Grid modernization london

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For decades, Britain"s energy supply has been inextricably linked with the humble cuppa. At moments of great communing, such as the climax of a big football match or a dramatic plotline on EastEnders, millions of people at a time get up and switch on their kettles. We might take the resulting tea for granted, but in control rooms across the national electricity grid, technicians are primed to protect our brews on such occasions.

The highest recorded surge in demand - known in the sector as a "TV pickup" - followed England"s semi-final loss to Germany in the 1990 World Cup. At 2,800MW, it was enough to power more than a million kettles. It"s not just telly; the grid recorded smaller surges - about 800MW - in 2020 when people went back inside after the weekly rounds of "clap for carers" to show support for NHS staff during the Covid pandemic lockdowns.

These surges are just outlying examples of the challenges the UK"s electricity grid faces every day as it powers our lives. Then, there"s another fundamental issue: is the grid that served us well in the past the grid we need to power our lives tomorrow?

To understand what we, as the company that builds and maintains the UK"s electricity grid infrastructure, are planning and why it matters to us all, let"s quickly journey back half a century...

Until about 1960, coal provided the vast majority of Britain"s energy needs. Hundreds of coalmines fed vast, polluting power stations that pumped electricity from the heart of the country into the extensive grid of cables that still reach our homes today.

Britain"s energy mix has undergone a remarkable transformation in six decades. 2023 was the UK"s cleanest year on record for energy generation, with 51% of the country"s electricity coming from zero-carbon sources - including 36% from wind, hydro and solar power - and less than 1% from coal. The amount of UK electricity generated from fossil fuels in 2023 dropped by 22% year on year and on 21 December windfarms generated 21.8GW of electricity - the highest ever on record.

As the climate crisis becomes ever more urgent, the shift from fossil fuels to renewables is a vital part of the UK"s mission to meet net zero targets. In 2021, the government committed to fully decarbonising the grid by 2035. Nevertheless, gas-powered stations still account for a sixth of all carbon dioxide (CO_2) emissions in the UK.

At the same time, electricity now powers more of our lives. Our 2023 poll revealed that the average UK home already has 13 electrical devices, at least 10 of which get used every day.

Nationally, consumption is projected to double by 2050. Consider the transition from gas boilers to electric

heat pumps, or the uptake of electric cars; there are now more than a million fully electric vehicles on our roads, with registrations tripling in just the past four years.

However, only so much can be done with a power system that evolved in a totally different era. As our reliance on fossil fuels is replaced with renewable sources of energy, which are generated in large parts by offshore wind farms as well as solar, significant new infrastructure is needed to connect that renewable energy from where it"s generated to where it"s needed by UK homes and businesses.

The grid needs to adapt to meet the rising demand for clean energy. To make sure electricity goes to the right places at the right times and at the right price, we are rethinking energy transmission.

The Great Grid Upgrade is the largest overhaul of the UK"s electricity grid in generations and is made up of 17 major infrastructure projects in various parts of the country. From Aberdeenshire and Yorkshire to Norfolk and Essex, new or improved power lines, substations, underground and underwater cables and other infrastructure will increase the grid"s capacity to transmit clean electricity more efficiently across the country, as well as to connect new wind and solar farms. New high-voltage offshore "electrical superhighways" will also connect parts of Scotland to northern England.

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