

Companies engaged in the production of oil and gas on the UK Continental Shelf (UKCS) are subject to headline tax rates on their profits that are currently [as of April 2022] more than double those paid by other businesses, with the sector having paid more than £375bn in production taxes to date.⁴⁰³

Definition of a subsidy

229. The UK Government insists it does not provide any subsidies to fossil fuels.⁴⁰⁴ The Organisation for Economic Co-operation and Development has suggested that, whilst the UK does not provide support via direct budgetary transfers, the Government supports the fossil fuel industry through tax breaks for exploration and research and development.⁴⁰⁵ We asked the IEA how it would define an ‘inefficient fossil fuel subsidy’: it offered the following definition in response:

Inefficient fossil fuel subsidies are subsidies where end-user prices paid by consumers are lower than prices that correspond to the full cost of supply and that encourage wasteful energy consumption, reduce energy security, impede investment in clean energy sources or undermine GHG emissions reduction efforts.⁴⁰⁶

401 [UNFCC Glasgow Climate Pact, 2021](#)

402 Common Wealth ([ATFF0044](#))

403 Department for Business, Energy and Industrial Strategy ([ATFF0056](#))

404 HM Treasury response to [Question 90854](#), given on 17 December 2021

405 House of Lords Library, [Oil and gas industry: outside interests](#), January 2022

406 [Letter from the Executive Director of the International Energy Agency to EAC](#), 22 November 2022

Decommissioning tax relief

230. There was also disagreement during the inquiry on whether decommissioning tax relief counted as subsidy. Green Alliance argued that the relief ‘distorts price signals in favour of uneconomic extraction.’⁴⁰⁷ Offshore Energies UK denied that that decommissioning deductions on corporation tax qualified as a subsidy.⁴⁰⁸ Wood Mackenzie’s Senior Vice President of Upstream Research, Graham Kellas, considered that decommissioning reliefs should not be considered as a subsidy:

Decommissioning is one of the costs of extracting oil and gas—exploration, appraisal, field development, production costs and decommissioning costs are all legitimate costs of doing business. A profits-based tax such as our corporation tax allows you to deduct the legitimate costs of your business before you pay the tax so decommissioning costs should be allowed as tax deductions.⁴⁰⁹

Record profits and calls for a windfall tax

231. Oil and gas producers reported record profits in 2022 as wholesale prices surged following the Russian invasion of Ukraine and subsequent restriction of gas supplies.⁴¹⁰ This prompted calls for a ‘windfall tax’ on UK producers. Greenpeace UK pointed out in its initial submission (made prior to the announcement of an Energy Profits Levy in May 2022) that the UK’s taxation rates for the industry were the ‘lowest government tax take in the world for offshore oil and gas.’⁴¹¹ In a further submission made in September 2022, Greenpeace UK said that the massive profits that producers have reaped in 2022

... are completely unexpected, not based on superior strategy or planning and are unaccounted-for: these huge sums are a perfect example of a windfall.⁴¹²

Introduction of the Energy Profits Levy and Investment Allowance

232. In May, the then Chancellor, Rt Hon Rishi Sunak MP, announced a temporary 25% Energy Profits Levy (EPL) on the profits of oil and gas companies. The EPL increased the headline rate of tax on oil and gas producer profits from 40% to 65%.⁴¹³ This remained lower than the international average tax take from oil and gas projects of 71%.⁴¹⁴ The Levy was legislated for in the Energy (Oil and Gas) Profits Levy Act 2022 which received Royal Assent in July 2022: section 1(3) sets an expiry date of 31 December 2025.⁴¹⁵

233. The Government said that it wanted to see the ‘oil and gas sector reinvest their profits to support the economy, jobs and the UK’s energy security’. To incentivise this, the then Chancellor introduced a ‘super-deduction’ style investment allowance alongside the Energy Profits Levy. This new investment allowance rate was set at 80% and meant that

407 Green Alliance ([ATFF0017](#))

408 [Q106](#)

409 [Q190](#)

410 FT, [Shell reports record profits on surging oil and gas prices](#), 28 July 2022

411 Greenpeace UK ([ATFF0023](#))

412 Greenpeace UK ([ATFF0064](#))

413 HM Treasury, [Energy Profits Levy Factsheet - 26 May 2022](#), Updated 15 June 2022

414 Rystad, [Fiscal Regime Report](#), March 2022

415 Gov.uk, [Energy \(Oil and Gas\) Profits Levy](#), 21 November 202

for every £1 a business invested it received a 91p tax saving.⁴¹⁶ This has nearly doubled the tax relief companies receive from qualifying expenditure, from 46p for every £1 of extra investment to 91p.⁴¹⁷

Reaction to the Energy Profits Levy

234. Reaction from the industry was generally negative. The oil and gas sector stressed the importance of fiscal certainty for investment in energy projects. Linda Cook, CEO of Harbour Energy—currently the largest oil and gas producer in the UK, and the largest independent producer listed on the London Stock Exchange—estimated that the impact on the largest independent UK producers could be more than £2.5 billion over the period from 2022 to 2025. Harbour warned that the EPL undermined the UK’s energy security because of its ‘disproportionately large’ impact on the four largest independent producers who between them account for a third of the UK’s production, forecast to deliver 440,000 boepd in 2022.⁴¹⁸ Linda Cook provided an example of the impact the sudden introduction of the Levy had had on her business:

We have developed a project called Tolmount in the UK. It started producing in April of this year. Investment started two or three years ago. Hundreds of millions of pounds were invested. Production starts in April. That project is delivering 5% of UK gas production today. Now, all of a sudden, the tax on the revenue from that project, which finally starts, is taxed at a much higher rate than we had anticipated, yet we are unable to deduct the investment for that project against those revenues because the new project does not allow past investments under its allowance definition.⁴¹⁹

Graham Kellas of Wood Mackenzie suggested that the sudden imposition of new taxes had had a varied effect on different investors depending on their circumstances, but suggested that ‘it always results in some downturn in sentiment towards the host country when it makes changes to taxes that impact current profitability.’⁴²⁰

Impact of the Investment Allowance on new investment

235. Despite the protestations of the industry, we were told that the inclusion of the Investment Allowance, which the Government itself described as ‘generous’, would serve to incentivise near-term investment in oil and gas fields in the UK. Wood Mackenzie said that the Energy Profits Levy and Investment Allowance could accelerate ‘ready to go’ developments such as the Rosebank and Cambo fields.⁴²¹ In June 2022 Graham Kellas explained that the temporary nature of the Investment Allowance provided a strong incentive to accelerate projects in this period:

One of the attractions as an investor is that they get the higher rate of tax relief up to the end of 2025. Then, if the field comes onstream, the energy profits levy disappears and companies are subject to lower tax on the profits.⁴²²

416 HM Treasury, [Energy Profits Levy Factsheet - 26 May 2022](#), Updated 15 June 2022

417 HM Treasury, [Energy Profits Levy Factsheet - 26 May 2022](#), Updated 15 June 2022

418 [Harbour Energy, Letter from CEO Linda Cook to Chancellor](#), 7 June 2022

419 [Q238](#)

420 [Q201](#)

421 Wood Mackenzie, [UK government swoops on North Sea windfall profits](#), 26 May 2022

422 [Q200](#)

236. Sonya Boodoo, of Rystad's Upstream Research team, told us that mature projects would be likely to be accelerated by the effect of the allowance, as the tax reliefs available increased the value of the project:

We think some potential projects that probably can be fast-tracked are the likes of Rosebank, west of Shetland, which has been on the cards for some time but there have been some delays. From what we have seen, the new investment allowance has massively improved the economics of these projects that have not yet been under development. We took the example of Jackdaw and we looked at what the economics looked like under the previous regime and then what they looked like with the inclusion of energy profits levy. The valuation of that project increased by just over 50%. That is because of the investment allowance and the immediate tax relief from that investment allowance.⁴²³

237. The Institute for Fiscal Studies criticised the Investment Allowance for being so generous that 'a massively lossmaking investment could still be profitable after tax.'⁴²⁴

Applying the tax relief to low-carbon investment

238. Graham Kellas explained to us that the fiscal ring fence around oil and gas activities prevented the investment allowance being channelled into low-carbon investments. Environmental organisations, while welcoming the Levy, warned that the Investment Allowance would incentivise companies to allocate more capital to oil and gas rather than renewables.⁴²⁵ Greenpeace UK told us that:

This massively distorting incentive for investment in fossil fuel resources is being implemented at exactly the wrong time, encouraging new additional investment in fossil fuels at the precise moment that it is necessary to dramatically reduce carbon emissions.⁴²⁶

239. The Investment Allowance also appeared to go against the grain of low-carbon investment pledges being made by sections of the industry. The oil and gas majors bp and Shell each told us in July 2022 that they were planning to significantly increase their low-carbon investments in the coming years. David Bunch from Shell told us that the company had committed to invest £25 billion in the UK energy system over the course of the decade with 75% of this 'targeted for low-carbon and zero-carbon solutions'.⁴²⁷ He argued that the tax incentive offered by the Investment Allowance should be extended to low-carbon investments as well.

Using the proceeds of the Levy

240. Giving evidence in June, E3G's Lisa Fischer said it was important to support vulnerable customers. However, she argued that the £37 billion that the Government was providing in support as cash back to energy bill payers [under the earlier Energy Bills Support

423 [Q199](#)

424 FT, [North Sea levy spurs call for energy tax overhaul](#), 28 May 2022

425 E3G, [Tax relief for oil and gas is trouble for UK bills and energy transition](#), 30th May 2022

426 Greenpeace UK ([ATFF0064](#))

427 [Q223](#)

Scheme] was being used just to stand still and would not ‘permanently lift’ households out of energy poverty.⁴²⁸ In her view, some of the money from the Energy Profits Levy could have been used to permanently lift millions of households out of energy poverty.⁴²⁹

241. Greenpeace UK calculated that an increase in the rate of all producer profits to 70%—around the global average tax take for offshore oil and gas—would have resulted in an additional £13.4 billion accruing to the Exchequer. It argued that this revenue could have been used to provide ‘a capital injection to fund energy efficiency this Parliament.’⁴³⁰

Autumn Statement changes to the EPL and Investment Allowance

242. Following reports that the Shell had not paid Energy Profits Levy on its second highest quarterly profit on record⁴³¹, the Chancellor of the Exchequer announced in the Autumn Statement that the EPL rate would rise by 10 percentage points—to 35%—from 1 January 2023. The Investment Allowance is to be reduced to 29% for all investment expenditure (other than decarbonisation expenditure), thereby broadly maintaining its existing cash value. Decarbonisation expenditure will continue to qualify for the current investment allowance rate of 80%.⁴³²

243. In addition to the changes introduced to the Energy (Oil and Gas) Profits Levy Act, the Government also announced its intention to legislate for a new temporary tax of 45% ‘on the extraordinary profits of electricity generators who, like the oil and gas sector, have seen profits increase well above their company predictions’.⁴³³

244. We note that because the windfall tax rate is higher, the effective rate of relief for investment 91.4%, almost exactly the same as the original 91.25% iteration of the Investment Allowance. Investments in upstream decarbonisation of oil and gas installations will attract a higher rate of relief (109.25%).⁴³⁴ This means that producers will effectively be paid to make such investments.

Our view on the Energy Profits Levy and Investment Allowance

245. Oil and gas companies have understandably complained of the impact on the certainty of their revenue projections arising from sudden changes in the fiscal regime applying to their operations. But these are exceptional times. It would be politically and morally unacceptable for oil and gas companies to pocket record profits because of a war at a time when an unprecedented number of households in the country have been plunged into fuel poverty. The Government was therefore right to introduce its Energy Profits Levy, which is contributing towards the support the Treasury is offering billpayers.

428 [Q14](#)

429 [Q14](#)

430 Greenpeace UK ([ATFF0064](#))

431 BBC News, [Shell pays no UK windfall tax despite profits jump](#), 27 October 2022

432 Gov.uk, [Autumn Statement 2022](#), 17 November 2022

433 Gov.uk, [Energy Taxes Factsheet](#), 17 November 2022

434 Gov.uk, [Energy Taxes Factsheet](#), 17 November 2022

246. The original 65% tax rate under the Energy Profits Levy was lower than the international average tax rate of oil and gas producers (of 71%), so we welcome the Chancellor of the Exchequer's proposal to increase this rate to 75%, while noting that it remains below Norway's tax rate of 78%.

247. The Energy Bills Support Scheme and the subsequent Energy Price Guarantee have provided badly-needed support for billpayers, saving four million households from fuel poverty. While we welcome the support the Government has provided, we note that currently it will only help eligible households through two winters. It will not deliver the energy efficiency measures which will lead to permanently lower energy bills. *We call on the newly announced Energy Efficiency Taskforce to work with the Chancellor to allocate a proportion of the Energy Profits Levy revenue in the current Parliament to increasing energy efficiency investments, targeting these investments at the most vulnerable to lower permanently the costs of heating their homes. This additional investment should also fulfil the Government's 2019 manifesto commitment to expenditure of £9 billion on energy efficiency in this Parliament.*

248. The tax system should help, not hinder, the transition to a low-carbon economy. The original way in which the Investment Allowance was structured provided a perverse incentive to accelerate investment in high-carbon oil and gas installations at a time when the public policy imperative was to accelerate the transition away from fossil fuels. We welcome the modest change introduced by the Chancellor to limit the 80% Investment Allowance to investment expenditure on upstream decarbonisation, while having significant reservations about the extent of the financial support the Treasury is providing via the Investment Allowance, which the Institute for Fiscal Studies has noted 'means that North Sea investment will be massively subsidised' and 'could lead to loss-making investments being rendered commercial'.

249. The Government is not providing renewable energy generators with the same level of generous tax reliefs for new investment to enhance the UK's energy security. *We recommend that the Treasury examine how a similar low-carbon Investment Allowance could be introduced for electricity producers paying the new temporary tax of 45%.*

Conclusions and recommendations

Energy and climate security

1. The UK is experiencing its biggest energy crisis since the 1970s following major geopolitical instability during a year of worryingly extreme weather. Gas markets look likely to remain volatile for the foreseeable future and the UK remains exposed economically to oil and gas supply restrictions because of its continued dependence on fossil fuels. (Paragraph 36)
2. The UK has become used to reliable global energy markets providing a large proportion of its energy needs. Vladimir Putin's apparent weaponisation of gas supplies has shown that the physical accessibility of energy supplies remains a crucial policy consideration, at least in the short to medium term. The UK Government needs to ensure that citizens and businesses have access to secure and affordable energy while at the same time doing its fair share towards limiting global temperature increase to 1.5°C, in line with its common, but differentiated responsibilities as a signatory to the Paris Agreement and the Glasgow Climate Pact. (Paragraph 37)
3. Whilst the UK continues to be committed to phasing out the use of coal for electricity generation by 2024, the Government has recently announced its intention to allow the opening of a new coal mine at Whitehaven in Cumbria. The coking coal to be mined there has limited application in the UK steel industry, and 85% of the coal is planned for export to Europe. The UK Government needs to consider the impact of this decision on its ability to exert international influence with regard to the phasing out of unabated coal. (Paragraph 38)
4. Climate breakdown threatens lives, livelihoods and infrastructure, and taking steps to ensure continued climate stability must be a national security priority for any government. The increasing frequency and ferocity of extreme weather events, floods, droughts and heatwaves which is manifest at the current 1.1°C average heating should serve as an alarm call. The impact that these weather extremes can have on national infrastructure has recently been all too apparent: there were striking examples of energy generating facilities across Europe being affected by the heatwave and drought in the summer of 2022. The world is currently on track to exceed the 1.5°C threshold that the Paris Agreement was intended to prevent. (Paragraph 39)
5. Tackling the immediate energy security and affordability issues caused by the war in Ukraine does not entail abandoning climate ambitions or putting them on pause. The energy trilemma can be solved by tackling all three issues together. There are many opportunities to achieve synergies between affordability, security and sustainability. Accelerating the transition away from fossil fuels will enhance the UK's energy security and reduce the ability of aggressive or repressive regimes to use oil and gas supplies as an economic weapon. It will also help to protect households from volatile fossil fuel prices permanently and will reduce the fiscal burden of financial support to households through this and any future energy crisis. (Paragraph 40)

The British Energy Security Strategy

6. The Government acted swiftly to publish a British Energy Security Strategy following the invasion of Ukraine and the resulting gas supply crisis. We commend it on its rapid response. The Strategy has some merits. Its ambition on decarbonising the electricity system is welcome, and it sets strong and stretching targets for the roll-out of low-carbon electricity generation in the coming decade. (Paragraph 46)
7. There are, however, significant gaps in the Strategy. It is in essence an energy supply strategy, with much of its focus on electricity generation and oil and gas supply. To deliver genuine energy security, the strategy should have placed far greater emphasis on energy saving measures. Transport should also have been included. (Paragraph 47)
8. The Government's current fuel poverty target 'to ensure that as many fuel-poor homes as is reasonably practicable achieve a minimum energy efficiency rating of band C, by 2030' is vague and unspecific. *Informed by the CCC's Sixth Carbon Budget advice, we recommend that the new Energy Efficiency Taskforce is directed to advise the Government on appropriate interim targets to lift 100% of domestic properties to EPC C by 2035. Improving homes to EPC C or above will reduce the UK's reliance on energy imports and cut carbon emissions while delivering a wealth of co-benefits, including warmer homes, improved health outcomes, and a job-creating boost to local tradespeople.* (Paragraph 57)
9. Poor implementation has been a recurring issue for energy efficiency schemes for owner occupiers in England, which has undermined confidence among consumers and contractors. The Green Deal failed to offer sufficiently attractive loans to incentivise large scale take up. More recently, the Green Homes Grant was administered shambolically. The scale of the current fossil fuel price shock crisis requires a rapid acceleration of energy efficiency measures and a commitment to effective delivery. (Paragraph 61)
10. The Government must first act to increase the funding of schemes that are already in place and have a proven track record of effective delivery. The £1 billion of further funding that the Government has provided to the Energy Company Obligation scheme over the next three years is welcome, but it is not commensurate with the scale or urgency of the energy security challenge. With over six million households now in fuel poverty, action on energy efficiency needs to be ramped up urgently. (Paragraph 62)
11. The current ECO scheme is not delivering anywhere near the numbers of energy efficiency improvements it did at its peak a decade ago. The Government needs to ensure that ECO+ is properly funded to deliver hundreds of thousands if not millions of improvements every year for the remainder of this decade. *We recommend that the Government set a target to build capacity in the energy efficiency sector, with an objective to deliver at least 1 million installations a year by 2025 and 2.5 million a year by the end of the decade. The Government should direct the newly-announced Energy Efficiency Taskforce to estimate the extent of additional funding required to achieve such a timetable.* (Paragraph 69)

12. The Government must also urgently bring forward measures to incentivise energy efficiency improvements via the mortgage market. The Department for Business, Energy and Industrial Strategy conducted a consultation on how an obligation on lenders could be introduced to improve the energy performance of domestic properties with mortgages. This consultation closed in February 2021: but more than 18 months afterwards the Government has yet to come forward with concrete proposals to kick-start a retrofit revolution in this part of the housing market. *We are disappointed at this delay and recommend that the Department now fast track its response to that consultation and publish detailed policy proposals on green mortgages not later than the end of February 2023. If the Government has not published these proposals by the time the response to this report is due, we recommend that Ministers set out a timetable for doing so by the end of March 2023.* (Paragraph 70)
13. In response to the Committee's report on Energy Efficiency of Existing Homes, published in March 2021, the Government said that it was considering what further action might be required to catalyse the market for a wide range of attractive and low-cost green finance products. Yet it said that the variation of stamp duty rates to incentivise green mortgages was not being considered, as to do so would risk the Exchequer's revenue. *We recommend that the Government direct the Energy Efficiency Taskforce to seek stakeholder views on how variations to the rate of stamp duty could be used to progressively incentivise energy efficiency improvements without jeopardising tax revenues.* (Paragraph 71)
14. We welcome the new interim target set by the Government in the Autumn Statement to reduce energy demand in this country by 15% by 2030. This goes some way to plugging the gap in the Energy Security Strategy which did not address reducing demand. We nevertheless regret that Ministers missed a crucial window of opportunity during the warmer months of 2022 to accelerate energy efficiency measures that could have helped to give permanent protection from the impact of volatile oil and gas prices to thousands more UK households. (Paragraph 75)
15. The promise of £6bn further funding from the Chancellor is welcome, but those in fuel poverty cannot afford three winters of delay. We believe it is a false economy to hold this money back at a time when households are struggling, and the taxpayer is having to spend billions to subsidise energy bills. *The extra money promised on energy efficiency should be brought forward now to fulfil the Government's manifesto commitment, not begin to be spent after a two year interval. We recommend that the Government launch a national 'war effort' push on energy saving and efficiency. The Government must treat the upgrading of all homes in England at band D or below to band C as a national priority to ensure affordability, enhance the UK's energy security and reduce the high emissions from the country's leaky and draughty building stock.* (Paragraph 76)
16. The Energy Efficiency Taskforce announced in November 2022, if appropriately resourced and commissioned, has the potential to make a significant practical contribution to policy implementation. In our view it would be well placed to advise Ministers in the Departments for Business, Energy and Industrial Strategy and Levelling Up Housing and Communities on the best means to achieve the step change in measures to decarbonise domestic and commercial property that the CCC has advocated. *We recommend that the remit of the Energy Efficiency Taskforce*

expressly include the provision of advice to Ministers on any and all measures—including primary and secondary legislation, codes of practice and guidance—which in the Taskforce’s view will contribute to the swiftest possible implementation of energy efficiency measures at the scale the current situation demands. (Paragraph 77)

17. The Government can take further practical measures to make its policy on energy efficiency more effective. The current system of Energy Performance Certificates still requires a thorough overhaul to ensure that they represent an accurate assessment of the improved energy performance of buildings. *We recommend that the Government bring forward amendments to the Energy Bill, currently in the House of Lords, to provide for a more effective rating system. The Government has also promised to publish a consultation on the Energy Performance of Buildings (England and Wales) Regulations before the end of 2022. If this has not been published by the time the Government responds to this report, we recommend that it sets out an explanation for the delay and sets a new urgent deadline for publication of the consultation, along with a timetable for the publication of its response and policy decisions, which should be issued no later than the end of 2023. (Paragraph 78)*
18. On the supply side, we welcome the clear and ambitious targets that the Government has set in the Energy Security Strategy for the roll out of low-carbon electricity generation. We are concerned that the Government is not doing enough to remove the barriers preventing the cheapest and quickest onshore low-carbon technologies from being rapidly deployed. A number of witnesses have raised the challenges that low-carbon generators face in securing appropriate grid connections and how to manage latency in certain types of renewables. These are clearly significant issues, which the committee may wish to consider in the future. (Paragraph 89)
19. We are encouraged that the Government has now included one of the cheapest forms of renewable energy—onshore wind—in Contracts for Difference auctions and will consult on proposed changes to national planning policy to relax the *de facto* prohibition that has existed for the technology since 2015. We welcome these moves, while recognising that constraints remain. *We recommend that the Government’s proposals establish clear guidelines to provide benefits for local communities in areas that accept onshore wind farms, including potentially reduced electricity bills. The Government should also set a clear ambition to expand its generating capacity from onshore wind by 2035 in line with the goals it has set for other technologies in the British Energy Security Strategy. (Paragraph 90)*
20. It is unclear whether Ministers will maintain the current position whereby grade 3b agricultural land is available for ground-mounted solar installations. We recognise that the Government must balance the needs of energy security with biodiversity protection and food production. Nevertheless, moves to limit the land available for solar installations will make it harder to achieve the Government’s stated ambition in the British Energy Security Strategy to increase solar capacity to 70GW by 2035. We recommend that the Government set out, in its response to this report, its assessment of the likely impact that reducing the classes of land available for ground mounted solar would have on its ability to achieve its own target of 70GW target by 2035. (Paragraph 100)

21. As an island nation the UK has abundant tidal energy resources that could be tapped, yet tidal technologies received scant attention in the British Energy Security Strategy. We have been told that tidal range energy projects are now capable of being delivered at a similar overall cost to nuclear and offshore wind. Tidal stream and tidal range technologies have the significant benefit that tidal flows are entirely predictable and can therefore deliver a consistently reliable year-round source of clean electricity. (Paragraph 104)
22. We welcome the inclusion of tidal power in Contracts for Difference auctions which has resulted in 40MW of clean power from tides being awarded contracts. Tidal and other marine energy projects should be a vital component of the Government's strategies for delivering both net zero and energy security. *Tidal and other marine energy projects should be a vital component of the Government's strategies for delivering both net zero and energy security. We recommend that the Government incorporate, as part of the revised net zero strategy to be published by March 2023, an approach to developing tidal and marine energy that includes a stated ambition for the sector set out in gigawatts of generating capacity. The UK should be aiming to generate a significant proportion of its power from these sources by the middle of the 2030s. This approach must be extremely sensitive to biodiversity considerations given the obvious risks of disrupting important habitats, and the Government should make this clear in planning guidance.* (Paragraph 105)
23. The British Energy Security Strategy appears to reflect a 20th century approach to energy security, prioritising the construction of big, centralised power generation facilities to meet fixed demand. A move to a smarter, more flexible, digitally-enabled grid, which technological innovations now make possible, holds exciting potential to smooth demand peaks by flexing demand up and down in a way that was hitherto impossible. Developments in this area could have important implications for other elements of the Government's energy strategy - for instance, how much baseload electricity is necessary and how much grid distribution capacity is needed to connect a more dispersed generation network. *We recommend that the Government provides a progress report in 2023 on the joint Ofgem and BEIS Smart Systems and Flexibility Plan and incorporates any relevant actions from this report into its ongoing efforts to enhance energy security and decarbonise the electricity grid.* (Paragraph 110)
24. The converted Drax power station provides 12% of the UK's renewable power from the burning of wood pellets. This source of power is reliable and flexible and supports more intermittent renewables, such as wind and solar. However, we note that concerns have been raised about its sustainability and short-term climate impact of burning wood pellets. We are currently examining these concerns as part of a separate inquiry. (Paragraph 111)
25. If the classes of land available for ground-mounted solar are further restricted, it will make it all the more imperative to mandate the widespread deployment of rooftop solar in new developments where there are appropriate south facing aspects. *We recommend that the Future Homes Standard requires developers to fit solar PV as standard where it is possible.* (Paragraph 119)
26. Despite the UK's heavy dependence on oil for transport, and transport's status as the highest emitting sector, it is barely mentioned in the British Energy Security

Strategy and was left out of the new national ambition to reduce energy consumption by 15% by 2030. We acknowledge the Government's leadership in setting a date to end the sale of petrol and diesel vehicles in 2030 and the encouraging rate of growth in the sale of electric vehicles. We note however that it may take many years for a full turnover of the vehicle fleet and that transport emissions have flatlined for the last decade. For the UK to meet its successive carbon budgets under the Climate Change Act 2008 and the Paris Agreement, transport emissions must start coming down more rapidly. (Paragraph 131)

27. The best way to reduce the UK's future exposure to volatility in the price of oil is to reduce oil consumption. The rapid growth in electric car sales is encouraging, but it will take many years to replace petrol and diesel vehicles. More must be done to improve the energy efficiency of our transport system and reduce its contribution to climate change in the meantime. The International Energy Agency and other bodies have identified a range of demand side measures that the Government could use to cut oil use, make public transport more affordable and reduce transport emissions. *We recommend that the Department for Transport consult on measures, such as those listed in the IEA's ten-point plan, that it could introduce in the UK to improve energy security, reduce oil demand and cut climate-changing emissions from transport.* (Paragraph 132)
28. The Department for Business, Energy and Industrial Strategy has overall responsibility for net zero delivery, but the gaps in its British Energy Security Strategy suggest that it is failing to drive the departments responsible for other high emitting sectors, such as transport and buildings, to accelerate their own contribution to energy security and the reduction of greenhouse gas emissions. (Paragraph 139)
29. In light of the Prime Minister's confirmation at the Despatch Box to the Chair of this committee that he will personally drive cross-government action on climate change, *we recommend that the Prime Minister directs the Secretary of State for Business, Energy and Industrial Strategy to work with his counterparts in the Department for Levelling Up, Housing and Communities and the Department for Transport to seek further contributions from their departments to the national effort to enhance the UK's energy security and reduce energy wastage. This cross-government work on energy security should inform the new and revised Net Zero Strategy that the Government is required to publish by March 2023. We further recommend that these Departments contribute to a comprehensive update to the British Energy Security Strategy in the spring of 2023. In that update the Government should indicate its progress in reducing direct and indirect reliance on Russian imports, securing energy supplies and improving energy efficiency.* (Paragraph 140)

North Sea oil and gas in transition

30. Vladimir Putin's aggression in Europe, and the energy crisis that it has provoked, provides a new impetus to accelerate the transition away from polluting fossil fuels. Driving this transition through greater investment in energy efficiency and low-carbon technologies enhances energy security, protects households from fossil fuel price volatility permanently, saves public money and cuts climate-changing emissions. (Paragraph 175)

31. During this transition the UK must nevertheless continue to be able to access oil and gas to ensure that the country can continue to heat its homes, fuel its transport and generate a declining proportion of power. We have found consensus on the overarching need to accelerate the transition from fossil fuels, and the recommendations of this report reflect that. We have different views on the speed with which domestic oil and gas production may need to be phased out and on whether continued oil and gas licensing in the UK is necessary to ensure the country's energy security, given the current geopolitical tensions. In theory, the UK's domestic carbon budgets and its Nationally Determined Contribution targets could still be met if some new UK fields were licensed and developed. We also note that the IEA's World Energy Outlook 2022 reiterates that new supplies create a 'clear risk' to the 1.5°C target. (Paragraph 176)
32. The UK Government showed admirable international climate leadership at COP26 in Glasgow, pushing for a renewed resolve to pursue efforts to limit the temperature increase to 1.5°C. When making decisions about future oil and gas licensing, the UK Government must also consider the international context. As the country which launched the first Industrial Revolution, the UK has a historic responsibility to set a leadership example on climate change. The Paris Agreement enshrined an important principle of 'equity and common but differentiated responsibilities', which the UK must honour if it is to remain a credible climate leader. *We therefore recommend that the UK set a clear date for ending new oil and gas licensing rounds in the North Sea: this date should fall well before 2050. We further recommend the Government should consult on what this date should be, based on the oil and gas production currently being planned by the UK and other producer states and on the remaining global carbon budget if temperatures are to be limited to 1.5°C..* (Paragraph 180)
33. The emissions targets currently set under the North Sea Transition Deal are not stretching enough. The Climate Change Committee suggests that it is feasible and necessary for oil and gas production emissions to be reduced by 68% by 2030. We agree. The oil and gas industry has been aware of the contribution of its activities to man-made climate change since the 1990s, or earlier. A responsible industry should have been working to clean up its operations with far greater urgency than this timescale suggests. The Government needs to push the industry to go further and faster than its current approach. Challenging targets for the industry to undergo rapid decarbonisation must be introduced without delay. The fossil fuel industry should not be granted headroom in the UK's carbon budgets that other hard to decarbonise sectors may need. *We recommend that the North Sea Transition Deal be modified to include stronger targets and verification arrangements in line with the Government's commitments under the Paris Agreement.* (Paragraph 192)
34. Sectoral involvement in drafting a deal of this nature is normal. It also makes sense for the industry to be involved in the monitoring and governance of a voluntary deal. However, we are concerned that the targets and accountability arrangements in the Deal are weak and lack the urgent and transformative action which the CCC says is required. In particular, there appear to be few sanctions available to the North Sea Transition Authority in the event that companies do not achieve the production emissions targets they have agreed to meet. (Paragraph 200)

35. To date the NSTA has not published the names of those operators lagging behind in reducing their production emissions. This prevents investors, shareholders and other interested parties from being able to appraise the performance of individual companies against their net zero pledges. The NSTA has indicated to us that it would potentially be prepared to use its ‘soft power’ to influence operators by publishing details of the performance of individual operators or companies. *We recommend that the North Sea Transition Authority publish an annual league table in its Emissions Monitoring Report detailing the performance on emissions reduction of individual operators and companies. The Government should signal its support for such an approach, which would encourage action by operators to reduce their upstream emissions.* (Paragraph 201)
36. Given the urgency of the climate crisis and the need to deliver significant cuts in emissions by 2030 to meet the UK’s current Nationally Determined Contribution under the Paris Agreement, mandatory targets for the reduction of oil and gas operational emissions may well be more appropriate than voluntary targets. *We therefore recommend that the Government, the regulator and the industry should review the provisions of the North Sea Transition Deal during the course of the fourth carbon budget (2023–2027), with a view to ensuring that they are still appropriate and sufficient to contribute to the UK’s obligations. If insufficient progress has been made on electrifying platforms and ending methane emissions during that budget period, we recommend that the Government should set mandatory upstream emissions reduction targets.* (Paragraph 202)
37. Offshore oil and gas workers have many of the skills that will be needed elsewhere in the economy as the UK accelerates the energy transition. It is vital that Government works with training bodies, unions and the industry to offer adequate support in the transition to retrain and reskill for jobs in the net zero economy. The industry predicts that 45,000 jobs will be lost in oil and gas by 2030, but the North Sea Transition Deal has placed no commitments on companies to support workers in reskilling for new opportunities in the new offshore low-carbon economy. Stakeholders have also raised concerns that workers are currently having to fund their own retraining. (Paragraph 206)
38. Oil and gas companies must accelerate their efforts to electrify offshore platforms, stop flaring and address methane leakage. *We recommend that all oil and gas companies involved in extraction of fossil fuels from areas within the UK’s jurisdiction report annually on their progress in decarbonising their activities. We further recommend that the North Sea Transition Authority identify and publish a league table of the best and worst performing companies, so that investors, non-governmental organisations and policymakers can monitor progress.* (Paragraph 216)
39. We are disappointed to observe that only two electrification projects are expected to be commissioned by 2027. During the development phase of a new project the NSTA approves Concept Select and Field Development Plans. *We recommend that the regulator uses its powers at this stage of the project assessment to insist on the electrification for all new projects due to be licenced in the 33rd licensing round.* (Paragraph 217)

40. *The routine flaring of unwanted fossil gas must be banned outright, as it has been by Norway since 1971. We recommend that the Government introduces an amendment to the Energy Bill to provide for a total prohibition on flaring from installations in the UK's jurisdiction to be introduced not later than the end of 2025. This would help ensure the UK fulfils commitments it made at COP26 and COP27 under the Global Methane Pledge. (Paragraph 218)*
41. It is encouraging that the North Sea Transition Authority is in the process of issuing licences to CCUS projects in the UK. We support the North Sea Transition Deal's intention to drive forward the deployment of this technology which will be essential in decarbonising heavy industry. *The Government must ensure that there is certainty for the industry: there must be no repetition of the sudden withdrawal of Government support which previously disrupted the development of CCUS projects in the UK. (Paragraph 224)*
42. Oil and gas companies have understandably complained of the impact on the certainty of their revenue projections arising from sudden changes in the fiscal regime applying to their operations. But these are exceptional times. It would be politically and morally unacceptable for oil and gas companies to pocket record profits because of a war at a time when an unprecedented number of households in the country have been plunged into fuel poverty. The Government was therefore right to introduce its Energy Profits Levy, which is contributing towards the support the Treasury is offering billpayers. (Paragraph 245)
43. The original 65% tax rate under the Energy Profits Levy was lower than the international average tax rate of oil and gas producers (of 71%), so we welcome the Chancellor of the Exchequer's proposal to increase this rate to 75%, while noting that it remains below Norway's tax rate of 78%. (Paragraph 246)
44. The Energy Bills Support Scheme and the subsequent Energy Price Guarantee have provided badly-needed support for billpayers, saving four million households from fuel poverty. While we welcome the support the Government has provided, we note that currently it will only help eligible households through two winters. It will not deliver the energy efficiency measures which will lead to permanently lower energy bills. *We call on the newly announced Energy Efficiency Taskforce to work with the Chancellor to allocate a proportion of the Energy Profits Levy revenue in the current Parliament to increasing energy efficiency investments, targeting these investments at the most vulnerable to lower permanently the costs of heating their homes. This additional investment should also fulfil the Government's 2019 manifesto commitment to expenditure of £9 billion on energy efficiency in this Parliament. (Paragraph 247)*
45. The tax system should help, not hinder, the transition to a low-carbon economy. The original way in which the Investment Allowance was structured provided a perverse incentive to accelerate investment in high-carbon oil and gas installations at a time when the public policy imperative was to accelerate the transition away from fossil fuels. We welcome the modest change introduced by the Chancellor to limit the 80% Investment Allowance to investment expenditure on upstream decarbonisation, while having significant reservations about the extent of the financial support the Treasury is providing via the Investment Allowance, which

the Institute for Fiscal Studies has noted ‘means that North Sea investment will be massively subsidised’ and ‘could lead to loss-making investments being rendered commercial’. (Paragraph 248)

46. The Government is not providing renewable energy generators with the same level of generous tax reliefs for new investment to enhance the UK’s energy security. *We recommend that the Treasury examine how a similar low-carbon Investment Allowance could be introduced for electricity producers paying the new temporary tax of 45%.* (Paragraph 249)

Formal minutes

Monday 12 December 2022

Members present

Philip Dunne, in the Chair

Duncan Baker

Barry Gardiner

James Gray

Helen Hayes

Ian Levy

Caroline Lucas

Cherilyn Mackrory

John McNally

Jerome Mayhew

Dr Matthew Offord

Claudia Webbe

Accelerating the transition from fossil fuels and securing energy supplies

The Committee deliberated.

Draft Report (*Accelerating the transition from fossil fuels and securing energy supplies*), proposed by the Chair, brought up and read.

Paragraphs 1 to 249 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Fourth 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, in accordance with the provisions of Standing Order No. 134.

Adjournment

Adjourned till Wednesday 14 December at 1.15 pm.

Witnesses

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

Wednesday 8 June 2022

Michael Lewis, Chief Executive Officer, E.ON UK; **Lisa Fischer**, Programme Leader, E3G; **Paul Spence**, Director of Strategy and Corporate Affairs, EDF [Q1–47](#)

Silje Ask Lundberg, Senior Campaigner, Oil Change International; **Dr Steve Pye**, Associate Professor in Energy Systems, UCL Energy Institute; **Will Webster**, Energy Policy Manager, Offshore Energies UK [Q48–108](#)

Wednesday 22 June 2022

Charles McAllister, Director of Policy, Government and Public Affairs, UK Onshore Oil and Gas; **Jake Rigg**, Director of Corporate Affairs, National Grid Electricity System Operator; **Dale Vince OBE**, Founder, Ecotricity [Q109–171](#)

Sonya Boodoo, Vice President Upstream Research, Rystad Energy; **Graham Kellas**, Senior Vice President, Global Fiscal Research, Wood Mackenzie [Q172–213](#)

Wednesday 20 July 2022

Louise Kingham CBE, Senior Vice President, Europe, and Head of Country, UK at bp; **David Bunch**, UK Country Chair, Shell; **Linda Cook**, CEO, Harbour Energy; **Tessa Khan**, Founder and Director, Uplift [Q214–302](#)

Wednesday 7 September 2022

Andy Samuel, Chief Executive, North Sea Transition Authority; **Hedvig Ljungerud**, Director of Strategy, North Sea Transition Authority [Q303–372](#)

Wednesday 12 October 2022

Rt Hon Graham Stuart MP, Minister of State (Minister for Energy and Climate), Department for Business, Energy and Industrial Strategy; **Vicky Dawe**, Director, Energy, Development and Resilience, Department for Business, Energy and Industrial Strategy; **Jonathan Mills**, Director General for Energy Supply, Department for Business, Energy and Industrial Strategy [Q373–452](#)

Published written evidence

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

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

- 1 Actuate UK ([ATFF0049](#))
- 2 Anonymised ([ATFF0003](#))
- 3 Common Wealth ([ATFF0044](#))
- 4 Danish Ministry of Climate, Energy and Utilities ([ATFF0020](#))
- 5 Department for Business, Energy & Industrial Strategy ([ATFF0056](#))
- 6 Drummond, Brian (Researcher, Independent) ([ATFF0009](#))
- 7 E.ON ([ATFF0004](#))
- 8 E.ON ([ATFF0063](#))
- 9 E3G (Third Generation Environmentalism) ([ATFF0048](#))
- 10 EDF ([ATFF0038](#))
- 11 EDF ([ATFF0059](#))
- 12 Electrical Contractors Association (ECA) ([ATFF0027](#))
- 13 Energy Intensive Users Group ([ATFF0010](#))
- 14 Energy Saving Trust ([ATFF0053](#))
- 15 Friends of the Earth England, Wales and Northern Ireland ([ATFF0016](#))
- 16 Ghaleigh, Navraj (Senior Lecturer in Climate Law, Edinburgh Law School, University of Edinburgh); Haszeldine, Stuart (Professor, University of Edinburgh); and Sihota, Andi (Researcher, University of Edinburgh) ([ATFF0040](#))
- 17 Grantham Research Institute on Climate Change and the Environment, London School of Economics ([ATFF0055](#))
- 18 Grantham Research Institute on Climate Change and the Environment, London School of Economics ([ATFF0060](#))
- 19 Green Alliance ([ATFF0017](#))
- 20 Green, Dr Fergus (Lecturer in Political Theory & Public Policy, University College London) ([ATFF0032](#))
- 21 Greenpeace UK ([ATFF0023](#))
- 22 Greenpeace UK ([ATFF0064](#))
- 23 Hobson, Dr Theodore D C (Postdoctoral Research Associate, Stephenson Institute for Renewable Energy, University of Liverpool); Leaver, Mr Jacob (Postgraduate Researcher, Stephenson Institute for Renewable Energy, University of Liverpool); Phillips, Dr Laurie J (Postdoctoral Research Associate, Stephenson Institute for Renewable Energy, University of Liverpool); Bromley, Mr Daniel (Postgraduate Researcher, Stephenson Institute for Renewable Energy, University of Liverpool); Don, Mr Christopher H (Postgraduate Researcher, Stephenson Institute for Renewable Energy, University of Liverpool); Hughes, Dr Amanda J (Postdoctoral Research Associate, Department of Mechanical, Materials and Aerospace Engineering, University of Liverpool); Jones, Ms Leanne A H (Postgraduate Researcher, Stephenson Institute for Renewable Energy, University of Liverpool); Routledge, Mr Kieran J (Postgraduate Researcher, Stephenson Institute for

Renewable Energy, University of Liverpool); Shalvey, Dr Thomas P (Postdoctoral Research Associate, Stephenson Institute for Renewable Energy, University of Liverpool); Smiles, Mr Matthew J (Postgraduate Researcher, Stephenson Institute for Renewable Energy, University of Liverpool); Thomas, Mr Luke (Postgraduate Researcher affiliated with the Stephenson Institute for Renewable Energy, The University of Liverpool); Turner, Dr Joshua (Postdoctoral Research Associate affiliated with the Department of Mechanical, Materials and Aerospace Engineering, University of Liverpool); and Wright, Mr Alexander J (Postgraduate Researcher affiliated with the Stephenson Institute for Renewable Energy, University of Liverpool) ([ATFF0042](#))

- 24 ICPR 1200 Limited ([ATFF0002](#))
- 25 Institute for Public Policy Research (IPPR) ([ATFF0033](#))
- 26 Institute of Economic Affairs ([ATFF0028](#))
- 27 Investment Association ([ATFF0039](#))
- 28 Johnson Matthey ([ATFF0013](#))
- 29 MCS Charitable Foundation ([ATFF0007](#))
- 30 McDowall, Dr William (Associate Professor, UCL Institute for Sustainable Resources) ([ATFF0006](#))
- 31 Mineral Products Association ([ATFF0034](#))
- 32 Moffatt, Mr Clive (Consultant, Moffatt Associates) ([ATFF0001](#))
- 33 National Energy Action ([ATFF0018](#))
- 34 National Energy Action (Supplementary) ([ATFF0062](#))
- 35 National Engineering Policy Centre ([ATFF0045](#))
- 36 National Grid ESO ([ATFF0035](#))
- 37 Newcastle University ([ATFF0015](#))
- 38 North Sea Transition Authority ([ATFF0058](#))
- 39 Offshore Energies UK ([ATFF0047](#))
- 40 Oil Change International ([ATFF0022](#))
- 41 Orbital Marine Power ([ATFF0052](#))
- 42 Platform London ([ATFF0011](#))
- 43 Positive Money UK ([ATFF0036](#))
- 44 Royal Institute of British Architects ([ATFF0025](#))
- 45 Royal Society ([ATFF0054](#))
- 46 Rutherford, Dr Marcus William (Technical Manager, 2DHeat Ltd) ([ATFF0041](#))
- 47 SSE plc ([ATFF0037](#))
- 48 Storegga, Lead Developer of the Acorn Project and the Scottish Cluster ([ATFF0019](#))
- 49 Tax Justice UK ([ATFF0012](#))
- 50 TechnipFMC ([ATFF0057](#))
- 51 Tidal Engineering and Environmental Services Ltd ([ATFF0065](#))
- 52 Townend, Ms Ruth (Research Fellow, Chatham House) ([ATFF0014](#))
- 53 Transport and Environment ([ATFF0061](#))

- 54 UCL Energy Institute ([ATFF0026](#))
- 55 UK Marine Energy Council ([ATFF0050](#))
- 56 UK Onshore Oil and Gas ([ATFF0029](#))
- 57 UK100 ([ATFF0043](#))
- 58 Unite the Union ([ATFF0051](#))
- 59 University of Edinburgh ([ATFF0030](#))
- 60 Uplift ([ATFF0021](#))
- 61 Urenco Limited ([ATFF0008](#))
- 62 Velocys ([ATFF0031](#))
- 63 Weald Action Group ([ATFF0024](#))

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.

Session 2022–23

Number	Title	Reference
1st	Building to net zero: costing carbon in construction	HC 103
2nd	Pre-appointment hearing: Chair of the Environment Agency (Pre-appointment hearing)	HC 546
3rd	Recommendations on the Government's draft environmental principles policy statement	HC 380
1st Special	Water quality in rivers: Government Response to the Committee's Fourth Report of Session 2021–22	HC 164
2nd Special	Greening imports: a UK carbon border approach: Government Response to the Committee's Fifth Report of Session 2021–22	HC 371
3rd Special	Building to net zero: costing carbon in construction: Government Response to the Committee's First Report	HC 643

Session 2021–22

Number	Title	Reference
1st	Biodiversity in the UK: bloom or bust?	HC 136
2nd	The UK's footprint on global biodiversity	HC 674
3rd	Green Jobs	HC 75
4th	Water quality in rivers	HC 74
5th	Greening imports: a UK carbon border approach	HC 737
1st Special Report	Energy efficiency of existing homes: Government Response to the Committee's Fourth Report of Session 2019–21	HC 135
2nd Special Report	Growing back better: putting nature and net zero at the heart of the economic recovery: Government and Bank of England Responses to the Committee's Third Report of Session 2019–21	HC 327
3rd Special Report	Biodiversity in the UK: bloom or bust?: Government Response to the Committee's First Report	HC 727
4th Special Report	Green Jobs: Government Response to the Committee's Third Report	HC 1010

5th Special Report	The UK's footprint on global biodiversity: Government Response to the Committee's Second Report	HC 1060
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Session 2019–21

Number	Title	Reference
1st	Electronic Waste and the Circular Economy	HC 220
2nd	Pre-appointment hearing for the Chair-Designate of the Office for Environmental Protection (OEP)	HC 1042
3rd	Growing back better: putting nature and net zero at the heart of the economic recovery	HC 347
4th	Energy Efficiency of Existing Homes	HC 346
1st Special Report	Invasive species: Government Response to the Committee's First report of Session 2019	HC 332
2nd Special Report	Our Planet, Our Health: Government Response to the Committee's Twenty-First Report of Session 2017–19	HC 467
3rd Special Report	Electronic Waste and the Circular Economy: Government Response to the Committee's First Report	HC 1268