

Boston Spa Energy Efficiency Trial (BEET) Frequently Asked Questions

What is BEET?

The Boston Spa Energy Efficiency Trial (BEET) is a Northern Powergrid innovation project to improve the energy efficiency of customers' household appliances. It will use smart meter data in (near) real time to adjust network voltage to increase efficiency and reduce energy consumption of our customers' appliances. This should save our customers money and reduce carbon emissions, without them needing to do anything differently.

This energy efficiency trial will take place in Boston Spa, West Yorkshire and the surrounding areas, including Wetherby, served by the following primary (i.e. large) substations:

- Audby Lane (which includes Boston Spa and Wetherby),
- Leeds Road (which includes Boston Spa, East Rigton), and;
- Warren Lane (which includes Boston Spa and Bramham).



You can find out whether your house or business is served by one of these substations by using our interactive [Network Availability Heat Map](#). To access the interactive map, click on the link, select Network Availability Heat Map (to the top left hand side of the screen), select 'Demand Primary', then scroll to the correct location on the map. Clicking on the desired area will display details of the applicable primary substation. For help navigating our heat maps contact the project team on BEET@northernpowergrid.com

When is the trial taking place?

Offline testing is now complete. The live trial will be taking place until September 2025.

What is voltage?

Voltage is electrical pressure measured in units known as volts (V). Northern Powergrid facilitates the delivery of electricity to domestic customers at 230 V 'nominal' – this means that voltage can be provided to you within a range around 230 V, from 216.2 V to 253.0 V. The voltage varies within that range through the day as customer demand on the system changes.

What is voltage optimisation?

To ensure compliance with voltage regulations, households have typically received a higher voltage than most domestic appliances require. BEET's intention is to provide customers with a voltage that ensures appliances still work effectively (and remains within the 216.2 V to 253 V range) while reducing the household's overall energy consumption. That's voltage optimisation.

What will happen during the trial?

The trial will use a special platform developed by Northern Powergrid, known as the BEET-Box, which will analyse smart meter data to optimise the network voltage every half hour – in other words, to safely turn up or turn down the voltage to ensure appliances have a suitable voltage and to lower customer bills. The amount of voltage is to be optimised to maximise your energy efficiency. To maximise our learning and to ensure the proposed future roll-out is enhanced, we will monitor, adjust and improve the way in which the BEET-Box functions.

Will BEET affect my power supply?

In short, no. We will only begin the full trial once we are confident the BEET-Box will function as required, and the trial will take place using smart technology – you won't notice any difference to your power supply.

How much is the BEET project costing Northern Powergrid?

Most of the investment required is already covered by our smart grid enablers programme (which is happening right now to create a smarter, more flexible network) and the national smart meter roll-out. The trial is expected to cost an additional £1.3m, and we estimate a full roll-out across our region would be about £11m. This is part of our wider investment plan to create a greener energy system as the region, and the UK, decarbonise. Once BEET is rolled out at scale, the savings for customers are expected to significantly outweigh this investment.

The annual saving for each household could be between £15 and £70 – typically we expect it to be £28* with vulnerable customers and those who are fuel-poor likely to feel the benefits the most.

What benefits will I see?

The benefit to you as a customer is estimated at £28 per household every year because you will use less energy – and therefore pay for less. Using less energy will also lower your carbon footprint. And this happens without you having to do anything or seeing any difference in the way electricity works in your home or business.

What will it cost me?

We do not seek any direct payment from households benefiting from the trial. This project is funded by Northern Powergrid, as part of our business plan agreed with Ofgem.

Customers already pay for the services we provide through network-related charges, which appear as part of their bill from their chosen electricity supplier. For the average domestic customer this is around 25p a day and it covers everything we do to manage, maintain, innovate and invest in the network that powers our customers' lives. Given the benefits, this project is vastly in favour of customers and, if successful, will later benefit most customers living in our area and potentially the whole country.

How can BEET reduce carbon emissions?

We know from research that voltage optimisation reduces energy use and that this in turn is directly linked to carbon emissions. A one per cent voltage reduction would deliver at least a one per cent energy consumption reduction, and therefore, in turn, a one per cent carbon reduction. On average, we believe voltage could be reduced by up to four per cent – saving 20 kg of CO₂ emissions per household annually (the equivalent to driving 46 miles in an average car). Across the UK, this could potentially save up to 1.1 million tonnes of CO₂ annually – like taking up to 200,000 cars off the road for a year.

Do I need to have a smart meter to have my voltage optimised?

No – the BEET-Box will read smart meter voltage data and feed it back to Northern Powergrid, who can then optimise the voltage for all customers. The sample readings across the network should provide enough information for the BEET-Box to ensure that the whole network is receiving the optimal voltage. The same voltage applies to thousands of customers, so it will never be entirely 'bespoke', which is why you don't have to have a smart meter to benefit from the trial – we're supplying the optimum voltage for your village or community overall, rather than for each individual customer. However, the more smart meters there are on the network, the more successful the project will be, because we will have more data and thus a 'bigger picture' of how the network is working in real time.



Why is Northern Powergrid planning to pass on the cost savings to its customers?

Energy suppliers pay us network charges for using our equipment to transport electricity to their customers – rather like a delivery charge. Customers, as part of their bill from their chosen supplier, pay their supplier their share of the network-related charges and pay for the actual amount of electricity they use. This means that any cost savings on electricity use are yours – not ours. BEET does help us to 'deliver more for less' and offers wider social benefits, but its biggest impacts are carbon footprint reduction and financial benefits – which will be felt most by those in our region who are vulnerable or fuel-poor.

Why hasn't voltage been optimised before? Could my bills have been cheaper all along?

BEET relies on smart meter data, which has only recently become available. Together with our smart grid enabler investments and the knowledge that optimising voltage could reduce consumption, it's only now that we have the building blocks to pursue the project.

How will my smart meter data be kept safe?

We take your data privacy seriously. BEET will not use energy 'consumption' data which, under GDPR, is covered by our Data Privacy Plan, see northernpowergrid.com/privacy-policy. We will only use voltage readings, which don't tell us about your personal energy consumption and don't give insight into your personal data. All the BEET-Box will see is the 'big picture' of voltage usage across the network.

What do I need to do?

Nothing! Though we encourage you to consider a smart meter if you don't already have one (and you can still benefit from BEET even if you don't), as this will provide valuable data to enhance the project. You can also get involved if you wish and provide us with your thoughts on this project.

How can I get a smart meter?

To find out more, visit smartenergygb.org. Contact your energy supplier to find out more about how to arrange a free smart meter installation. Your supplier is responsible for installation and making sure it works properly. They should explain the process, show you how to use it and give you a copy of the instructions. You can find out more about the national transition to smart meters, at northernpowergrid.com/smart-metering.

How can I share my ideas or ask a question?

We really encourage you to get in touch and give us your feedback. We want to develop BEET together with our stakeholders and customers.

- You can find out more about BEET on our website at northernpowergrid.com/beet.
- If you'd like to share an idea, ask a question or give feedback on BEET, you can arrange a conversation by emailing BEET@northernpowergrid.com or calling 0800 011 3332 and asking to speak to one of the project team.
- Alternatively, you can write to us at Stakeholder Relations, Northern Powergrid, 98 Aketon Road, Castleford, West Yorkshire WF10 5DS.

What do I do if I think my power supply isn't working properly?

BEET shouldn't affect your power supply and we don't anticipate customers noticing any change during the trial. We're always here for you, if your power supply is ever interrupted now or in the future, visit northernpowergrid.com/power-cuts-map to get the latest updates or call 105.

*Calculations are based on several factors, including our regulator Ofgem's definition of typical electricity usage, and assumed unit costs of £0.30 per unit.