



22%
energy saving
of HVAC

<7
months
ROI

Case study: Large Supermarket Retailer

Background

Ranked in the top four UK supermarket chains, this food retailer serves customers nationally throughout the UK from almost 500 stores and an online home delivery service. Every week, 11 million customers pass through the doors and employ over 110,000 staff across the business. Our client has a Trend BeMS (Building energy Management System) across their retail portfolio, that controls HVAC (Heating, Ventilation and Air Conditioning), lighting and hot water. Half hourly meter data from both gas and electricity was available to baseline and manage the stores energy performance.

Challenge

Optimised Buildings were commissioned to undertake a trial on 4 pilot stores to 'optimise' the BeMS and monitor the potential impact on energy savings that this would generate. This optimisation was to be undertaken through maximising the efficiency and operation of existing assets (specifically the BeMS/HVAC), with no additional capital equipment installed. The trial was undertaken in May 2018 for a period of 4 weeks where a saving of 51% on gas and 6.5% on electricity was achieved, compared with the same month of the previous year. The outcome of this trial led to our client entering into a contract with Optimised Buildings to optimise 450 stores over a 6-month period and once optimised, to deliver a managed service bureau contract to ensure savings were maintained for the longer term.

Quick facts - Year 1

- £7.32 million energy saved
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- 35,853,269 kgCO₂e saved
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- 159 MWh saved
-
- 20% reduction in HVAC work orders
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- 14,000 + work orders managed
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- 450 stores optimised in 6 months
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- 496 stores and 336 petrol filling stations optimised and managed through the 24/7 Optimised Bureau

See the solution overleaf

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Solution

The first objective was to upload strategy from the Trend BeMS system and 'optimise' the control strategies. Over the 6 months period we pulled together an engineering team to meet both the aggressive technical goals and programme that had been set before us. Once the software had been optimised for a specific store, our commissioning team then moved in. They uploaded the software while on site at the specific store and recommissioned the BeMS controllers, addressing any faulty sensors, equipment in hand, wiring issues and much more besides. At the peak of the project we were commissioning 80 stores a month and had ramped up the optimisation team to 17 dedicated engineers. While the software was being optimised, along with the onsite commissioning our team of office based engineers were importing the 270,000 data points into the new Trend IQVision platform, setting up around 50,000 analytics points and pulling in 1,500 half hourly fiscal meters into the aM&T platform. The fiscal meters were already available which negated any integration requirements, this half hourly data was logged and 'pushed' to our cloud-based 'Optimised aM&T' (automatic Monitoring and Targeting) software. This created the transparency and baseline data to effectively monitor and measure the impact of the building optimisation deployed.

Then 'Optimised Analytics' were added to monitor the BeMS and HVAC systems through intelligent algorithms and rules. This cloud-based platform tracks the performance of assets, equipment and systems and quickly identifies anomalies in plant operation saving energy and maintenance costs. Once the systems were set-up, we were able to start and analyse the baseline data and energy profiles for each store, aligning time schedules to match trading times, operating at suitable temperatures during trading periods without affecting store environmental conditions, and ensure that lighting overrides were minimised.

The '24/7 Optimised Bureau' managed service then took over, remotely monitoring the performance of each stores HVAC, BeMS and lighting circuits to ensure continuous operational efficiency. The Optimised Bureau is now providing 24/7/365 monitoring for the client, to identify anomalies, energy issues, BeMS analysis and

ongoing energy management recommendations. Monitoring hundreds of thousands of data points across a geographically diverse retail portfolio is challenging for any business and is unlikely to be solved without dedicated resource, domain expertise and the right technologies. It is this combination, that is now generating great results and what is important is that not only are these savings maintained through the ongoing managed service, the portfolio will continue to improve in its efficiency and performance. The analytical technology is now driving the human analysis, which creates a winning combination in terms of a competitive solution and business outcomes for the client.

Results

The project that started in July 2018, on a 6-month programme delivered energy savings that equalled the value of the contract on the 21st December 2018! During the first 18 months our client saved over £9m in energy saving equating to £2.50 returned for every £1 invested. All of this achieved through optimisation of existing assets and systems, with NO additional controls being installed.

We are now providing the Optimised Bureau services 24/7 for the whole retail portfolio which includes 494 stores, 336 petrol filling station. This is all done from the head office of Optimised Buildings in Ashby de la Zouch, Leicestershire. The Optimised Bureau service is now being delivered, including a full environmental service where the stores can call the Optimised Bureau at any time of day for any issues / support around the temperature, heating, environmental issues, lighting or domestic hot water and this will be dealt with by the team.

While energy efficiency has been the biggest driver of this project, other benefits include; reduced maintenance costs due to the remote analysis and first-time fix, improved staff satisfaction as issues are resolved before they know they have an issue, improved asset life, due to reduction in operating hours, greater analytical understanding of the retail portfolio's performance current and future opportunities. The model described above has now been adopted and deployed across many UK clients from hotels, schools, office buildings and even embassies!

“The Optimised Buildings Bureau service combined with the analytical technologies has given us greater visibility of our portfolio of stores and as a result has contributed to significant savings since we started the HVAC and BMS optimisation. The insights, processes and expertise that we now have in place has created key foundations for further savings across the portfolio as strive for a more sustainable future.”

Senior Property Manager for Energy

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