**The MCS Foundation’s response to the Ofgem consultation: ED3 Framework**

**The MCS Foundation**

Our vision is to make every UK home carbon-free. The MCS Foundation helps drive positive change to decarbonise homes heat and energy through our work programmes, grants and advocacy. We support engagement programmes, fund research and facilitate innovative solutions to drive widespread adoption of renewables to help achieve a Net Zero future. In addition, the Foundation oversees the [Microgeneration Certification Scheme (MCS)](https://mcscertified.com/) which defines, maintains and improves quality standards for renewable energy at buildings scale.

Submission by **Jenny Russon**

Title: **Senior Research, Policy & Campaigns Officer**

Organisation: **The MCS Foundation**

Contact: [jenny.russon@mcsfoundation.org.uk](mailto:jenny.russon@mcsfoundation.org.uk)

Response: Non-confidential

**Summary**

The MCS Foundation strongly supports the overarching objective of this consultation and the shift towards an anticipatory investment model under ED3. Strategic low-voltage grid reinforcement should be a national infrastructure priority to support the rapid electrification required to decarbonise homes, heat, and energy.

* *Short-term bill increases should be mitigated by moving social and environmental levies from electricity into general taxation.*

While we share concerns about the short-term impact on electricity bills, the long-term benefits far outweigh the risks, as delaying grid reinforcement could lead to greater costs down the line and ultimately hinder decarbonisation efforts.[[1]](#footnote-2) However, Ofgem must communicate clearly to Department of Energy Security and Net Zero (DESNZ) the impact on electricity bills and encourage them to put in place interim measures to mitigate it. The UK already has one of the worst price ratios between electricity and gas in Europe and this must be addressed immediately if we want to attract more households to heat pumps and Electric Vehicles (EVs).[[2]](#footnote-3) We are campaigning for the government to take steps to reduce electricity bills by moving social and environmental levies currently on electricity bills into general taxation. This is a progressive policy intervention which not only supports heat and transport electrification, but also directly combats fuel poverty by reducing everyone’s electricity bill.

* *Strategic grid reinforcement and investment in distributed flexibility are not mutually exclusive. We need to support both to cost-effectively build a smart, reliable grid that is net zero ready.*

Regional Energy Strategic Plans must complement reinforcement efforts. Planning effectively will prevent overbuilding by fully incorporating the role of flexibility, which can optimise energy use and reduce strain on the grid. At present, the consultation seems to undermine the value of distributed flexibility. It shouldn’t be a case of strategic network reinforcement or distributed flexibility, they should both be considered equally important. Demand flexibility, including domestic demand-side response, could save the UK between £9 and £16 billion annually while reducing the strain on the grid​.[[3]](#footnote-4) Statements such as ‘High penetration of flex on the network to meet capacity requirements could lead to a risk of sub-optimal outcomes’ are misleading. With the Market Facilitator role set to streamline flexibility market participation by 2026, Ofgem must clarify its long-term commitment to distribution network flexibility to align with the Clean Power by 2030 goal and the targeted 4-5 times increase in flexibility over the next five years.

* *A decision on hydrogen for home heating is critical to support proper planning of network reinforcement.*

The government’s decision on hydrogen for home heating is key to determining the scale of electrification needed by 2050, and further delays will only complicate planning[[4]](#footnote-5); Ofgem should continue to emphasise these risks. This decision could be moved forward to this year and this is something that we feel Ofgem should be directly advocating for.

We do not intend to answer all of the questions, but instead answer certain questions.

**Questions**

**Q1. Do you agree with our characterisation of the wider context for ED3? Are there any other areas of context that you consider material for ED3?**

We agree that ED3 will play a pivotal role in enabling the energy system transformation necessary to achieve the UK’s Clean Power by 2030 and net zero by 2050 goals. The identified drivers, including the rise in electrification and the need to address future grid bottlenecks to prevent long connection times, justify the need for proactive investment in the distribution grid. Given the importance of the grid in the future energy system, network reinforcement should be recognised as a national infrastructure priority.[[5]](#footnote-6)

However, whilst we strongly agree with the move towards an anticipatory model, this should not be at the detriment of distributed flexibility. Demand flexibility, including domestic demand-side response, could save the UK billions annually while reducing strain on the grid​.[[6]](#footnote-7) Statements such as ‘High penetration of flex on the network to meet capacity requirements could lead to a risk of sub-optimal outcomes’ are misleading and there seems to be a lack of regard from Ofgem on the role that demand side flexibility needs to play alongside network investment, as a solution to mitigate over-build and facilitate a more efficient use of energy and existing distributed energy resources (DERs).

Despite currently being in their nascency, DSO flexibility markets should become a valuable source of income for consumers with flexible assets to respond to signals on the distribution network, with UK Power Networks (UKPN) recently surpassing 100,000 registered flex assets in its markets.[[7]](#footnote-8) Positioning demand-flexibility as an interim, short to medium term solution is entirely contradictory to the work that has been undertaken by the networks and industry participants since the beginning of the DSO incentive and must be rectified by Ofgem in their proposals. Suggesting that there needs to be a choice between flexibility or network investment being carried forward in the ED3 price control period is not conducive to encouraging DSO market growth, and does not align with the Government and industry’s Clean Power by 2030 objectives to achieve a 4-5 times increase in flexibility over the next 5 years.

Over the past year, Ofgem has introduced the role of the Market Facilitator which will be undertaken by Elexon to create a more streamlined process for flexibility market participation across the transmission and distribution network. The framing of this consultation and the implication that low-carbon flexibility will not play a role in future DSO markets, sends a discouraging message to flexibility providers.

Strategic grid investment and distributed flexibility will be necessary to support the 2030 energy system, as well as the 2050 one. For example, unlocking the potential of domestic flexibility could save £1 billion per year in 2040. [[8]](#footnote-9)

**Q2. What are your views on our overarching objective and proposed consumer outcomes?**

We agree with the overarching objective of the ED3 framework to ensure the UK is ready to meet decarbonisation goals in a cost-effective way to consumers. We also agree that this should be looked at from a holistic and long-term perspective, as investment now could result in being the most cost-effective option in the long-run. For example, analysis undertaken by Regen on behalf of the MCS Foundation found that whilst increases in network investment will involve higher total network charges, as the grid delivers more electricity, the network costs per unit could fall from around £48/MWh to under £40/MWh in a high-demand scenario. If demand is lower, network costs per unit will stay broadly flat.[[9]](#footnote-10)

We also agree with the proposed consumer outcomes.

**Q10. What is the potential availability of network flex across GB for DNOs in the short term and on the journey to net zero during ED3?**

As identified in the consultation, Ofgem has introduced the role of the Market Facilitator which will be undertaken by Elexon to create a more streamlined process for flexibility market participation across the transmission and distribution network. As this is set to be available from 2026, we expect the availability of low-carbon flexibility to increase over the next two years. This is likely to be reinforced by various workstreams, including DESNZ’s Smart & Secure Electricity Systems which plans to introduce a smart mandate for low-carbon heating technologies from 2026, as well as Ofgem’s own work to facilitate more innovation in the retail market.

Integrating flexibility into strategic planning now—through frameworks like ED3 and the National Energy System Operator’s (NESO) strategic energy planning—can help mitigate the risks of both underbuilding and overbuilding the network. While innovation and digitalisation can reduce network costs, they should complement, not replace, flexibility. Their benefits will be maximised only if more DERs actively participate, which requires stronger flexibility signals. Enhancing market initiatives, such as enabling stacking between transmission and distribution flexibility services or allowing assets in Active Network Management (ANM) zones and non-firm connections to participate in NESO balancing services, is crucial. Moving away from flexibility risks exacerbating the supply chain pressures highlighted in the consultation, potentially driving reinforcement costs even higher.

In short, it should be a priority for DESNZ, NESO and Ofgem to support the scaling of distributed flexibility in the next few years, and importantly domestic flexibility. Domestic demand-side response is a triple[[10]](#footnote-11):

1**) It reduces energy bills** – A household participating in demand-side response could save up to £370 per year on energy bills in 2040. Even those who are not participating will still save £100 per year, due to the reduced cost in wholesale prices.

2) **It reduces carbon emissions** – Without household flexibility, we would need to build the equivalent of four new gas-fired power stations to meet peak electricity demand in 2040, at the cost of £2.5 billion alongside the associated carbon emissions.

3) **Domestic flexibility has wider system benefits by minimising the amount of network reinforcement needed** – Overall energy system savings are around £14.1 billion by 2040.The reduction of energy demand during peak times would minimise costly upgrades to the networks, which could reach almost £1 billion.

**Q12. Do you agree that the risk and downside for consumers of network underinvestment in network reinforcement would be greater than the downside of overinvestment?**

Yes, we agree that the risk of underinvestment in network reinforcement poses a greater downside for consumers than overinvestment. Failure to adequately prepare the network for future demands could result in severe capacity constraints, delaying the connection of domestic low-carbon technologies such as EV chargers, heat pumps, batteries, heat batteries, and solar PV systems​​.[[11]](#footnote-12) This would slow the net zero transition and increase costs for consumers through prolonged reliance on fossil fuels and higher network constraint costs​.[[12]](#footnote-13) While overinvestment carries the risk of increased short-term costs, these are outweighed by the long-term benefits of avoiding bottlenecks, ensuring timely decarbonisation, and supporting economic growth​.

However, this does not negate the importance of distributed flexibility, and Regional Energy Spatial Plans which should help to prevent significant overbuild. Regardless of the heat decarbonisation pathway we take, flexibility could save the UK between £9.6 and £16.7 billion per year in 2050.[[13]](#footnote-14)

**Q13. What are the benefits and risks to deliverability if network reinforcement is deferred to future periods?**

Distribution Network Operators (DNOs) have increasingly used flexibility to defer network upgrades, allowing them to manage local constraints and delay costly reinforcements. In 2023, the procurement of flexibility services significantly increased compared to previous years, reflecting the growing importance of demand-side response and distributed energy resources​[[14]](#footnote-15). However, while flexibility can provide valuable short-term solutions, it cannot fully replace the need for physical upgrades, particularly in areas where demand is set to outpace available capacity.

Deferring network reinforcement can reduce immediate consumer costs, but it poses significant risks to deliverability.[[15]](#footnote-16) The primary risk is that delays may exacerbate capacity constraints as demand grows rapidly due to electrification of heat and transport​​. This could lead to prolonged connection times for new technologies, increasing reliance on costly fossil-fuel generation and curtailing economic growth​. Additionally, deferral risks overstretching supply chains and workforce capacity in future periods when reinforcement needs may peak.[[16]](#footnote-17)

**Q20. Is a 5-year price control (2028-33) the right duration to achieve the objective of securing timely network capacity for the net zero transition at least cost to consumers over the long run?**

Whilst we understand that a 5-year price control is designed to provide a balance between ensuring timely investments and maintaining flexibility to adapt to technological and policy changes, there are risks with such an approach. The current price control process, with its five-year cycles, has created a boom-and-bust pattern in network investment. DNOs ramp up activity as price controls are finalised but then slow down until budgets for the next period are confirmed. This cyclical approach disrupts supply chains, increases costs, and hampers long-term planning​.[[17]](#footnote-18) To mitigate this, Ofgem should base price controls on long-term projected regional energy needs through to 2050. By providing DNOs with a clear and stable pathway for investment, this approach would smooth out investment fluctuations, enable efficient supply chain planning, and ensure the grid is prepared for the pace of electrification required to meet net zero targets​.

**Q21. To what extent should the price control be more directive on specific anticipatory and strategic investments to achieve the ‘networks for net zero’ consumer outcome?**

The price control should adopt a more directive approach to ensure that critical anticipatory and strategic investments are delivered. Proactive investment is essential to avoid capacity shortfalls and enable the rapid deployment of low carbon technologies​​. Clear guidance on priority areas, such as upgrading low-voltage networks and deploying digital solutions for asset visibility, will enhance deliverability​.[[18]](#footnote-19) Furthermore, mechanisms like Regional Energy Strategic Plans can help ensure investments are targeted and coordinated​. Low carbon flexibility remains vitally important and should complement strategic network upgrades​.

**Q33. Should DNOs have a role in delivering energy efficiency measures to homes and businesses? What might the scope of these services be and how should they be funded?**

Whilst The MCS Foundation can see the potential value of DNOs delivering energy efficiency measures to homes, in practice we think this would be very challenging and could add another layer of complexity to an already complex sector.

We agree that energy efficiency, particularly when applied to buildings, offers significant advantages beyond just reducing energy consumption. Energy-efficient homes and businesses can act as thermal stores, moderating heating needs. By improving insulation and energy performance, buildings can store and release energy more effectively, aligning energy use with periods of low demand and helping to flatten peak demand. This is a form of grid flexibility that directly supports the wider electricity grid by reducing strain during high-demand periods, reducing the need for costly grid reinforcements. Recent research modelled the benefits of energy efficiency in improving the performance of heat pumps based on in-situ heat pump data. It found that if every home was fitted with a heat pump in the UK and their space heat demand were decreased by 25% through energy efficiency improvements, peak demand in 2050 could reduce by 10GW.[[19]](#footnote-20) Without investment in demand reduction, the UK energy system will have to expand by four times by 2050, whereas effective demand reduction pathways limit this to just two times.[[20]](#footnote-21)

This could be a justification for DNOs to start delivering energy efficiency measures to homes. However, the UK's energy efficiency sector is already very complex involving multiple stakeholders, including government bodies, private companies, non-governmental organisations, and local authorities. This complexity can lead to fragmented efforts, inconsistent implementation, and challenges in achieving cohesive and effective energy efficiency outcomes. This has been exacerbated by a lack of clarity, certainty, and consistency in policy.For example, the scrapping of the Green Homes Grant,[[21]](#footnote-22) unnecessarily long timeframes to make a decision on hydrogen for home heating,[[22]](#footnote-23) and multiple changes in design of the ECO scheme.[[23]](#footnote-24) This is further illustrated by the cutting of the green XXXX by the Conservative government of David Cameron in 2013. One such policy that was withdrawn was the Carbon Emission Reduction Target (CERT), which ran from 2008–2012 and required gas and electricity suppliers to reduce household carbon emissions. Analysis from Carbon Brief[[24]](#footnote-25) has shown that the number of homes getting their lofts or cavity walls insulated each year plummeted almost immediately – by 92% and 74% in 2013, respectively – and has never recovered. As of the latest figures for 2023, the number of homes getting these basic insulation measures each year is 98% lower than in 2012. Carbon Brief go on to state that if measures had continued to be added at the rate seen in 2012, an extra 7.9m lofts and 5.1m cavity walls would have been insulated by 2023, leaving virtually no homes in the UK untreated. More problematically, in a cost of living and energy crisis, they estimate £22bn has been added to household energy bills as a result.

For this reason, we are advocating for a centralised, long-term retrofit scheme of at least 10 years to be put in place that will help provide the grants needed to trigger a mass adoption of energy efficiency measures. The Government has to stop the boom-and-bust phase around a grants scheme which is damaging the energy efficiency and small-scale renewables industries they want to encourage. This should be funded through general taxation to avoid increasing electricity bills. A more joined up approach would address existing inefficiencies and simplify the process for households, encouraging greater uptake.

Clearly, energy efficiency has significant positive impacts on the energy system, on top of the social benefits like helping to address fuel poverty[[25]](#footnote-26) and lowering damp and cold related health issues.[[26]](#footnote-27) For this reason, we strongly agree with DESNZ on the need to improve the assessment methodology for valuing the power sector benefits of energy efficiency.[[27]](#footnote-28) In the future, DNOs could potentially work with DESNZ or energy suppliers to suggest areas that would be valuable to target from a grid perspective. However, we think DNOs delivering energy efficiency measures would in practice be very challenging.

1. <https://mcsfoundation.org.uk/wp-content/uploads/2024/05/Electrification-The-local-grid-challenge-Regen-FINAL.pdf> [↑](#footnote-ref-2)
2. <https://www.heatpumps.org.uk/new-european-heat-pump-market-report-highlights-need-to-solve-uks-electricity-and-gas-price-disparity/> [↑](#footnote-ref-3)
3. <https://www.carbontrust.com/our-work-and-impact/guides-reports-and-tools/flexibility-in-great-britain> [↑](#footnote-ref-4)
4. <https://www.regen.co.uk/wp-content/uploads/Building-a-GB-electricity-network-ready-for-net-zero.pdf> ; <https://mcsfoundation.org.uk/news/investing-in-local-grid-infrastructure-should-be-a-national-priority-new-report/> [↑](#footnote-ref-5)
5. <https://mcsfoundation.org.uk/wp-content/uploads/2024/05/Electrification-The-local-grid-challenge-Regen-FINAL.pdf> [↑](#footnote-ref-6)
6. <https://www.carbontrust.com/our-work-and-impact/guides-reports-and-tools/flexibility-in-great-britain> [↑](#footnote-ref-7)
7. <https://www.edie.net/uk-power-networks-hits-2gw-flexibility-milestone/> [↑](#footnote-ref-8)
8. <https://www.cornwall-insight.com/wp-content/uploads/2023/08/The-power-of-flex-Rewarding-smarter-energy-usage-1.pdf?utm_source=website&utm_medium=website> [↑](#footnote-ref-9)
9. [Building-a-GB-electricity-network-ready-for-net-zero.pdf](file:///C:/Users/Jenny%20Russon/Downloads/Building-a-GB-electricity-network-ready-for-net-zero.pdf) [↑](#footnote-ref-10)
10. <https://www.cornwall-insight.com/wp-content/uploads/2023/08/The-power-of-flex-Rewarding-smarter-energy-usage-1.pdf?utm_source=website&utm_medium=website> [↑](#footnote-ref-11)
11. <https://www.regen.co.uk/wp-content/uploads/Building-a-GB-electricity-network-ready-for-net-zero.pdf> ; <https://mcsfoundation.org.uk/news/investing-in-local-grid-infrastructure-should-be-a-national-priority-new-report/> [↑](#footnote-ref-12)
12. <https://www.scottishrenewables.com/assets/000/003/642/Constraint_Management_Report_FINAL_original.pdf?1705495695> p.16 [↑](#footnote-ref-13)
13. <https://www.carbontrust.com/our-work-and-impact/guides-reports-and-tools/flexibility-in-great-britain> [↑](#footnote-ref-14)
14. <https://mcsfoundation.org.uk/wp-content/uploads/2024/05/Electrification-The-local-grid-challenge-Regen-FINAL.pdf> [↑](#footnote-ref-15)
15. [↑](#footnote-ref-16)
16. <https://www.regen.co.uk/wp-content/uploads/Building-a-GB-electricity-network-ready-for-net-zero.pdf> [↑](#footnote-ref-17)
17. <https://mcsfoundation.org.uk/wp-content/uploads/2024/05/Electrification-The-local-grid-challenge-Regen-FINAL.pdf> [↑](#footnote-ref-18)
18. <https://mcsfoundation.org.uk/wp-content/uploads/2024/05/Electrification-The-local-grid-challenge-Regen-FINAL.pdf> [↑](#footnote-ref-19)
19. [How building characteristics affect heat pump consumption (edol.uk)](https://edol.uk/Research/Labs/Heat/Sofia_MSc_Thesis.html) [↑](#footnote-ref-20)
20. <https://www.creds.ac.uk/publications/the-role-of-energy-demand-reduction-in-achieving-net-zero-in-the-uk/> [↑](#footnote-ref-21)
21. <https://www.gov.uk/government/collections/green-homes-grant-scheme> [↑](#footnote-ref-22)
22. <https://www.gov.uk/government/publications/hydrogen-heating-overview/hydrogen-heating-overview--2> [↑](#footnote-ref-23)
23. <https://www.ofgem.gov.uk/environmental-and-social-schemes/energy-company-obligation-eco> [↑](#footnote-ref-24)
24. <https://www.carbonbrief.org/analysis-cutting-the-green-crap-has-added-22bn-to-uk-energy-bills-since-2015/> [↑](#footnote-ref-25)
25. [About fuel poverty – End Fuel Poverty Coalition](https://www.endfuelpoverty.org.uk/about-fuel-poverty/) [↑](#footnote-ref-26)
26. [Fuel Poverty, Cold Homes and Health Inequalities in the UK - IHE (instituteofhealthequity.org)](https://www.instituteofhealthequity.org/in-the-news/press-releases-and-briefings-/fuel-poverty-cold-homes-and-health-inequalities-press) [↑](#footnote-ref-27)
27. <https://www.gov.uk/government/consultations/review-of-electricity-market-arrangements-rema-second-consultation> [↑](#footnote-ref-28)