

Dynamic, real-time HVAC optimisation - delivering energy savings automatically.

Calyx Nottingham

Dynamic HVAC optimisation for energy and indoor climate performance

15.1%	45.4%	£104k
Electricity saving first-year result	Gas saving first-year result	Total saving over two years

5,611 m² commercial office | Nottingham | Existing BMS leveraged | Biopharmaceutical sector

23.5%	46.9%	9 months
Electricity saving second-year result	Gas saving second-year result	Return on investment project-reported payback

Executive summary

EcoAI's HVAC optimisation technology was integrated with the existing Building Management System at Calyx's 5,611 m² Nottingham facility, with the aim of reducing energy use while improving the consistency of the indoor environment.

The optimisation dynamically adjusted HVAC operation around the building's needs and occupancy patterns, using the existing BMS rather than requiring a wholesale controls replacement. The project also provided additional visibility of HVAC behaviour to support targeted maintenance and operational decisions.

Electricity use reduced by 15.1% in the first year and 23.5% in the second. Gas use reduced by 45.4% and 46.9% respectively. The project reported £104,000 in total financial savings over two years and a nine-month return on investment.



Measured performance

The reported results show sustained savings across both electricity and gas, with electricity performance improving further in the second year.

Electricity savings



Gas savings



Outcome	Project result
Electricity	15.1% saving in year one; 23.5% in year two
Gas	45.4% saving in year one; 46.9% in year two
Total financial saving	£104,000 over two years
Return on investment	9 months
CO2 reduction	264.64 tonnes in year one; 309.31 tonnes in year two

Operational impact

The project reported a significant reduction in climate-related complaints from building occupants, demonstrating that lower energy use was achieved alongside a more consistent indoor environment.

The optimisation data also provided insight into HVAC performance, helping the engineering team investigate anomalous behaviour, focus contractors on specific tasks and avoid unnecessary physical investigation costs.

This combination of automatic optimisation and operational visibility supported a more proactive approach to building performance and lifecycle management.

Engineering and client perspectives

M&E CONTRACTOR PERSPECTIVE

"Though as the M&E; contractor for Calyx, we don't directly benefit from the automatic energy savings that EcoAI delivers, I've found the main benefit from an M&E; contractor's perspective is utilising the system insights to investigate and target anomalous HVAC behaviours. I've worked closely with the EcoAI team to remotely identify areas of enhancement in the Nottingham facility. This has enabled us to focus the attention of contractors to specific tasks therefore avoiding unnecessary costs to Calyx associated with making physical investigations. The analytics produced is based on systems that are fully optimised in real-time and so has been especially helpful in this regard."

Martin Eastwood - Managing Director, Belmar Services

CLIENT PERSPECTIVE

"Having explored most of the conventional carbon reduction techniques across the portfolio, we knew the next initiative was going to need to be something quite special to make an impact! EcoAI answered that call and enabled us to leverage our existing BMS to deliver quite staggering results. Our primary objective was to lower our carbon footprint in line with our Environmental Charter and by exploiting the property's characteristics through thermal inertia we achieved not only this but a number of other indirect objectives. The in-built analytics has significantly influenced our life cycle management practices, energy profiles and surfaced opportunities that have yielded quantifiable cost avoidance adjustments. In essence, this application represented a paradigm shift; away from the typical reactive programmes to a proactive, forward thinking solution!"

"The results in year 1 were great, the fact that the system has managed to automatically improve on those savings in year two, as it now fully understands the needs of our building, is even better!"

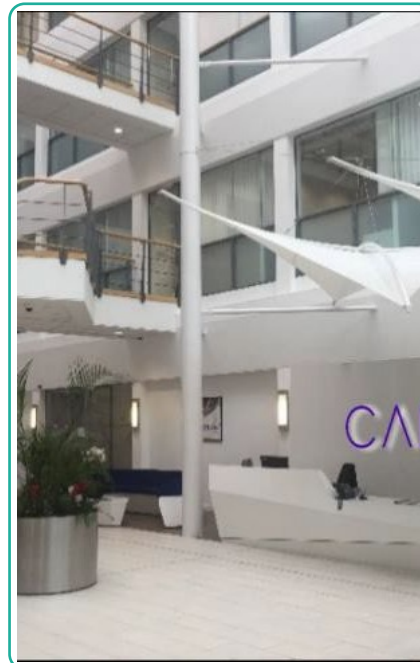
Richard Cotterill MBA - Calyx Senior Facilities Manager

Building performance and sustainability perspective

CLIENT PERSPECTIVE

"With sustainability being at the heart of our corporate culture and identity, energy conservation is central in our operation and processes. In EcoAI, we have identified a solution that enhances the intelligence and expands the capabilities of our Building Management System. The solution has also enabled us to make the roadmap clearer as we reflect on current practices and look to exercise the principles of the Coalition for Environmentally Responsible Economies (CERES). In-line with our pursuit for continuous improvement, the evaluation of our international portfolio is now underway, as this solution becomes part of our global strategy."

John Johnson - Calyx Director of Facilities UK & Ireland



What the project demonstrates

EXISTING BMS

Dynamic optimisation can extend the capability of the installed BMS rather than requiring wholesale controls replacement.

ENGINEERING SUPPORT

Operational insight can help engineering teams target anomalous HVAC behaviour and focus maintenance activity.

COMFORT + ENERGY

The project combined substantial energy reductions with fewer climate-related occupant complaints.

Conclusion

Calyx Nottingham provides a strong example of EcoAI delivering sustained HVAC energy savings through an existing BMS while also improving operational visibility and the indoor environment. The improvement in electricity savings from the first to the second year reinforces the value of continuous optimisation as the system builds a deeper understanding of building behaviour.

A practical corporate-office reference for dynamic HVAC optimisation.

EcoAI supports the existing BMS and engineering team while continuously improving energy performance and building operation.