

Case Study

Severn Trent uses energy flexibility as an offset income stream, to improve resilience, and to advance its sustainability goals



Severn Trent Water partnered with Enel X to explore how demand-side response could unlock new revenue and reduce energy costs without disrupting critical operations. Over three years, the company has successfully enrolled seven sites in the Capacity Market, generating over £670,000 in revenue while supporting sustainability and resilience goals.

The Customer

Severn Trent Water is one of the UK's largest water and wastewater utilities, supplying more than two billion litres of clean drinking water per day to over eight million people across central England, and in North and Mid-Wales. With a strong focus on collaborative innovation, the company is proud to offer the second lowest average combined bill in England – reflecting its commitment to delivering value through strategic partnerships and forward-thinking solutions.

“The collaboration is productive and well-structured. Enel X’s support is helping build our internal confidence in managing flexibility without risk to operational productivity.”

Stephanie Cawley, director of operations, Severn Trent Water



The challenge

Unlocking value

Severn Trent wanted to explore ways to save money on one of its biggest overheads. Electricity typically accounts for around 10% of operating costs for UK water companies, with pumping alone making up a significant proportion of this. Working with Enel X, Severn Trent identified demand-side response as a potential route to reduce its OPEX by unlocking new value from its energy usage – without disrupting critical infrastructure.

Operational stability

Severn Trent also wanted to explore how flexible it could be with its processes, as this could help it deal with other operational challenges – such as maintenance programmes, or water extraction restrictions. Participation in the Capacity Market would provide it with real-world testing conditions, without risking continuity of service.

As a regulated operator of critical national infrastructure, Severn Trent must meet strict operational criteria, which places some limits on its energy flexibility. In addition, key processes and equipment might not be available for turning down during events such as storms or pipe bursts. Operational stability was therefore a fundamental requirement for any energy flexibility pilot undertaken by the business.

“Enel X simplified the pre-enrolment process, supporting us with feasibility assessments and proven modelling tools to forecast potential value and define viable demand-response windows.”

Helen Ewing, energy analyst, Severn Trent Water

The solution

As a business that consumes a lot of electricity, with energy-intensive processes that can occasionally be turned down or rescheduled to help reduce demand on the grid, Severn Trent is well-placed to participate in demand-flexibility services such as the Capacity Market. This critical scheme acts as a virtual safety net, ensuring that the UK has sufficient electricity capacity to meet demand, and helping support decarbonisation of the electricity grid.

These demand reduction programmes align with broader environmental objectives, including long-established participation of generation assets in the wider Severn Trent Group, such as biogas-fuelled Combined Heat & Power (CHP) plants.

In 2022/23, Severn Trent engaged Enel X as a flexibility aggregator and technical partner for participation in the Capacity Market. Working in close collaboration, the two businesses identified candidate sites, and established the feasibility of each.

With operational stability a non-negotiable, Severn Trent, supported by Enel X, conducted a thorough audit to assess which sites and assets could safely provide flexibility without disrupting operations. This technical evaluation included analysing load profiles, operational constraints and historical energy consumption data. It identified five megawatts (MW) of flexible capacity across seven candidate sites, which could participate in energy flexibility trials without impacting day-to-day operations.

A well-structured partnership

Supported by Enel X, Severn Trent enrolled a total of 5MW of assets in the Capacity Market. With technical and operational guidance from Enel X, the business demonstrated its ability to meet its capacity obligations through three mandatory satisfactory performance days (SPDs).

Thereafter, Severn Trent's participation was based on agreed flexibility windows, and underscored by operational feasibility. The business needed to make only minor procedural adjustments to align with event schedules, with windows carefully coordinated to avoid impacting core operations while still making a valuable contribution to the Capacity Market and Great Britain's energy security.

Severn Trent has released **~£670k** in revenue from Capacity Market participation.

The results

To date, Severn Trent has realised around £670,000 in revenue from its Capacity Market participation. This new revenue stream has helped fund power resilience upgrades and offset rising energy costs, directly supporting Severn Trent's mission to keep customer bills low.

By building flexibility into its operations, Severn Trent is actively contributing to wider grid resilience, demonstrating its commitment to not just relying on others, but playing a proactive role in strengthening the electricity system.

The project has also helped demonstrate the resilience of the business' energy systems, and supported Severn Trent's broader sustainability targets. These include a triple carbon pledge – to be carbon zero, to use wholly renewable power, and to have an all-electric fleet of vehicles by 2030.

Looking ahead

In the three years Severn Trent has worked with Enel X on capacity turn-down services, the business has learned that flexibility is not just technically feasible, but strategically beneficial. What began as a one-year trial partnership has been extended, with the signing of a long-term contract.

Severn Trent is keen to grow its participation in the Capacity Market, scaling flexibility across more of its roughly seven thousand sites. It is keeping an eye on wider flexibility opportunities, including recent reforms that could open up the wholesale market. The company is also looking at automating more of the processes involved to reduce the need for manual action by site teams, while continuing to build on strong staff recognition of the environmental and financial benefits.

“Working with Enel X helps ensure we’ve got the right messages, going to the right people, at the right times.”

Helen Ewing, energy analyst,
Severn Trent Water

**Contact Enel X to make the most of
your flexible capacity.**

For further information, please reach out to us at:
enelxuk@enel.com or enelxireland@enel.com