Stantec

Power *Pulse* August 2025

A monthly snapshot of the ever-changing power outlook in the UK

'NESO now estimates a 30 percent rise in energy consumption by 2035'

Eleanor Wratten, Associate

You probably won't be surprised to hear that the National Energy System Operator has increased its electricity demand forecast for the next 10 years. However, you might be surprised to hear that it has gone up by 8 percent. It now estimates a 30 percent rise in energy consumption by 2035.

This reflects the huge drive behind energy-intensive artificial intelligence (AI) and the rising adoption of electric vehicles (EVs). Ben Bowler has been tracking growing sentiment and incentives around EVs, electric fleets, and EV charging infrastructure since we started Power Pulse. This month brings fresh impetus from the government in the form of a £63 million investment package and its Clean Flexibility Roadmap. Read on to find out more.

Spotlight of the month

Encouraging and enabling flexibility

Our energy system is having to adapt quickly to the way we produce and use energy today. One thing we have been hearing a lot more about this year is flexibility. Following the launch of the government's Clean Flexibility Roadmap (see 'Battery storage'), now is a good time to reflect on this.

In this context, flexibility means making technologies like electric vehicles and batteries more flexible so that we can use their stored energy to balance the grid. This will enable new behaviours. It also means incentivising energy users, be they a one-person household or a large industrial site, to flex their energy consumption to match periods of high generation on the grid and support load balancing. This will encourage new behaviours.

In recent months, we have seen a noticeable shift towards distributed storage. We have also seen requirements for energy smart appliances to be capable of remote control (with consumer consent). And now we have the government's roadmap for a more flexible grid.

Encouraging and enabling flexible practices is a significant step in modernising the UK's energy system. This is crucial to accommodate an increase in renewable energy. In 2024, **renewables accounted for more than half of the UK's electricity generation** for the first time. Most of that came from wind, which is intermittent. Flexibility is also essential as we face a growing population, increasing electricity demand, and growth in energy-intensive industries, such as manufacturing and AI.

Energy users need to start preparing for this now.

Tom Shilton, Director

'Digital tools like this are a game changer for developers'

Solar

Historically, the more variable the terrain, the greater the need for earthworks to build a solar farm. This disturbs the land; it also adds time and expense. And it means developers dismiss otherwise-suitable land, including that which is deemed unsuitable for housing.

Travers—Canada's largest solar farm—demonstrates how we're using **digital tools** to optimise solar farm design and address these concerns. We use complex coding to equalise and reduce the amount of earth needed to fill in lower areas and to be taken from higher areas to accommodate minimum and maximum pile heights. It also limits variance in pile heights and checks for many other variables.

Solar can make a significant contribution to the UK's net zero target and has strong potential return on investment. That makes this a game changer for developers.

Tom Shilton, Director

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'The announcement of a new water regulator raises interesting questions for geothermal'

Geothermal

Two major European economies have deepened their commitment to geothermal energy. Germany's cabinet approved a draft of its first-ever geothermal energy law, aimed at speeding up approval procedures. Meanwhile, **France published a list of concrete measures** to support its geothermal action plan. The plan aims to quadruple the rate of deployment of deep geothermal projects by 2035.

While we wait to see how UK policy will support the industry in the coming years, the announcement of a new UK water regulator raises interesting questions for geothermal. The new body will take on the water responsibilities of the Environment Agency, which currently manages water-related permitting, licencing, and consenting for geothermal projects. Elements of geothermal regulation could therefore fall within the new regulator's remit, but this remains to be seen.

Leon Warrington, Technical Associate

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Grid

As our renewable capacity grows, so does our need to connect these sites to the existing grid. This can require extensive new or upgraded infrastructure, which can have a large impact on development timescales.

One solution is for distribution network operators (DNOs) to install new substations that connect to multiple generation sites. A great example of this comes from independent DNO Green GEN Cymru. We are working with them on a proposed substation near a new wind farm. It will have the ability to accommodate power from other wind farms and grid connections proposed in the area. This critical expansion of our electricity network requires suitable ground conditions, effective community engagement, and landscape and biodiversity mitigation.

Sophie Lee, Transmission and Distribution Director

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Hydrogen

In late July, the UK government gave the green light for 10 Hydrogen Allocation Round 1 (HAR1) projects to begin construction in Scotland, England, and Wales. Not only are these hydrogen production projects expected to revive industry, create over 700 jobs, and encourage innovative development; they should generate more private investment from prospective off-takers.

In a promising example, tissue maker Kimberly-Clark has signed a £125 million contract with two HAR1 projects in Kent and Cumbria. It hopes to halve its consumption of natural gas in UK production lines by replacing it with green hydrogen.

Further similar off-taker investment is needed to help drive the sector forward. The government's recent **Hydrogen update to the market** confirms its commitment to future HARs. It aims to launch HAR3 by 2026 and HAR4 from 2028. It also aims to launch further allocation rounds targeting hydrogen to power, transport, and storage in 2026.

Neil Calder, Principal Consultant

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'The benefits of SMRs include their modular design and scalability'

Nuclear

There are two things to note about the **final investment decision for Sizewell C**. First is the unique combination of public and private funding. The private investors are varied. They include French energy provider EDF, UK energy company Centrica, Canadian global investment group La Caisse, and UK international investment manager Amber Infrastructure. This reflects a growing confidence in the delivery of nuclear projects to achieve a low-carbon energy future.

Second is the positive impact this could have on small modular reactors (SMRs). Aside from the government's **recent appointment of Rolls Royce** under its SMR competition, SMRs currently rely on private funding. Just as Sizewell C will be a virtual replica of Hinkley Point C, SMRs are inherently modular and easily scalable. Their small size, combined with the government's revised guidance on siting, means they're also capable of being deployed where we need them.

Peter Sibley, Director.

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Wind

This year's Contracts for Difference (CfD) Allocation Round 7 (AR7) introduces a dedicated pot for repowering. This should increase output and efficiency from existing infrastructure and marks a key policy shift in UK wind. Now, developers with aging sites can upgrade turbines and extend asset life without needing to match original capacity to secure a 20-year CfD contract. The capacity can be more or less than this.

To prepare projects for AR7 and future rounds:

- Engage early with planning authorities
- Review grid connection agreements
- Liaise with the Distribution Network Operator or National Electricity System Operator, depending on connection type
- Communicate clearly with stakeholders

Joseph Padbury, Associate Director

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eMobility

The UK's electric vehicle (EV) sector received a major boost in July. The government announced a £63 million investment to expand charging infrastructure and accelerate adoption. A standout initiative is £25 million to support at-home charging for households without driveways, using cross-pavement cable technology. This could save drivers up to £1,500 annually through less costly electricity rates. Addressing the 'driveway gap' is essential for mass EV adoption.

£8 million will fund the electrification of NHS fleets across more than 200 sites, which will reduce emissions and operational costs. This sets a public sector precedent and creates a scalable model. It supports the UK's goal of deploying 100,000 new public charge points by 2030.

A new scheme will also offer up to £1 million per applicant to support fleet depot electrification. It will cover up to 75 percent of installation costs.

Ben Bowler, Technical Director

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'Energy users should consider putting in place demand side technologies and load-shifting initiatives now'

Battery storage

Energy users should take note of the UK government's new Clean Flexibility Roadmap. It outlines measures to allow people to benefit from using energy when it is more abundant. The result? Lower bills, more renewable energy, and a better functioning system. Plus, more energy security.

Market forces drove the battery gold rush of the last decade. However, the market has not embraced demand-side flexibility nearly as much. It's helpful to see new policy coming forward to address this. And we're seeing that alongside storage measures that include long-duration electricity storage, electric vehicle-to-grid, and domestic battery storage.

Energy users should start preparing for this now. This may include putting in place demand-side technologies and load-shifting initiatives.

Tom Shilton, Director

READ THE CLEAN FLEXIBILITY ROADMAP →