

JUNE 2025

PROMOTING ENERGY EFFICIENCY

Energy

in Buildings & Industry

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- CPD Module: Heat Networks
- Energy Procurement
- Water Treatment



Heat pump options for commercial buildings



How to minimise the risk of Legionella outbreaks



New boilers delivering results for Blackburn



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On The Cover

The Westland Heath Community Heat Hub in Sudbury, Suffolk is an example of low-carbon, community-scale heating in action – the focus of an article from John Marsh, who explores how ‘home-grown’ energy could play a critical role in cutting carbon emissions while strengthening the nation’s energy independence. With the transition to net zero bringing complex economic and environmental challenges, Marsh examines why locally generated power might be key to navigating this new energy era.

Photo courtesy of GTC

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Security in an uncertain world

Chris Jones

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With eight of the nine nuclear reactors currently operating in the UK set to close by the end of the decade, it would appear that the government's recent pledge to invest £14.2 billion in Sizewell C has come just in the nick of time. The Suffolk site was first flagged up as a potential location for a nuclear power plant by the then Labour government in 2009 and it has only taken another 16 years and seven prime ministers to finally push through the necessary investment.

In making the announcement energy secretary Ed Miliband said it would herald a new "golden age" of nuclear investment, but it is estimated that it will be another 10 years before Sizewell C is up and running. Such long-term dividends perhaps offer a clue as to why successive administrations have dithered when it comes to giving their full backing to nuclear energy. After all, why run the risk of courting opposition and

upsetting various interest groups when the rewards of that initial investment are only going to be felt when you're probably going to be out of office and writing your memoirs?

When it does finally deliver, we are promised that Sizewell C will provide enough energy to power the equivalent of six million homes with low-carbon electricity. This might represent a relatively small percentage of the country's total energy needs, but the crucial benefit is that it will be a reliable source of a steady supply of electricity that will be readily available to meet demand from the grid, providing a vital back-up to the fluctuating power that is likely to be generated by renewable sources such as wind and solar.



...we can never look too far ahead with much certainty, but a failure to invest in the future is always likely to result in some unexpected and unfortunate consequences

Under its Clean Power 2030 vision, the government is aiming for nuclear, biomass, renewables and energy from waste to collectively contribute 95% of the UK's electricity generation and, with electricity demand predicted to at least double by 2050, our non-fossil fuel sources of energy are going to need all the help they can get.

Demonstrating further support for nuclear energy, the government has also revealed that Rolls Royce has been selected as the preferred bidder to build the UK's first small modular reactors. It is hoped that the SMRs will provide homegrown energy to the equivalent of 3 million homes and, together with the Sizewell C project, will mean that more new nuclear will be delivered to the grid by the 2030s than over the previous half century.

Avoiding a reliance on imported energy is clearly a major motivator behind these investment decisions and undoubtedly the increasingly unpredictable world we live in has helped to spur the government into action. Would it have pressed ahead with nuclear energy if Russian aggression hadn't set energy prices rocketing? Such events suggest that we can never look too far ahead with much certainty, but a failure to invest in the future is always likely to result in some unexpected and unfortunate consequences.

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How the Capacity Market delivers for business

Initially introduced as part of the UK Electricity Market Reform, it has been over ten years since the first Capacity Market auctions were held in 2014. Wayne Davies looks at recent reforms to ensure it is fit for a net zero future, while protecting the security of electricity supply for UK businesses.

Wayne Davies

Head of flexibility UK & Ireland at **Enel X**

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The Capacity Market is one open to participation from businesses that consume energy, not just those who generate it. That said, a decade on many businesses are not aware of what it is and how they can participate. The Capacity Market works by providing payments to make sure there is enough reliable capacity to meet peak electricity demands. It acts as an 'insurance policy' against possible power outages, which may become more common if grid upgrades do not match growth in renewable power generation.

Participation in the Capacity Market is aimed at businesses with energy intensive processes often involving heating, electrochemical reactions, and large-scale machinery. Processes such as aluminium smelting, steel production, electrolysis in chemical manufacturing, cement grinding and clinker production, paper milling and pulping, and chilling for food processing all demand substantial electricity for thermal or mechanical operations. These businesses have the potential to unlock significant revenue from the Capacity Market for being on standby to either reduce consumption or generate electricity at times of stress on the grid.

By participating in the Capacity Market, businesses can secure significant revenue by being ready to reduce energy use or generate electricity when the grid needs it most. For example, National Grid will



pay businesses that participate in the 2024/2025 Capacity Market season, up to £65,000 for every megawatt (MW) that they enrol in the Capacity Market. However, as many businesses don't know where to find those spare MWs, payments are going unclaimed.

Energy research specialist, Aurora Energy, expects the market prices to remain high as traditional gas turbine and nuclear plants are retired from production, and are being replaced by more intermittent renewable energy sources like solar, wind and tidal. This makes participation in the Capacity Market attractive as an opportunity to maximise revenue while helping decarbonise the UK's energy grid by enabling more renewable energy sources to be incorporated into the energy mix.

Understanding how to participate in this market to access the benefits can appear daunting, but it needn't be. Much of what is required to participate is already in place in the form of energy consuming plant and equipment.

Generating revenue

Soaring energy costs have driven commercial and industrial consumers to find ways to reduce consumption in a bid to reduce operating expenses. Industries that are heavy users of electricity have already invested in innovative energy-saving technology across their operations. These range from variable speed drives on production equipment, to energy-efficient LED lighting to smart heating, ventilation and air conditioning (HVAC) systems. Businesses have invested in uninterruptible power supply (UPS) systems and energy storage systems, including batteries, for operational

purposes. And a growing number have invested in behind-the-meter energy production, such as cogeneration combined heat and power (CHP) units and PV solar arrays, to protect their energy supply and offset rising prices.

While investing in energy-efficient, carbon-reducing practices and corporate energy generation is an important step towards an efficient energy management strategy, why stop there?

Many large businesses are unaware of the opportunities available through Capacity Market participation. Commercial and industrial energy users already own energy assets and equipment that can provide essential capacity for the UK's power system simply by being turned down or off at times of need. They can get paid significant amounts for making that capacity available. However, people are holding off taking part for a number of reasons: perceived complexity, operational disruption, uncertainty about the rewards and the risk of penalties. These barriers can be overcome by working with experienced energy aggregators whose job is to minimise the complexity and reduce risk, while securing market access through the Capacity Market auctions.

Overcoming barriers

Participating in the Capacity Market can take up a lot of resource for a business trying to go it alone. The application process is complex and there are stringent rules of engagement with financial penalties for not meeting commitments. These are off-putting enough without the rewards appearing uncertain, as they do with many markets.

In fact, the Capacity Market delivers a highly stable return compared to other energy flexibility programs that are open to businesses. In these, returns can be volatile as they are subject to natural fluctuations in prices. The Capacity Market gives participants visibility of their rewards for the next four years.

When referring to 'markets', people often assume they are hugely complicated. While this is sometimes the case, the Capacity Market is the least complicated option to begin with, especially when someone can oversee its management for you. Once businesses experience its simplicity and benefits, they often see it as a gateway into other energy flexibility markets.

As an example, Enel X removed the complexity entirely for a food manufacturer that entered the Capacity Market in 2020, managing their entry to the scheme – including compliance, data analysis and testing and submissions to the Electricity Market Reform Settlement body. The customer has gone on to generate over £1.25 million in revenue and unlock a consistent stream of new income every year.

Minimising disruption

Operational disruption, often seen as a barrier to participation, is not an option for some businesses. While the Capacity Market presents the most stable, lowest risk demand-side response program, it still requires careful planning and forecasting to give organisations greater control over their response to events. Expert participation management helps firms maintain focus on their core business, without being sidetracked into time-consuming energy management activities.

David McAuley, CEO of McAuley Feeds, says: "The ease of taking part is a significant benefit for us, allowing us to focus on farming and production." He continues: "Taking part in demand response offers us an additional revenue stream and reduces our overall energy costs. It's also a way for us to encourage the use of renewable energy and reduce emissions."

You are not alone

Participating in the Capacity Market is highly lucrative, tried and tested, and surprisingly low effort. The market itself may be ten years old, but it is reliable, and the risks are low. Most businesses already have the tools and infrastructure to participate in the Capacity Market but may not be aware of the opportunities or find the process daunting. In reality, participating can be easy when you work with an experienced aggregator like Enel X. If the Capacity Market is not part of your energy strategy, ask yourself why not. ■