

Upgrade the local grid in time for net zero

About 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 \(MCS\)](#) which defines, maintains and improves quality standards for renewable energy at buildings scale.

The issue:

- By 2050, the National Grid predicts that electricity demand could double as sectors such as transport and heating electrify.
- With long grid connection times and outdated infrastructure, the current network is not equipped to handle decentralized renewable energy sources.

The ask:

- Preparing the local grid in time to enable net zero needs to be one of the UK's critical infrastructure programmes over the next 25 years – with the bulk of the work delivered by 2040.
- Distribution Network Operators (DNOs) must urgently **invest in the low voltage network** so there are no delays to the decarbonisation of heat. A regulatory requirement would make this happen.

The detail:

The UK has committed to achieving net zero for the electricity sector by 2030. This will require a grid capable of integrating distributed renewable resources, like solar, wind and battery storage, to generate our energy instead of fossil fuels.

However, while substantial focus has been placed on renewable energy generation, the infrastructure required to distribute this clean electricity requires urgent attention and investment. The current grid infrastructure, particularly at the low-voltage level, is not fully equipped to handle these transformations.

The low-voltage grid, which includes the lines and substations that deliver electricity to homes and businesses, faces several challenges:

- **Capacity Constraints:** Many parts of the low-voltage grid were designed decades ago and lack the capacity to handle the increased load from electrification and distributed generation.
- **Ageing Infrastructure:** Much of the infrastructure is outdated and requires modernization to improve reliability and efficiency.

- **Inflexibility:** The existing grid struggles to integrate and manage the variable output from renewable sources and the fluctuating demand from new technologies like EVs and heat pumps.

We need to ensure we plan and invest in good time to enable households to charge their electric vehicles and run their heat pumps – and ensure that network upgrades are deliverable. The downsides of investing early, with a small risk of regret cost, are far lower than the risk of delayed investment leading to capacity problems, which could stall the net zero transition and limit economic growth.

Electrification of heat and transport relies on the local grid being ready to deliver more power to the consumer. If the grid is not ready, this will impact households and businesses, impede net zero and curtail growth in the low-carbon economy. The government should make upgrading the local grid in time for net zero one of the UK's critical infrastructure programmes of the next twenty-five years to 2050.

DNOs must invest in the low voltage network

Ofgem should reform the price control process to require DNOs to plan and deliver a long-term programme of investment that will ensure the distribution network is ready for demand forecasts set in the upcoming Regional Strategic Energy Plans.

DNOs should:

- Use the mechanisms in their budgets for 2023-2028 to scale up local network upgrades.
- Produce and publish data on capacity and constraints on their secondary networks as a key priority.
- Accelerate development and roll-out of local flexibility markets.
- Ensure local network planning is prepared for a reduction in diversity of demand due to stronger wholesale pricing signals and electrification of heat.
- Deliver a streamlined, digitalised connections process.

The government and Ofgem should ensure local and national arrangements for flexibility are coordinated to optimise the system as a whole.

FURTHER INFORMATION

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