ecosync

CASE STUDY

St. Edward's School

SCHOOLS

32% savings

ST. EDWARD'S OXFORD

CLIENT OVERVIEW:

An independent, co-educational, boarding and day school for ages 13-18 set in over 100 acres in North Oxford.

PROJECT OBJECTIVE:

To reduce energy costs and carbon emissions across their estate.

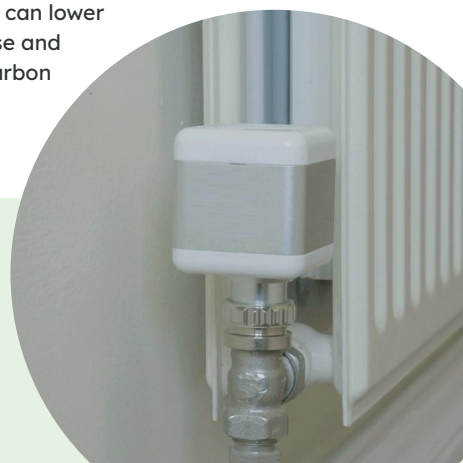
Hybrid working and flexible occupancy patterns means the way buildings are heated needs to evolve. Rooms in commercial buildings are lying empty more than ever before, yet they continue to be heated the same. With the EcoSync solution, empty rooms represent and economical and environmental relief, as opposed to a burden.

St Edward's sought out EcoSync to help address some of the heating challenges they were facing: Hybrid working and dynamic, ever-changing occupancy patterns meant that they were often wasting energy heating empty rooms.

As a result, EcoSync retrofitted maintenance-free intelligent TRV devices, connected via a single ethernet gateway (with 4G backup). Which gave full individual heating control to 16 rooms spanning two floors of St. Edward's Bursary building.

The whole installation was completed in less than a day. The devices record 32 pieces of data every 5 minutes, including the air temperature, the radiator valve position and the hot water flow temperature. These give an accurate view of how much energy the bursary building is using on a room-by-room basis, in real time. Data which is fed into EcoSync's machine learning models that predicts how much energy is needed to heat any given room. If a specific room is unoccupied it does not need to be heated, and the energy saved is displayed on EcoSync's Carbon Meter.

Thanks to in-room scannable QR codes, these savings are not only visible to facility managers, but also the building occupants. Encouraging environmentally and fiscally responsible behaviour by allowing for the day-to-day users of the building to directly see how even small actions, such as closing a window that was left open, can lower energy use and reduce carbon footprint.



STOP HEATING EMPTY ROOMS

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THE SOLUTION

A retro-fitted, easy to install, heat management system that allows remote and individualised control of heating via a simple-to-use dashboard. Accessible from anywhere at any time, allowing building managers to set schedules and monitor heating from one centralised platform.

INSTALLATION TIMELINE

OCTOBER 2022:
Started with **18 devices** for bursary building

NOVEMBER 2022:
A further **750 devices** – start of accommodation project covering nine boarding room houses

FEBRUARY 2023:
229 devices to complete accommodation project

CURRENT COVERAGE WITH US:

997 devices over 10 buildings
(bursary and nine boarding houses)

After an initial 18 device install at their bursary building in October last year, where they generated savings of 38.6%, St Edwards committed to a further 979 devices during the 2022/23 winter season, installing in nine of their accommodations buildings and resulting in fantastic saving of 32.2% across their estate.

THE RESULTS

From October 2022 – January 2023 EcoSync saved St. Edward's:

2662
KWh of energy
That's the equivalent of:

Preventing
538kg
of carbon being released into the atmosphere

66 Trees
absorbing carbon for a year

Overall saving, across the 10 buildings estate:
32.2%
energy saved
Best individual boarding house performance: 44.7%

3 POINT VALIDATION

Baseline Consumption Methodology

In St. Peters College, we compared to a heat meter which directly measured the heat output of the boiler. The heat meter measured all hot water usage, including the hot water required for showers and kitchens, so did not directly tell us heating energy consumption.

However, we used the months of term time outside the heating season to estimate the breakdown of energy consumption between heating and hot water, and found it was:

45% heating - 55% hot water

Applying this breakdown, we found that their heating energy consumption was 18.64 MWh from January to March 2022, and our digital twins predicted 19.85 MWh over the same period – an accuracy of 94%.

Control Building

From January to March 2022, Corpus Christi College installed EcoSync in one of two identical student accommodation buildings.

They found that their gas bill was considerably lower in the building with the EcoSync solution installed, compared to the building without:

January: 27.3% saving

February: 32.4% saving

March: 45.9% saving

We had initially predicted a saving of 27% using conservative assumptions about how our technology could be used, and were pleased to see that users and building managers quickly adapted to achieve even better results.

EPC Comparison

At Lady Margaret Hall College, we used our digital twins to estimate the total energy consumption, without the use of the EcoSync solution:

285 kWh / m2 per year (heating & hot water)

We compared this to the Energy Performance Certificate, which stated a total energy consumption of:

309 kWh / m2 per year (heating & hot water)

An accuracy of 92%.

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