

CASE STUDY

OPERATIONAL EFFICIENCY

SMALES FARM VODAFONE BUILDING

◆ Building Overview

Location

Taharoto Rd Business Park, North Auckland

Size

18,105 m²

Energy Consumption

Around 4,500,000 kWh per year

Energy Costs

About 850,000 \$ per year

Optimization Target

Save 440,000 kWh per year

◆ Methodology

An initial review of the building's overall energy usage was conducted to identify usage patterns. We have undertaken a series of Energy Conservation Measures across identified opportunities for energy savings (HVAC, Lighting and BMS operation). Real-time data was collected from every energy-using entities allowing to monitor independently the efficiency of every performing areas within the building. Savings have been calculated for the entire building and verified by comparison with a baseline established using International Performance Measurement and Verification Protocol (IPMVP).

BUILDING ANALYTICS

We developed an on-going statistical analysis process allowing predictive control and maintenance of the whole facility to minimize energy costs and maximize comfort and performance.

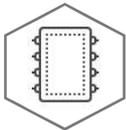
We improved energy efficiency by creating customized and targeted rules for data analysis including building design specifications.



BMS CONTROL STRATEGY

Changes included improving the monitoring ability of the BMS by improving communication networks and changing sensor types, control of fresh air intake by CO₂ sensing, adjustment of set points based on solar gain, and the ability to utilise free cooling when outside air temperature is suitable.

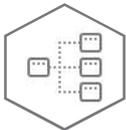
Solutions



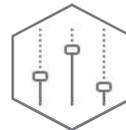
Building-wide upgrade or replacement of BMS controls hardware



Higher efficiency light fittings and associated controllers installed



Installation of a metering system to enable identification of performing areas



Complete re-design of the Building Management System Control Strategy (BMS)

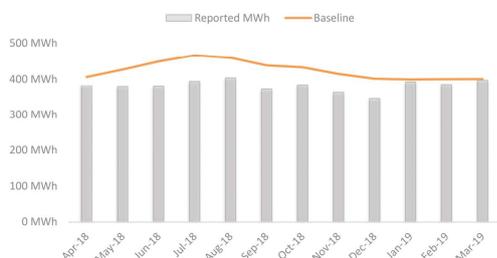


Implementation of an automated building analytics system to identify problem areas*



Continuous commissioning process to tune the BMS for optimal efficiency*

Monitoring



Combination of Energy Management Systems and Building Analytics was the key to achieve operational efficiency of the building.

Optimization during the on-going monitoring period has been effective by continuous consultancy over maintenance services and performance control.

Impacts

11.3% Reduction of energy use after first year

62 k End user energy savings after first year

3 ys EMS installation Return on Investment

*DCpenta is an initiative to assist organisations in implementing energy savings, operational improvements and making business decisions.

For more information, visit our website:
www.directcontrol.co.nz