

Stakeholder Update February 2025

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Key information

- Boston Spa Energy Efficiency Trial (BEET)
- Innovative technology harnessing data from local smart meters
- Optimising customer voltages*
- Customers with and without smart meters to benefit*
- BEET is working and approximately 15,000 homes and businesses are benefiting without having to do a thing!

* Customers within the BEET trial area to benefit

Key information

- BEET could lower household energy consumption
 - Providing savings on your electricity bill
 - Cutting carbon emissions
- Read the [project leaflet](#) for more details

Key information

- Here comes a little bit of important detail
 - The BEET trial includes properties supplied by two primary substations, Audby Lane and Leeds Road*
 - Primary substations typically supply electricity to 5,000 – 10,000 customers

*A third primary, Warren Lane, was planned to be part of the BEET trial; however, Warren Lane is currently out of service with properties usually supplied by Warren Lane now being supplied by neighbouring primaries (including Audby Lane and Leeds Road)

Key information

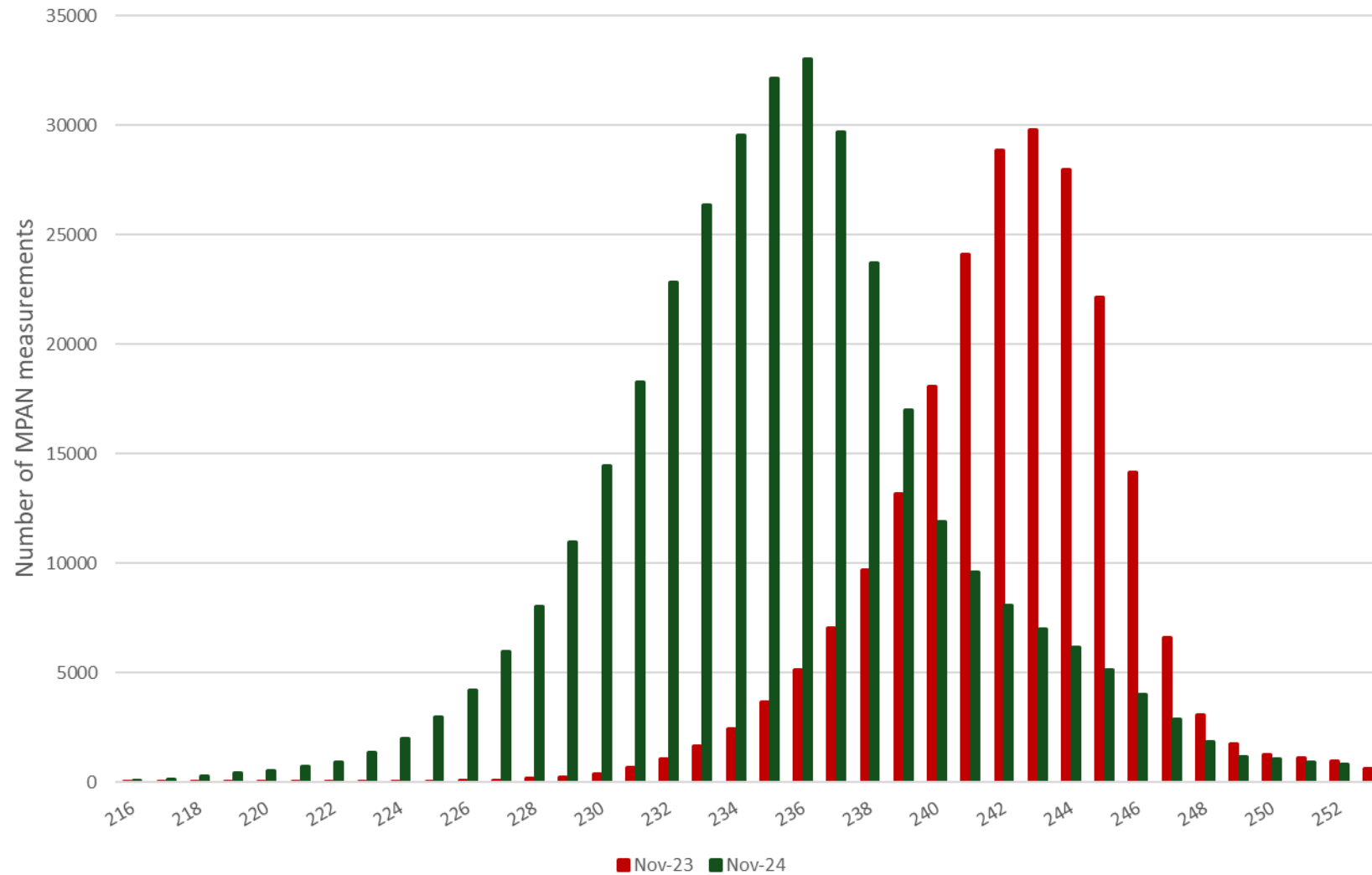
- Here comes a little bit of important detail (continued)
 - The voltage used in the UK was harmonised with Europe in January 1995 at a nominal (target) 230V; however, at the moment, voltage in the UK is still supplied closer-to the nominal (target) 240V
 - EU regulations set a nominal voltage of 230V but with a permitted variation of +6%/-10% (216.2V – 253V)
 - The following three slides show how the voltages have been optimised in BEET

Smart meter voltage data (properties supplied by Audby Lane and Leeds Road)

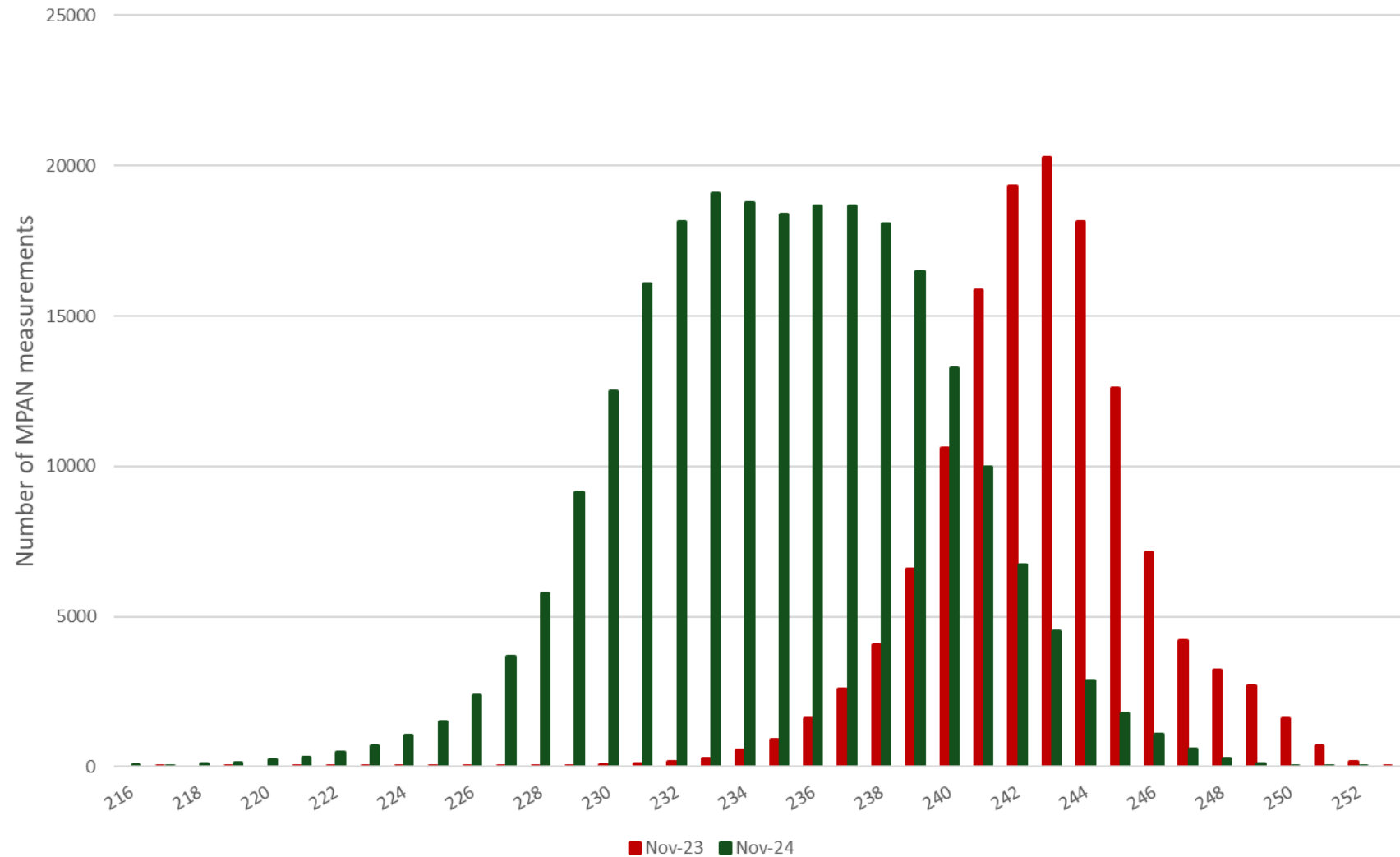
	Audby Lane mean voltage (V)	Leeds Road mean voltage (V)
Pre-BEET (Nov 2023)	242	243
During BEET (Sept 2024)	238	233
During BEET (Oct 2024)	236	233
During BEET (Nov 2024)	235	235
During BEET (Dec 2024)	236	234

Voltage optimisation: 3% reduction (average)

Properties supplied by Audby Lane – voltage shift



Properties supplied by Leeds Road– voltage shift



Expected financial and carbon benefits of 3% voltage optimisation

Scale	Annual consumption	Estimate of annual savings	Carbon benefits
Typical domestic	3.000 kWh	£23	18 kg
BEET trial area (15,000 customers)	45,000 MWh	£337k	280 tonnes
Northern Powergrid (3.9m customers)	11,700 GWh	£87m	73 kilotonnes
Great Britain (29.5m customers)	85,500 GWh	£641m	528 kilotonnes

*unit cost 25p per kWh

**using carbon intensity of c207 kilograms of carbon dioxide equivalent (kgCO₂e)/MWh

Conclusion

- BEET has reduced the voltage by 3%
- Work is continuing on BEET, the trial period will end in September 2025
- Property smart meter voltages still being analysed
- Further updates will be published on the [Northern Powergrid BEET webpage](#)

Website and contact details

- BEET website www.northernpowergrid.com/beet
- To contact us email beet@northernpowergrid.com