

Cutting energy consumption, costs and carbon emissions with Demand Side Response (DSR)

For many large organisations, the period of peak energy demand over the winter season (typically 4pm to 7pm), can be draining, both in terms of consumption and costs.

Due to the nature of BAE Systems' site operations, being a global defence, aerospace and security company with more than 80,000 employees worldwide, it had proven difficult to reduce power consumption, especially in the winter peak months.

One such location with particularly high electricity network charges was BAE's Filton 20 site, based on the outskirts of Bristol.

BAE knew that something had to be done, and when approached by npower Business Solutions, Energy HQ (nBS, EHQ), they agreed on a partnership to combat their consumption, carbon emissions and overall energy costs through the use of Demand Side Response (DSR) services.

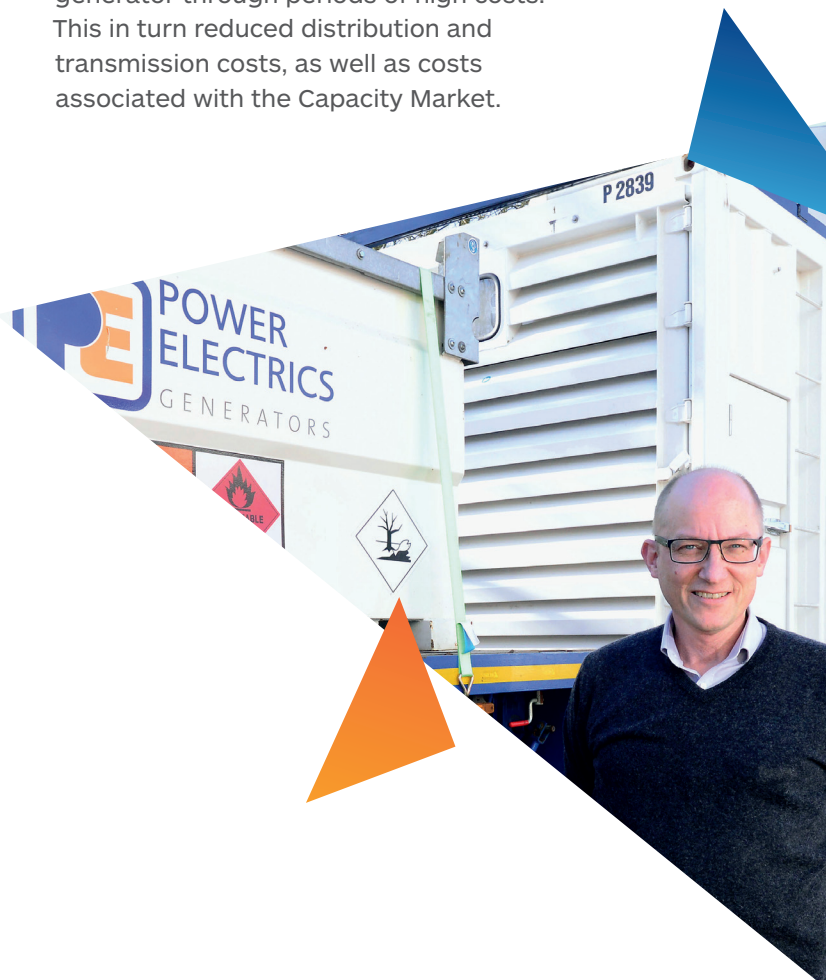
In collaboration with Power Electrics, a leading UK supplier of diesel generator hire, a bespoke temporary power package was installed for Triad avoidance and Market Access services.

"In order for BAE to comply with the Medium Combustion Plant Directive (MCPD), we supplied a generator complete with a selective catalytic reduction (SCR) unit and fuelled with Green D+, a unique Hydrotreated Vegetable Oil (HVO) fuel",

explains Alex Hill, Business Development Manager, Power Electrics.

"During the hire period, 82 tonnes of carbon was saved through the use of Green D+ instead of traditional gas oil diesel. NOx output was limited to 150mg/Nm³, below the required 190/Nm³ set by the MCPD, says Alex. "The total package not only ensured the generator met the MCPD, but also delivered a solution that reduced the environmental impact on-site for the customer."

nBS, EHQ remotely controlled the generator from its Optimisation Desk in Swindon, supported by regular dialogue with key personnel on-site, enabling them to monitor and control the generator through periods of high costs. This in turn reduced distribution and transmission costs, as well as costs associated with the Capacity Market.



As a result, when compared to other BAE Systems' sites, Filton 20 had the greatest percentage reduction in consumption during peak price periods last winter, resulting in cost savings of more than £30,000 in just four months.

In addition, nBS, EHQ realised that the generator could also be used when wholesale market prices became volatile. New contract terms were agreed allowing other BAE sites to benefit in future when carrying out similar activities, either through generation/battery storage projects or through more conventional load management.

Graeme Dawson, Technical Services Business Development Manager, nBS, EHQ explains, "Our Filton 20 project was based on a temporary asset used for very short periods of generation when the power system was most stressed.

"Using the generator 'behind the meter' meant that the amount of power that had to be generated by those large, conventional coal and gas assets could be avoided plus we benefitted from additional efficiency associated with avoided Network Losses", Graeme added.

At present, the nBS, EHQ team are currently working towards this winter's operation using the latest specification, low NOx generation

and, longer term, will work to deliver low carbon technologies such as battery storage, solar PV and electric vehicle (EV) charging for BAE.

The success of the partnership has provided a proof of concept for the group and plans are in place to deliver similar projects across a number of other BAE sites.

Wayne Mitchell, Director of Energy HQ, npower Business Solutions, added, "We are delighted to have delivered our Demand Side Response (DSR) service with BAE Filton 20. Our risk management and Optimisation Desk has worked closely with BAE to deliver higher than forecast revenue and savings.

"As our first external DSR project using hired diesel generation with SCR, this proved the viability and success of our DSR solution, which wouldn't have been possible without the effort and willingness of the team at Filton 20 and Power Electrics to deliver innovative new energy solutions. We look forward to working with Filton 20 and the wider group to deliver long term, sustainable, and value-adding solutions in the future."



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