

Organisation: Withheld
Sector: Property
Requirements: To maximise energy savings with no capital cost
Services provided: Full M&E Operation and Maintenance
Provider: Withheld
Achievements: In the 12 month period the building's CO₂ emissions reduced by 29.2% with cost savings of approximately £44,000/year

IPMVP ★★★
level

The Client

The client was the owner and operator of a multi-tenanted office property in London providing 8,670m² of office space. The building was equipped with gas-fired boilers, air conditioning and BMS. The client wanted to reduce environmental impact by reducing energy consumption and CO₂ emissions.

Objectives

A 12 month project was devised to reduce energy consumption by engaging the landlord operating team, contractors and tenants, without any capital expenditure.

Tenant Involvement

The Building Manager engaged the tenants by presenting the idea of an energy saving competition. It was vital to engage the tenants as their use of electricity, heating and cooling had a significant effect on the landlord's systems. The competition reward was three cash prizes with the money credited to service charge levied on the tenant so there was a financial motivation for tenant co-operation and involvement.

Awareness

To promote awareness, posters and newsletters were issued to describe the competition and show levels of consumption against target. To add interest, the owners' energy team devised a campaign cartoon character called "Reggie" with a lamp on his head. The artwork was internally devised and lapel badges with the logo were issued to tenants, building staff and contractors. The logo was also printed on red tee-shirts which were worn on set days by staff and contractors. A briefing was also given to onsite maintenance contractors.



The maintenance wearing their Reggie t-shirts

Occupation Times

All tenants were surveyed to ensure the correct occupation hours were programmed into the BMS. The maintenance contractor checked to ensure they remained appropriate. Also the contractor ensured energy services were not supplied to unoccupied floors.

Set Points

The contractor surveyed the building to ensure heating and cooling set points were appropriate. During the year set points were gradually changed to improve efficiency but without adversely impacting the tenants' comfort levels.

Controls Strategy

The M&E contractor and their specialist controls sub-contractor reviewed the control logic regularly to ensure it was appropriate and explore alternative strategies. Measures included:

- turning off the auxiliary chiller in winter
- preventing firing of boilers on warm days
- adjusting set points including raising cooling set point from 23° to 25°C
- correct adjustment of optimisers to reflect occupation on each floor



Cleaners and Security

Cleaning and security staff were instructed to ensure lights were turned off outside normal occupancy hours and worked with the M&E contractor to ensure lights were not left on in reception, plant rooms and stairwells.

Maintenance

Regular maintenance of plant is vital to keeping plant running efficiently and reducing energy waste. Regular monitoring helps identify malfunctions. However, control systems can 'fail safe' by keeping failed items running which then waste energy. To address this the M&E contractor regularly checked plant operation and ensured all sensors were calibrated and working correctly.

Reporting

Meter readings were taken monthly and reports issued promptly to ensure the landlord team, contractors and tenants could see progress against targets. The system also used half-hourly electricity data and exception reports were issued if profile consumptions exceeded the daily targets to alert the team and specialist sub-contractor who would deliver agreed remedial actions to overconsumption.

Results

In 12 months gas reduced by 25.8% and electricity by 29.8% which was a combination of 36.6% by the landlord and 11.9% by tenants.

	Target kWh	Actual kWh	Savings kWh	Percentage Savings
Gas	1,638,760	1,216,545	422,215	25.8%
Electricity	4,435,277	3,113,620	1,321,657	29.8%
L/L Electricity	3,207,079	2,031,774	1,175,305	36.6%
Tenants' Electricity	1,228,198	1,081,846	146,352	11.9%

Figure 4 – Breakdown of Savings Achieved

Gas consumption was normalised to standard heating degree days over the previous three years to make a like-for-like comparison. Targets were set against baseline years taking into account variations in occupancy by tenants.

Once occupancy and degree day normalisation was taken into account the **gas savings were 8% and landlord electricity savings were 21%**.

Fuel	Units	Target	Trial Year	Savings
Gas	kWh	1,638,760	1,216,545	422,215
Electricity	kWh	4,435,277	3,113,620	1,321,657
Gas	Kg CO ₂	311,364	231,144	80,221
Electricity	Kg CO ₂	1,338,857	568,312	770,544