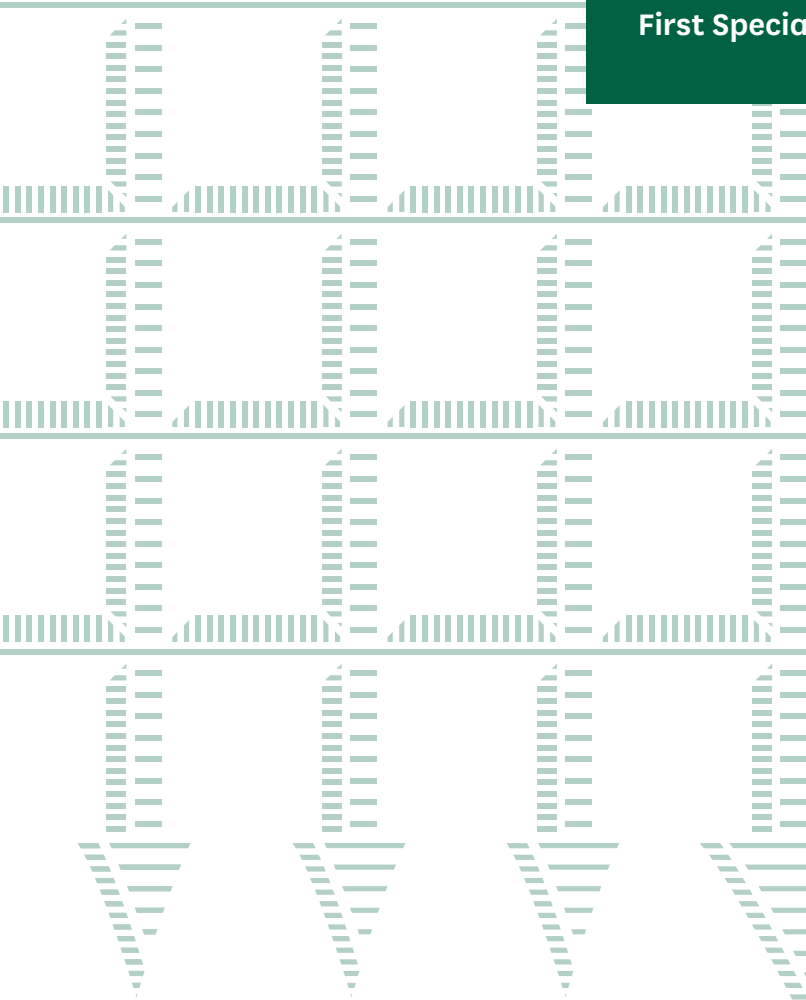


Environmental Audit Committee

Enabling sustainable electrification of the economy: Government Response

First Special Report of Session 2024–25

HC 564



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 His Majesty's Ministers; and to report thereon to the House.

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Contacts

All correspondence should be addressed to the Clerk of the Environmental Audit Committee, House of Commons, London SW1A 0AA. The telephone number for general enquiries is 020 7219 8890 (general enquiries) | 020 7219 1034 (media enquiries); the Committee's email address is eacom@parliament.uk. You can follow the Committee on X (formerly Twitter) using [@CommonsEAC](https://twitter.com/CommonsEAC).

First Special Report

The Environmental Audit Committee published its [Sixth Report of Session 2023–24, Enabling sustainable electrification of the economy \(HC 278\)](#) on 24 May 2024. The Government response was received on 11 December 2024, and is appended below.

Appendix: Government Response

Introduction

The Environmental Audit Committee published its report, *Enabling sustainable electrification of the economy*, on 24 May 2024. The report made 27 recommendations on a broad range of themes, covering responsibilities which sit with several Government departments and arm's length bodies. In this response to the report, material on the relevant recommendations has been provided by: the Department for Energy Security and Net Zero (DESNZ), the Ministry of Housing, Communities and Local Government (MHCLG) and Ofgem. The Government would like to thank the Committee for its report and comprehensive set of recommendations, which are particularly important in light of the Government's clean energy superpower mission.

This mission includes achieving clean power by 2030 and accelerating to net zero, and has wide ranging implications for the areas covered by the Committee's report. These ambitions are reflected in this response. The Government is currently reviewing the National Energy System Operator (NESO)'s advice on clean power by 2030 and we will publish our action plan by the end of the year.

Energy generation, storage and flexibility

Strategic Planning

Recommendation 1: *We recommend that the Government, together with Ofgem and the National Energy System Operator, establish a multidisciplinary planning cell tasked with the development of a detailed pathway to the decarbonised grid. This unit ought to be commissioned to produce a delivery plan that sets out the necessary investment and rollout of electricity infrastructure required to deliver the Government’s current ambitions for low carbon electricity generation. The cell should be established as soon as possible, with a view to producing initial pathways and plans by the end of 2024 at the latest.*

The Government agrees this is an important recommendation. The Department for Energy Security and Net Zero has established the 2030 Clean Power Unit, headed by Chris Stark, to accelerate the delivery of the critical, clean energy infrastructure needed to provide Britain with clean power by 2030.

In August 2024, the Secretary of State for Energy Security and Net Zero and Chris Stark commissioned the National Energy System Operator (NESO) to provide independent advice on the pathway to clean power 2030. The Government received NESO’s response on 5 November. We will review this advice and publish a Clean Power 2030 Action Plan by the end of the year.

Further to this, NESO will also produce the Centralised Strategic Network Plan (CSNP) in 2027, which will cover the whole GB network and consider the development of other energy vectors such as natural gas transmission and hydrogen. The CSNP will be informed by the Strategic Spatial Energy Plan, which was formally commissioned on 22 October 2024 and is expected to be published in 2026, covering both electricity generation and storage.

Storage (Recommendations 2&3)

Recommendation 2: *The Government must address as a matter of urgency the barriers to long term energy storage for the UK to ensure it can provide its citizens with clean and reliable energy during periods of limited renewable generation. This can be delivered through direct Government intervention and investment in infrastructure, as well as through regulatory and policy reforms, such as cap and floor mechanisms or a reformed capacity mechanism, that signal to the market the value of long-term energy storage.*

Recommendation 3: *By the end of 2025 at the latest, the Government must publish an energy storage strategy, underpinned by robust analysis, that indicates to the market the capacity and type of both short-term and long-*

term energy storage which will be required in a net zero energy system, and the measures that Ministers plan to take to ensure that sufficient capacity is in place to meet the system's needs in 2035 and in 2050.

Government agrees with the importance of long-duration energy storage as a key enabler to a secure, cost-effective and low carbon energy system. Long duration energy storage, for example electricity or hydrogen storage, can help to decarbonise the system by storing excess renewable generation over longer periods of time. This will allow us to replace fossil-fuelled generation with renewable power without losing flexibility from the grid.

Long duration electricity storage (LDES) will save consumers money, as it minimises the amount of additional generation and network capacity needed. System modelling estimates savings for the energy system, and ultimately the energy consumer, of £24 billion by 2050 in one scenario¹. On 10 October 2024 the Government published its decision to introduce a cap and floor scheme for LDES, with Ofgem as regulator and delivery body. Future procurement ambitions for this scheme will be provided ahead of the first application round, which is expected in 2025. NESO's Clean Power 2030 analysis contains scenarios for future storage deployment (both LDES and batteries). We will continue to work with NESO to develop projections of future system need, e.g. in preparation for next steps on delivery of the LDES cap and floor scheme.

Low-carbon hydrogen can also act as a flexible generating technology and provide long duration energy storage, making use of curtailed electricity. We are committed to designing, by 2025, a new business model for hydrogen storage infrastructure and how best to enable private sector investment and remove market barriers. The Energy Act 2023 provides the legislative framework that will underpin the delivery of the hydrogen transport and storage business models.

Energy Flexibility

Recommendation 4: *We recommend that the Government support an accelerated rollout of flexible energy technologies to homes and businesses, at a minimum through the enhanced policy support envisaged under the Clean Heat Market Mechanism, by the end of 2025 at the latest. This rollout must be accompanied by clear and effective communication about the financial benefits that these technologies can provide to electricity consumers.*

¹ <https://www.gov.uk/government/publications/long-duration-electricity-storage-scenario-deployment-analysis>

The Government agrees that it is critical to accelerate the rollout of clean and flexible energy technologies like heat pumps, electric vehicles, battery storage and demand side response. Meeting increased demand from the electrification of heat, alongside other sectors such as transport, will require increased electricity generation and reinforcement to the electricity network. Energy flexibility systems and technologies have an important role to play in minimising the scale of generation and network capacity required and so keep system costs as low as possible.

Heat Pumps

To support the deployment of Heat Pumps, the Government is taking steps to address a range of barriers to mass deployment which include improving affordability, simplifying the consumer journey, building resilient supply chains and ensuring future requirements for electricity generation and network reinforcement can be met cost effectively and practicably. Heat pumps will have a major role to play in all net zero pathways and government expects most properties will ultimately switch to heat pumps as these are a proven technology and have been installed in high numbers in other countries.

The Government is investing up to £42 million in the Heat Pump Ready innovation programme², with the aim of overcoming barriers to heat pump deployment and supporting innovation in product design, including improving performance. The Heat Pump Ready programme is part of the £1 billion Net Zero Innovation Portfolio³ and builds on the previous £16.5 million Electrification of Heat Demonstration Project⁴. Heat Pump Ready projects are currently underway and will conclude in 2025.

For those consumers making the transition to low-carbon heating, the Government has increased the budget for the Boiler Upgrade Scheme by £30 million for this financial year responding to the increase demand for the scheme. In addition, Ofgem have been given permission to over allocate scheme vouchers by up to £250 million, while the Government has almost doubled the budget to £295 million for the next financial year 2025/26. In addition to the Boiler Upgrade Scheme, schemes aimed at low-income consumers including Energy Company Obligation scheme and Social Housing Decarbonisation Fund delivered over 27,000 heat pump installations in 2023. This scheme funding is in addition to the 0% rate of VAT on the installation of heat pumps and biomass boilers, which will last until March 2027.

The Government will also introduce the Clean Heat Market Mechanism from 1 April 2025, incentivising manufacturers to invest over time towards the aims of boosting sales and making heat pumps an even more attractive

choice. In addition, Ideal Heating have been announced as winners of the first of two rounds of the Heat Pump Investment Accelerator Competition, stimulating a homegrown heat pump industry to strengthen the UK's energy security and support hundreds of jobs in low-carbon heating.

The Government is reforming permitted development rights in England for the installation of air source heat pumps – including removing the “1-metre rule” – so that many more households can install a heat pump without needing to submit a planning application. Industry estimates suggest that 27% of customers were being prevented from installing a heat pump under current planning permission rules.

The Government is also introducing a smart mandate which will require electric heating appliances with the greatest flexibility potential to have smart functionality, from the mid-2020s (2026–27). This will apply to heat pumps and can help reduce consumer bills. The ‘Delivering a smart and secure electricity system’ consultation was published 16 April 2024 and ran until 21 June 2024. The Government is reviewing the proposals and feedback to the consultation and will publish the Government Response in due course.

Further, the Government has deployed a range of tools to make it easier for consumers to switch to low carbon heating. The Government provides advice and support in several areas, including the “Heat Pump Home Suitability Tool”⁵ and “Find Ways to Save Energy in your home” tool⁶ which provide bespoke advice to consumers on appropriate clean heat and energy efficiency upgrades they can make to their homes, and signpost to grant support and further information.

Recognising the importance of providing impartial trusted energy advice, the Government is going further to simplify the user journey for consumers on GOV.UK, by creating a single access point for all consumers homeowners, landlords and tenants at varying points in their retrofit journey. It will simplify and expand the current government advice and information offer by bringing into one space the available sources of funding, links to trusted installers and other relevant information.

Future funding arrangements will be determined at the Spring Spending Review. Full details of the Government's plan to significantly increase heat pump deployment will be set out in the Warm Homes Plan, which will be published in due course.

Electric Vehicles

The transition to zero emissions vehicles (ZEVs) will drive economic growth and help make Britain a clean energy superpower, helping the UK to meet its climate change obligations and improve air quality. To drive this transition,

the Government is committed to phasing out new cars that rely solely on internal combustion engines by 2030. The ZEV Mandate already requires 80% of all new cars to be ZEV by 2030. There will be no sales of new pure combustion engine cars from 2030 under our plans, and we will set out more details on specific 2030–35 requirements for both cars and vans shortly.

We will also work closely with stakeholders to support demand for ZEVs, accelerate the rollout of chargepoints, and ensure the benefits of the transition are felt across all of society. This includes working with industry to address concerns and misconceptions about electric vehicle (EV) batteries and promote consumer confidence in EVs.

As the number of EVs is expected to rise from 10 million in 2030² to over 30 million in 2050³, road transport could represent approximately 15% of total electricity demand in 2050². Flexible charging of EVs (smart charging) currently enables 0.5 GW of peak power demand to be shifted. NESO Future Energy Scenario 2024 forecasts that with the right policy support this could increase to 2.0-4.5 GW by 2030. Smart charging enables this demand to be shifted and reduces costs by around £330 per annum for an average EV driver⁴. The Electric Vehicle (Smart Charge Points) Regulations 2021 were introduced to mandate smart functionality in private EV chargepoints.

‘Vehicle to grid’ charging (i.e., V2X or bidirectional smart charging) provides future potential for short duration energy storage, through consumers exporting energy back to the grid from their EV batteries or using it to power their own homes. The Government has also funded a V2X innovation programme where phase 1 (complete) sought to accelerate the commercial deployment of V2X via funding of hardware, software and business models and phase 2 (in progress) aims for real-world trials to test V2X and business models.

Recommendation 5: *We further recommend that Ofgem expedite its programme to deliver market-wide Half-Hourly settlement. We expect Ofgem to provide a progress report in response to this recommendation, setting out current barriers to delivery of this objective, identifying measures to overcome them, and indicating a target date for final delivery.*

The Government notes the importance of Market-wide Half-Hourly Settlement (MHHS) implementation as an enabler of the increase in demand side response capacity required to meet the 2030 clean power mission.

2 <https://www.gov.uk/government/publications/uk-electric-vehicle-infrastructure-strategy>

3 <https://www.neso.energy/publications/future-energy-scenarios-fes/fes-documents>

4 ‘Profile 1: Drives 7,400 miles a year with typical household electricity use’ from <https://assets.publishing.service.gov.uk/media/66019a0065ca2fa78e7da7dc/future-default-tariffs-for-households-call-for-evidence.pdf>

MHHS will incentivise suppliers to reward consumers for shifting demand out of peak periods, resulting in better use of renewable energy, reduced system costs and savings for consumers. The Government expects Ofgem to work closely with Elexon and put in place the right processes and incentives to ensure the timely delivery of MHHS implementation.

Ofgem welcomes the opportunity to provide the Committee with a progress report on the implementation of electricity retail MHHS. This progress report sets out:

- the strategic context for Ofgem’s April 2021 decision to introduce MHHS;
- the April 2021 timetable for industry to implement MHHS and the revisions made to that timetable in June 2023, along with the reasons for those changes; and
- the current state of progress and prospects, including risks to timely delivery.

Ofgem has now approved a proposal from the MHHS Implementation Manager, Elexon, to delay the completion of MHHS by 6.5 months to July 2027 at the earliest and December 2027 at the latest. This report outlines the actions that Ofgem will take to mitigate the risks of further delay during the implementation of MHHS.

The progress report can be found at **Annex A**.

Developing an electricity grid ready for Net Zero

Connections

Recommendation 6: *We recommend that the Department for Energy Security and Net Zero and Ofgem actively monitor the progress of connection reform initiatives and the delivery of the transmission capacity required to facilitate new grid connections, and, where appropriate, streamline the measures already introduced. In particular, we recommend that Ofgem review its milestone queue reforms with a view to advancing projects which are demonstrably ready to connect to the grid to the front of the queue.*

Government and Ofgem are working at pace with the National Energy System Operator (NESO) and network companies to accelerate connections. In March 2024, Ofgem granted urgency status to code modification

proposals for a reformed connections process⁵ that would require new and existing projects to demonstrate sufficient progress to obtain and retain a connection agreement. The capacity released will enable accelerated connection of viable generation and demand projects that align with our strategic needs, including ensuring projects necessary for 2030 Clean Power can connect in time. DESNZ and Ofgem published a joint open letter in November 2024 supporting proposals to align grid connections with strategic plans and announcing government's intention to legislate to ensure the connections process enables delivery of the Clean Power by 2030 ambition.⁶ NESO plans to submit proposals and options for connections reform to Ofgem by the end of 2024. Ofgem is expected to make a decision on proposals in early 2025.

DESNZ and Ofgem agree on the need to actively monitor progress on connections reform. This is done through the Connections Delivery Board,⁷ which also provides strategic direction to industry where further action is required. The Department has established a senior stakeholder group convened by the Minister for Energy to monitor actions across the Electricity Networks programme including those on connections reform.

Recommendation 7: *We recommend that, in the interests of transparency, Ofgem monitor and publicly report on the status of the queue and its progress in managing it on a monthly basis.*

Ofgem has worked with the Energy Networks Association (ENA) to ensure data on the status of the connections queue is collected from network companies and made publicly available on a regular basis. This data is now published on a monthly basis on the ENA website.⁸

Recommendation 8: *The Government and Ofgem must implement in full the changes proposed in the Connections Action Plan. This must entail, for example, the prioritisation of short-term grid requirements, so as to incentivise network operators to prioritise renewable energy connections. The connection of grid inputs from solar and wind, generation, and outputs*

5 <https://www.ofgem.gov.uk/decision/decision-urgency-treatment-cmp434-implementing-connections-reform-and-cmp435-application-gate-2-criteria-existing-contracted-background#:~:text=We%20have%20agreed%20with%20the,treated%20as%20urgent%20code%20modifications> .

6 <https://www.gov.uk/government/publications/aligning-grid-connections-with-strategic-plans/open-letter-from-desnz-and-ofgem-aligning-grid-connections-with-strategic-plans-5-november-2024>

7 <https://www.energynetworks.org/industry/connecting-to-the-networks/connections-delivery-board>

8 <https://www.energynetworks.org/industry/connecting-to-the-networks/connections-data>

serving decarbonised applications such as heat pumps and electric vehicle charging, must be prioritised in parallel with connections for larger nuclear and carbon-emitting technologies.

Ofgem and Government continue to work with NESO and network companies to implement connections reform. This includes revising network modelling assumptions and allowing projects to connect ahead of network capacity being permanently available. This is already accelerating connections for renewable generation and storage projects. Longer-term connection reforms are also underway to ensure viable generation and demand projects that are aligned with net zero, Clean Power 2030 and other energy objectives can connect to the network faster.

Recommendation 9: *We recommend that Ofgem work with the NESO, the Department for Energy Security and Net Zero and the Energy Networks Association to ensure that developers can call on the fullest possible range of providers when seeking to connect their generation facilities to the grid.*

Ofgem and DESNZ recognise the value that effective competition can have for connecting customers, in driving up standards and putting downward pressure on costs charged by connection providers. Connecting customers at distribution level already benefit from competition, where independent Distribution Network Operators (iDNOs) / Independent Connection Providers (ICPs) compete on the provision of contestable works with traditional DNOs. We recognise the potential for competition of this nature at transmission level, however we must ensure the conditions are right. We welcome proposals from industry on how this could be achieved through the code modification process. More generally, Government is working with Ofgem and NESO to begin the first competition for onshore electricity transmission network build as soon as possible.

Price controls and investment

Recommendation 10: *We recommend that the Government examine the operation of the current ED2 (distribution) and T2 (transmission) price control periods to establish whether the measures are driving the necessary connections and increases in capacity. If not, these price control periods should be re-opened or modified so as to incentivise immediate network reform. Future network regulatory reviews should be geared to respond as rapidly as possible to the potential for further innovations to decarbonise the economy.*

Ofgem, as the independent energy regulator, is responsible for setting and reviewing electricity network price controls. The Government is working with Ofgem to ensure the price controls support our objectives. Ofgem recognises the need to ensure that decision-making processes to agree new

investment projects are as agile as possible and has worked with industry to achieve this objective. Strategic investment is being enabled by allowing for investment ahead of need, considering energy forecasts beyond 2028.

The ED2 and ET2 price controls include agile uncertainty mechanisms, enabling networks to anticipate and respond to changing requirements during a price control period. Re-openers are a type of RIIO uncertainty mechanism, which will enable network companies to request additional funding during the price control period if certain conditions are met.

Recommendation 11: *We recommend that the Government and Ofgem work together to encourage anticipatory investment where it is apparent that new demands on the system are likely. This should be done through clear direction based on the Centralised Strategic Network Plan, as well as through targeted market incentives and reform of the network price control review process.*

As set out above, Ofgem is responsible for setting and reviewing the electricity network price control, however, the Government will continue to work with Ofgem to ensure this works as effectively as possible and is in line with our Clean Energy Superpower mission, including Clean Power by 2030. To enable strategic investment ahead of need in GB's electricity networks, a supportive and adaptable investment regime is planned, which recognises the benefits of 'future proofing' the network and provides strong incentives for timely delivery of clearly defined outputs.

Ofgem is working to ensure that the next electricity transmission price control (RIIO-ET3) will be sufficiently agile and forward-facing to remove regulatory approval from the critical path and ensure that funding requirements do not delay strategic transmission projects. RIIO-ET3 will look to build on the progressive principles of the Accelerated Strategic Transmission Investment⁹ mechanism and incorporate a similar regime into the enduring price control framework.

Strategic planning of the major investment needed will be central to ensuring consumer value for money. To support this NESO will develop a Strategic Spatial Energy Plan (SSEP) in 2026 that feeds into a Centralised Strategic Network Plan (CSNP), to be published in 2027, identifying required strategic investment across the GB energy networks. Before this, Ofgem will draw on transitional strategic network plans: NESO's 'Beyond 2030: National Blueprint'¹⁰ will help set out the need for individual networks projects in the RIIO-ET3 price control.

9 https://www.ofgem.gov.uk/sites/default/files/2022-12/ASTI%20decision%20doc%20-%20Final_Published.pdf

10 <https://www.neso.energy/publications/beyond-2030>

Supply chain

Recommendation 12: *We recommend that, alongside managing investor confidence through market certainty, the Government work with businesses in the sector to create an electrification supply chain roadmap, setting out how the Government will seek to ensure that the energy sector supply chain is resilient in the short term and is insulated as far as possible against possible future price volatility on international markets. This electrification supply chain roadmap should be published within three months of the State Opening of the next Parliament.*

Overcoming the challenges facing supply chain resilience in the short term and into the future will require a collective effort across government, Ofgem, Transmission Owners, and the supply chain. We will be reviewing the need for an electrification roadmap alongside other new government initiatives, including actions to be taken as part of the 2030 Clean Power Mission and work to develop an Industrial Strategy. Significant actions to support the supply chain are already under way, such as:

- A review of supply chain readiness¹¹ was published by the previous government in April 2024 which identified the most constrained electricity networks components. The list included High Voltage Direct Current (HVDC) Cables and high voltage transformers.
- As set out in the recent Invest: 2035 Green Paper, clean energy industries are a priority growth sector for the UK. Government will set out its full approach to supporting UK supply chains for the sector in the Industrial Strategy to be published in Spring 2025. It will contain sector plans for each of the key growth sectors, aligned with the multi-year Spending Review.
- Market engagement by DESNZ and the Department for Business and Trade has allowed government to develop a potential pipeline of investors interested in making investment decisions to increase domestic supply chain capacity; the supply chain is currently considering projects domestically and internationally. Government must continue to engage and support investors to ensure projects receive appropriate support.
- The electricity transmission network planning process has been evolving to ensure network design and investment processes are fit for the future. Strategic network planning will provide Ofgem with the

¹¹ <https://www.gov.uk/government/publications/uk-renewables-deployment-supply-chain-readiness>

information required to designate Transmission Owners to projects, allowing Transmission Owners to then develop detailed plans including supply chain procurement.

- Ofgem is working to introduce an advance procurement mechanism for equipment for future transmission projects including those in Beyond 2030 with delivery dates out to the late 2030s. The mechanism, to be available from early 2025, is intended to then operate on an enduring basis. The mechanism was noted in Ofgem’s RIIO 3 Sector Specific Methodology (SSMD) decision¹², which was published in July 2024. Its aim will be to allow transmission operators to secure supplier capacity ahead of final determinations on projects.
- Transmission Owners are undergoing their own review of procurement processes to ensure they can procure at the pace required to meet our 2030 ambitions. This has included regular Transmission Owners tri-laterals on issues such as new market entrants.

Recommendation 13: *We recommend that the Government work with industry to provide incentives, including financial support, to ensure that essential elements of the electricity infrastructure supply chain are based in the UK, so as to counter competitive incentives from other countries racing to develop their domestic electricity grids. Government policy in this area should prioritise the maintenance and development of the clean UK steel industry as well as driving the UK technology sector.*

The Government agrees that additional incentives will be key to ensuring the growth of a more resilient supply chain for manufacturing electricity networks critical components.

The Government will continue to review options including financial support. For example, the Contracts for Difference (CfD) Clean Industry Bonus (CIB) launched on 12 November will provide a bonus on CfD payments to fixed and floating offshore wind developers who choose to invest in cleaner manufacturing facilities, or invest in manufacturing assets in the UK’s poorest communities. This includes the electricity networks infrastructure these developers will procure for connection to the onshore grid.

As outlined in the response to Recommendation 12, the full approach to supporting supply chains will be outlined in the Industrial Strategy.

We recognise that there is no single solution to overcome the complexities of establishing an effective supply chain for the electricity network, and that funding support will not be a “silver bullet”. Instead, further funding interventions may form part of a wider financial package from government

12 <https://www.ofgem.gov.uk/decision/riio-3-sector-specific-methodology-decision-gas-distribution-gas-transmission-and-electricity-transmission-sectors>

including making use of freeports, and other support and tools from initiatives such as the National Wealth Fund (formerly the UK Infrastructure Bank (UKIB)). The wider financial landscape is currently developing at pace, and we hope to update on how these wider incentives will function shortly.

In addition, the other actions outlined in response to Recommendation 12 will further add to the package of interventions supporting the UK supply chain. Ofgem's advanced procurement mechanism has the potential to allow the supply chain to make final investment decisions on UK manufacturing projects through the transmission operators being able to provide longer-term certainty and order volumes.

Reviews are underway to consider what further policy interventions may support our domestic capabilities including skills interventions and consideration of the clean UK steel industry; once positions have been formed, these will be outlined publicly.

Finally, funding currently exists to support the UK technology sector's ability to innovate. Worldwide, networks are looking to develop new technologies which maximise the capacity of electricity grids and may deliver a decarbonised network at lower cost and environmental impact. In the UK, the Government offers the Net Zero Innovation Portfolio (NZIP) under which a number of different innovation competitions are grant funding industry to develop new technology relevant to achieving net zero; while Ofgem runs the Strategic Investment Fund to trial these new technologies on the network.

Skills

Recommendation 14: *Ministers must communicate clearly to industry their expectations on the rollout of energy and electrification infrastructure to meet Government policy objectives in a timely fashion. In tandem with this, we recommend that the Government conduct a nationwide electrification skills needs assessment across all relevant sectors, so as to inform a comprehensive plan which ought to include robust policies for addressing skills gaps. The Government should also take an active role, through promotion and funding and deployment of development and training programmes, the promotion of electrical education colleges in each region and the delivery of clear career pathways for skilled roles.*

Recognising the critical workforce challenges within the energy sector transition, the Department for Energy Security and Net Zero has set up the Office for Clean Energy Jobs ("the Office") to focus on developing skills and providing training to the workforce in core energy and net zero sectors. We are building on the progress that the Green Jobs Delivery Group made under the previous Government, including sectoral workforce assessments which included Electricity Networks. The Office is reviewing the workforce

assessments and will work with industry to update our data to ensure we have an understanding of the skills we need to deliver our mission to make the UK a clean energy superpower.

Recommendation 15: *We reinforce the recommendation from our 2021 report that the Government sets out how it will measure progress towards its green jobs target, including a definition of ‘green jobs’ and how it will measure the number, type and location of these over the 2020s, for the purpose of monitoring and evaluating the impact of its policies.*

The Government has worked with the Office for National Statistics (ONS) to develop a definition and measures of green jobs. ONS now defines green jobs as employment in an activity that contributes to protecting or restoring the environment, including those that mitigate or adapt to climate change. The newly created Office for Clean Energy Jobs will focus on developing skills for the workforce in clean energy sectors, working with the Department for Education and the newly established Skills England to ensure we have the skills we need to meet our targets. The Office will focus on clean energy jobs required in the transition to more sustainable energy systems. These jobs are needed across a variety of sectors including renewables; hydrogen and CCUS; and heat and buildings to deliver the Government’s clean energy mission. The Office will focus on improving the consistency, quality, and availability of data on the UK’s clean energy workforce, to ensure the successful monitoring and evaluation of the impact of its policies. This will include monitoring the labour market, drawing from a wide range of sources including official data, and collaborating with employers, trade unions and relevant sector skills bodies.

Planning, community engagement and community benefit

Planning (Recommendations 16-18, 20)

Recommendation 16: *We urge the Government to ensure that the planning authorities have adequate resources to obtain and develop the skills and capacity necessary to prevent the planning system being a bottleneck to the rollout of energy infrastructure. The increase in planning fees is a justifiable measure to provide more adequate resources to planning authorities: but additional funding should be provided, and finances should be ring-fenced for local authorities.*

Government needs local planning authorities to have sufficient resources to be able to provide a high-quality planning service and timely planning decisions, to support the Government's priorities for economic growth, infrastructure and housing delivery.

As part of the consultation on changes to the National Planning Policy Framework, which closed on 24 September, we consulted on proposals to increase planning fees for householder applications and other applications. The consultation also sought views on a proposal for local planning authorities to set their own fees to cover their costs.

We have a dedicated Planning Capacity and Capability to support local planning authorities. The Government is currently reviewing how best to deploy additional support made available as a result of our plans to increase the rate of the stamp duty surcharge paid by non-UK residents.

Recommendation 17: *We recommend that the Government develop a plan to ensure that planning authorities are sufficiently well resourced, in terms of personnel and expertise, to support the timely determination of planning applications for energy infrastructure and facilities. Ministers should expedite the delivery of a training programme designed to provide the necessary skills which will support well-considered and timely consideration of planning applications for electricity infrastructure.*

Local authorities play a key and vital role in the Development Consent Order process for energy projects of national significance. There is no specific funding for local authorities to engage with Nationally Significant Infrastructure Projects (NSIP), which can demand extensive consideration of local issues. The Government has responded to these concerns by establishing the Innovation and Capacity Fund. The fund provides an opportunity for local authorities to apply for funding up to £100,000 (or £350,000 for projects relating to transport) to support them in dealing with NSIP applications to address the issues and challenges they face as key users of the system.

We have also appointed Planning Advisory Service to provide additional support through the creation of an NSIP network for local authorities who have to engage with an application for a major infrastructure project in their area. The PAS network has grown since its creation, now supporting 92 local authority officers representing 39 local authorities (March 2024).

Through the Nationally Significant Infrastructure Projects Action Plan, £9.1M has been freed up to recruit into the Planning Inspectorate, Local Planning Authorities and the Statutory Environment Bodies. Cost-recovery for services rendered as part of the DCO process by public bodies is being taken forward

to ensure funding of planning services in public bodies is demand-driven. The Government are monitoring the implementation of cost recovery and the recruitment and retention of talent in public bodies

Recommendation 18: *The Government should further review the application of planning regulations to electricity infrastructure so as to bring the relevant provisions of the Nationally Significant Infrastructure Projects regime and the National Planning Policy Framework into full alignment. We recommend that the review address the impact of the planning consenting system on the timely deployment of renewable energy generation and energy infrastructure, including the particular conditions which currently apply to applications for onshore wind development. It should further support measures prioritising rooftop solar installations, and mandate the delivery of appropriate solar generation capacity in all suitable new-build properties, both domestic and commercial, subject to suitable connections being available.*

Government agrees with the importance of supporting the delivery of new renewables infrastructure. Therefore, through the Planning and Infrastructure Bill, the Government will accelerate infrastructure delivery by streamlining the delivery process for critical infrastructure including accelerating upgrades to the electricity grid and boosting renewable energy, which will benefit local communities, unlock delivery of our 2030 clean power mission and net zero obligations, and secure domestic energy security.

The National Planning Policy Framework makes clear that local planning authorities should have a positive strategy in place to promote energy from renewable and low carbon sources. As part of plans to triple solar power and reintroduce onshore wind, we are consulting on extra measures in the National Planning Policy Framework that highlight the importance of renewable energy generation to our clean energy ambitions. We have also consulted on revising planning policy to increase the threshold for larger solar projects in the Nationally Significant Infrastructure Projects Regime.

Government has recently confirmed that new homes and buildings will, where appropriate, play an important role in the drive for solar, delivering cleaner energy and lower bills to millions of households and businesses. Future standards next year will set our new homes and buildings on a path that moves away from relying on volatile fossil fuels and ensures they are fit for a net zero future.

Government has also consulted on extra measures in the National Planning Policy Framework, which governs the planning applications of smaller projects, which highlight the importance of solar power to our clean energy ambitions.

Recommendation 19: *The Government must also require meaningful developer-led community engagement at the outset of major electricity infrastructure projects. We recommend that Ministers also develop guidance for operators and local authorities on best practice in community engagement.*

There are established routes in the planning system to consider the impacts of infrastructure projects and to enable communities to raise concerns about developments in their area.

The National Planning Policy Framework, which underlies the planning system for these projects, encourages developers to engage with local communities pre-application. Local authorities will consider a range of factors when assessing applications, including visual and environmental impacts. Members of the public can submit their views to the planning authorities and significant concerns will be taken into account as part of the local decision-making process.

For larger projects, planning decisions are made through the NSIP regime. The NSIP regime is a rigorous process designed to scrutinise larger projects. Developers taking projects through the NSIP regime must complete considerable community engagement before any application is made—giving communities ample opportunity to feed in their views.

The level and quality of community engagement, amongst other factors, will be taken into account by decision-makers.

In April 2024, the Government launched new and updated guidance on the ‘National Infrastructure Planning Guidance Portal’, the new digital repository for providing access to and updates on the status of existing and new National Infrastructure Planning Guidance. Updated guidance was published for the pre-application stage for Nationally Significant Infrastructure Projects.

Community engagement and community benefits (Recommendations 19, 21&22)

Recommendation 20: *We recommend that the Government develop a major public engagement strategy to communicate the need for further electrification of the economy, its likely benefits and the infrastructure development it will entail.*

As was proposed by former Electricity Networks Commissioner Nick Winser in his independent report¹³, an overarching national (GB-wide) public awareness campaign is planned for launch early in 2025. This campaign is being developed by the Electricity Networks Association and Transmission Owners and is supported by a steering group including the UK Government and devolved administrations. The campaign will focus on the importance of new electricity network infrastructure to achieve a decarbonised power system and to meet the growing demand for electricity as heat, transport and industry electrify. It will also cover wider benefits that new network infrastructure will bring, for instance new job opportunities.

Recommendation 21: *We recommend that the Government expedite the implementation of its current proposals for community benefits to be considered as part of community engagement in the delivery of certain transmission projects. A toolkit of illustrative community benefits and potential levels of support should be developed in order to inform communities what options are available to them as well as providing incentives to developers to mitigate visual or community impacts as far as possible. Progress in implementing community benefit measures should be monitored following deployment, and the effectiveness of the overall approach should be reviewed at least every three years.*

Government agrees that it is important to build support for development by ensuring communities directly benefit. As such government is reviewing how to effectively deliver community benefits for communities living near new electricity transmission network infrastructure.

Government is considering a combination of direct benefits for properties closest to new transmission network infrastructure and community funds, in the form of funding that developers and communities can decide how best to spend in their local area. We will set out more details shortly.

Regarding visual and community impact mitigation, the National Policy Statements guide decision-making for Nationally Significant Infrastructure Projects in England and Wales, including large electricity network projects. These National Policy Statements cover criteria for good design, as well as criteria for addressing and mitigating landscape, visual, noise, and environmental impacts. The Government has separately agreed to progress a set of Electricity Transmission Design Principles (ETDP) which are being led by NESO. These are intended to provide clarity on infrastructure design in particular locations so that the design can be standardised as well as allowing for more meaningful discussion about choices with communities. In developing the ETDP, consideration will be given to minimising visual and community impacts.

13 <https://www.gov.uk/government/publications/electricity-networks-transmission-acceleration-action-plan>

Recommendation 22: *We recommend that Ministers assess the merits of providing that a proportion of community benefit be delivered earlier in the process, for instance from the date of grant of planning consent.*

Community funds are likely to start being released once a project has secured planning and financing approvals, around the time that construction begins.

It is expected that early engagement with communities will play a role in any scheme regardless of when the benefit is provided.

Governance, policy and regulatory reform to support the future grid

Role of the National Energy System Operator (NESO)

Recommendation 23: *We recommend that Ministers establish appropriate arrangements for review of the role and performance of the NESO against the benefits it is expected to deliver to the GB energy system, including good value for money and high performance. It is essential that, from the outset, this significant new body has robust corporate governance arrangements, including a functioning and independent board.*

The Government agrees with this recommendation and is committed to ensuring appropriate governance and regulatory arrangements to ensure that NESO delivers the benefits expected to the GB energy system.

NESO's licenses include obligations to implement and maintain robust systems, processes, and governance arrangements to uphold impartiality. Ofgem will be delivering effective regulation of NESO and ensuring that NESO delivers for the GB energy system. Ofgem will undertake ongoing monitoring of NESO's performance as well as biennial holistic performance reviews with a panel of industry stakeholders. Ofgem is also planning to apply appropriate oversight of the policy for senior staff remuneration, and, at the board level, there will be strict criteria on non-executive director appointments, with at least half of NESO's non-executive directors meeting the standard of 'Sufficiently Independent Directors' under licence.

The Government has put in robust governance arrangements, including a clear framework document outlining the roles and responsibilities of the parties involved in the relationship. A new, independent Chair, Dr Paul Golby, has been appointed to lead NESO's Board and UK Government Investments (UKGI) have been commissioned as the Secretary of State's Shareholder Representative, a role which includes providing a

Shareholder Representative Non-Executive Director to NESO's Board. These arrangements will be continually monitored and, if appropriate, revised to ensure they remain fit for purpose.

Recommendation 24: *The incipient role of the NESO in local energy planning ought to be subject to periodic review to ensure that its engagement is appropriate. We recommend that the NESO seek regular independent appraisal of its role in regional energy system planning to ensure that it is adding value to regional network development.*

Ofgem is responsible for setting the regulatory framework for NESO to deliver the Regional Energy Strategic Plan (RESP) and will provide enduring oversight and regulation of NESO's delivery. Ofgem is currently in the policy design phase of the RESP and on 9 October closed its consultation on the framework for regional governance arrangements. The consultation proposes a Strategic Board in each region, comprising local and devolved government and network company representatives. These boards will facilitate transparency, heighten visibility of regional priorities and provide oversight of the RESP development, thereby providing appraisal of NESO in its role in regional energy system planning and ensuring value is added to regional network development.

The RESP is expected to provide inputs to network companies' business plans, which Ofgem will sign-off as part of the price control process, thereby representing a further appraisal mechanism. Ofgem have not set out plans for additional independent assessment of NESO's role.

Decarbonisation targets

Recommendation 25: *We recommend that Government and Ofgem should maintain clear indicators of progress on decarbonisation and energy security to allow simple public progress tracking of the proportion of renewable electricity on the system compared to expected needs, the security of supply and the progress on connections.*

Making Britain a clean energy superpower is one of the five defining missions of the Government, and as part of that we are aiming for Clean Power by 2030, one of two pillars of the Mission, the second being cross-sectorally accelerating to net zero.

Using internal analysis and the advice we have received from NESO, by the end of the year Government expects to set out more detail on its approach to delivering Clean Power by 2030, including how progress will be tracked.

Recommendation 26: *We recommend that the Government take steps to ensure that decarbonisation, alongside energy security, is at the forefront of all energy discussions. Decarbonisation of the energy system*

must be established as strategic Government priority, informing clear and unambiguous direction to the industry. The British Energy Security Strategy should be revisited to provide this direction as well as reinforce the intertwined nature of decarbonisation and energy security.

The answers to the challenges around energy security, affordability and sustainability point in the same direction—clean energy.

This is why making Britain a clean energy superpower is one of the five defining missions of the Government, and as part of that we are aiming for Clean Power by 2030. We are working with industry on producing a plan, outlining bold, tangible actions for delivering Clean Power by 2030.

Recommendation 27: *We support recommendation 2 of the April 2023 report of the Business, Energy and Industrial Strategy Committee, on Decarbonising the power sector, proposing that the Government define the proviso ‘subject to security of supply’ condition in its 2035 target. Since this term is yet to be defined, we recommend that the Government provide a clear definition in its response to this report.*

Investing in clean energy at speed and scale can help tackle the climate crisis, create good jobs and is the only route to protect billpayers and ensure energy security. This is why making Britain a clean energy superpower is one of the five defining missions of the Government.

Using internal analysis and the advice we have received from NESO, by the end of this year, Government expects to set out more detail on its approach to delivering Clean Power by 2030 including how we will ensure maintenance of security of supply.

Annex A: Market-wide Half-Hourly Settlement: A Progress Report by Ofgem

Executive Summary

MHHS is a key enabler of Britain’s transition to net zero. It is a complex industry change programme requiring extensive changes to the central settlement systems run by Elexon and the systems of all industry participants that interact with Elexon’s central systems. These changes must be designed, developed, and tested successfully before meter points can be migrated from non-half hourly settlement to MHHS. After delays to the original implementation timetable, in 2022, as industry resources were drawn off to deal with the retail markets crisis, Elexon’s MHHS Programme Management function carried out an additional timetable replan exercise in 2023. Ofgem approved the proposed timetable changes in June 2023, moving the end of MHHS migration date from October 2025 to October 2026, on the basis that that was the fastest delivery timetable realistically achievable. However, system testing during 2024 has not kept pace with that timetable and on 24 October 2024, after consulting the industry, Elexon formally recommended that Ofgem approve a proposal to delay the completion of testing by 6.5 months. Accepting the proposal would mean a corresponding 6.5 month delay to the completion of MHHS implementation, bringing the final completion date to July 2027 at the earliest and December 2027 at the latest. Ofgem approved the proposal on 29 November 2024¹⁴ and declared its intention to announce a package of additional regulatory measures designed to expedite the delivery of MHHS in early 2025.

Introduction and context

MHHS will be one of the biggest overhauls of electricity systems and processes since privatisation and the introduction of the competitive market in 1998. More than 30 million meter points will be migrated from non-half hourly to half-hourly settlement. Ensuring the successful rollout of MHHS is a key building block for our Decarbonisation Programme Action Plan¹⁵ and the Ofgem/HMG Smart Systems and Flexibility Plan.¹⁶ With other reforms, such as those to the access and charging arrangements¹⁷, and

14 Ofgem, [Decision on Market-wide Half Hourly Settlement Change Request CR055 \('Amendments to M10 and corresponding milestones'\)](#), November 2024

15 Ofgem, [Decarbonisation Action Plan Revised.pdf](#), February 2020.

16 BEIS/Ofgem, [Transitioning to a net zero energy system: Smart Systems and Flexibility Plan](#), July 2021.

17 Ofgem, [Network charging and access reform](#).

network tendering for flexibility services¹⁸, MHHS will enable system-wide benefits by incentivising more efficient use of existing and future electricity infrastructure. This will, for example, help integrate intermittent renewable generation and reduce the need for expensive new investment. We estimated in 2021 that MHHS will save consumers £1.6 billion to £4.5 billion by 2045.¹⁹ To realise these benefits, MHHS must be rolled out as soon as feasible.

Implementation governance and timetable

As the committee noted, in April 2021 Ofgem decided to introduce half-hourly settlement across the electricity retail market. At the same time, Ofgem decided that industry should be responsible for implementing MHHS, with Elexon as Programme Manager/Senior Responsible Owner and Ofgem in an overall programme sponsorship role. Later in 2021, Ofgem procured PWC to provide independent programme assurance services for Ofgem and the industry. In April 2021, Ofgem also set out an expectation that the transition to MHHS should be completed in October 2025. This 4½ year implementation timetable was based on a high level MHHS Target Operating Model. In August 2021, Ofgem stipulated that the Programme Manager, Elexon, should review the transition plan once the detailed design architecture for MHHS had been finalised.

The 2022–23 timetable replan

During 2022, the retail markets crisis diverted industry resources away from MHHS implementation and this caused a six-month delay in finalising the detailed MHHS design architecture relative to the original timetable. In June 2023, after extensive industry consultation and discussion with the Programme Management function, Ofgem approved further changes to the timetable (via Programme Change Request CR22). The main effect of the changes was to delay the start of meter point migration from October 2024 to April 2025 and to delay the end of migration from October 2025 to October 2026.²⁰

At a suitable period after this October 2026 date, the industry would then ‘cutover’ to a faster settlement timetable (where discrepancies between contracted and consumed energy would be reconciled within 4 months, as

18 Ofgem, [Electricity Distribution Standard Licence Condition 31E: Flexibility Procurement Statements 2022](#), July 2022

19 Ofgem, [MHHS Decision and Final Impact Assessment](#), April 2021.

20 Ofgem’s original MHHS timetable envisaged a 12-month migration period. In our CR22 decision, we accepted that migration would need 18 months. Given the 6-month delay in finalising the design, our decision to extend the migration period meant the new migration completion date would be 12 months after the original date.

opposed to the 14 months under the previous system). Cutover was expected to happen between 2 to 7 months after the October 2026 migration of MPANs; in other words, December 2026 at the earliest and no later than May 2027.

Given the complexity and scale of the transformation, Ofgem concluded that the timetable stipulated in the 2022–23 replan was the fastest delivery realistically achievable.

Delivery barriers and mitigations

In a programme as complex as MHHS, there are inevitably many risks to timely and robust delivery. Elexon’s Programme Management function routinely identifies, monitors, mitigates, and reports in detail to Ofgem and industry on these risks. The MHHS Programme Steering Group, which comprises Elexon’s Programme Management function, industry representatives, the Independent Programme Assurer and Ofgem, reviews the most serious programme risks and agrees how best to mitigate them.

Programme complexity

As noted above, MHHS requires extensive changes to Elexon’s central settlement systems and to the systems of all the industry participants that interact with those central systems. Thus, the implementation of MHHS involves not only suppliers and their agents (such as meter operators and data collectors) but also the DCC (Data Communications Company), distribution network operators and the National Energy System Operator (NESO). All their new systems and processes must be tested successfully before the migration of meter points can begin.

Elexon’s Programme Management has adopted a phased approach to MHHS testing, qualification and migration rather than a single ‘big bang.’ This means suppliers wishing to migrate meter points to the new MHHS arrangements at the earliest opportunity will not be held up by suppliers that wish to move at a slower pace. Ofgem supports a phased approach because it will ensure that the benefits of MHHS can start to be realised from the earliest possible point.

Testing delays

At present, the industry is heavily engaged in Systems Integration Testing (SIT) to ensure that the new MHHS arrangements function correctly. A key objective of SIT is to form a Minimal Viable Cohort (MVC) of SIT participants that operate their systems in a coordinated manner to complete SIT and begin migrating their meter points from the earliest possible date.

Programme Management has been, and remains, focused on ensuring effective defect management and continuous monitoring of the MVC to ensure that it remains viable.

SIT is a highly demanding phase of the programme involving concurrent and rapid testing of many distinct aspects of the new arrangements. SIT was scheduled to finish in February 2025. However, the rate of successful test execution has been slower than expected. While Elexon's Programme Management function took action during the summer to remove blockers within its direct control, this did not produce the quickening of successful test execution that would be required to meet the current SIT completion date. As a result, Elexon's Programme Management concluded that delay was inevitable and proposed a change to the implementation timetable (Programme Change Request CR55).

Following an industry consultation on CR55, Programme Management formally recommended a 6.5 month delay to the date when the central systems are ready for MPANs to be migrated. This would in turn delay both the April 2025 date for commencing migration and the December 2026 earliest cutover date.

We also received a report from the MHHS Independent Programme Assurance (IPA) provider, PWC. The IPA recommended approving CR55, alongside other recommendations, because "there remains a level of risk that needs to be effectively managed by the Programme". After carefully reviewing the evidence, Ofgem accepted that the proposed delay was necessary. All affected parties must take the necessary steps to ensure that they operate in accordance with the revised MHHS Implementation Timetable and so ensure the earliest possible delivery of MHHS-related benefits to consumers.

Smart meter rollout delays

The Committee suggested that "Given delays in the full deployment of smart meters to GB consumers, it may be some years before the decision is capable of being implemented."

Delays to the completion of the smart meter rollout are not affecting the capability of the industry to implement Ofgem's decision. MHHS is being implemented and, though there have been delays, these have not been caused by a lack of installed smart meters.

Delivering MHHS on the planned delivery date

As noted in the Multiyear Strategy that we published earlier this year, a key priority for Ofgem in the years to come will be “ensuring the successful rollout of MHHS in 2026–27 by overseeing the company responsible for delivery, Elexon, and engaging closely with Government and other stakeholders.”²¹

Ofgem remains committed to expediting the delivery of MHHS. As part of this, Ofgem has taken the following steps:

- on 26 November 2024, Ofgem approved a set of extensive modifications to the relevant industry codes, introducing details of the new settlement arrangements (these changes will come into force before the start of meter point migration); and
- on 29 November 2024, Ofgem declared its intention to take forward, in early 2025, a package of additional regulatory measures designed to expedite the delivery of MHHS.

Ofgem will, in addition, over the next 6 months:

- ensure that Elexon’s Programme Management function has established clear plans, agreed with the industry, for
 - managing any disruptions to service during and after the migration period, including business continuity and disaster recovery arrangements;
 - dual governance arrangements between the code bodies and Elexon’s programme management function;
 - allocating and as necessary reallocating migration capacity between suppliers;
 - monitoring and reporting on suppliers that are failing to adhere to their migration plans; and
 - managing the cutover from the current 14-month settlement timetable to the new 4-month timetable.

Elexon’s Programme Management function will continue to monitor and report on MHHS implementation and the risks to timely and successful delivery. In this report we have outlined the key risks and set out how the Programme and Ofgem are working to address them.

21 Ofgem, Ofgem’s Multiyear Strategy, 2024, p. 60.