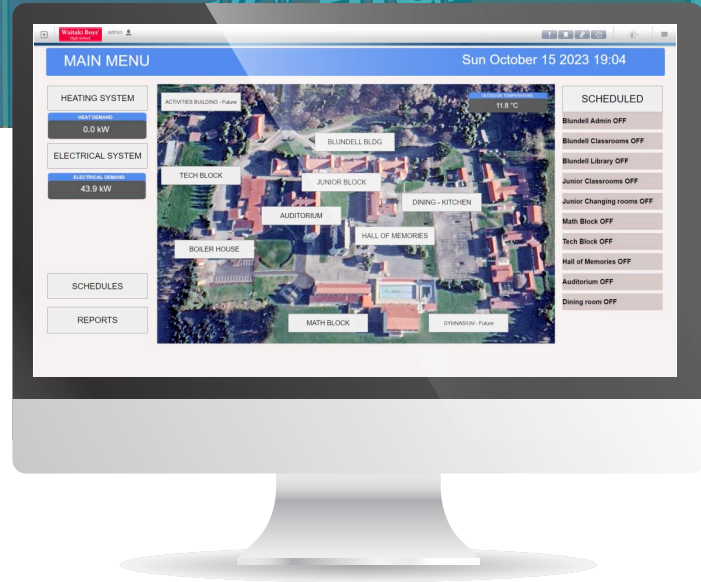


Case Study

Waitaki Boys' High School Oamaru, New Zealand



Enhancing Energy Efficiency and Indoor Comfort at Waitaki Boys High School through a Building Automation System with Optergy and IQnexus Integration



Overview

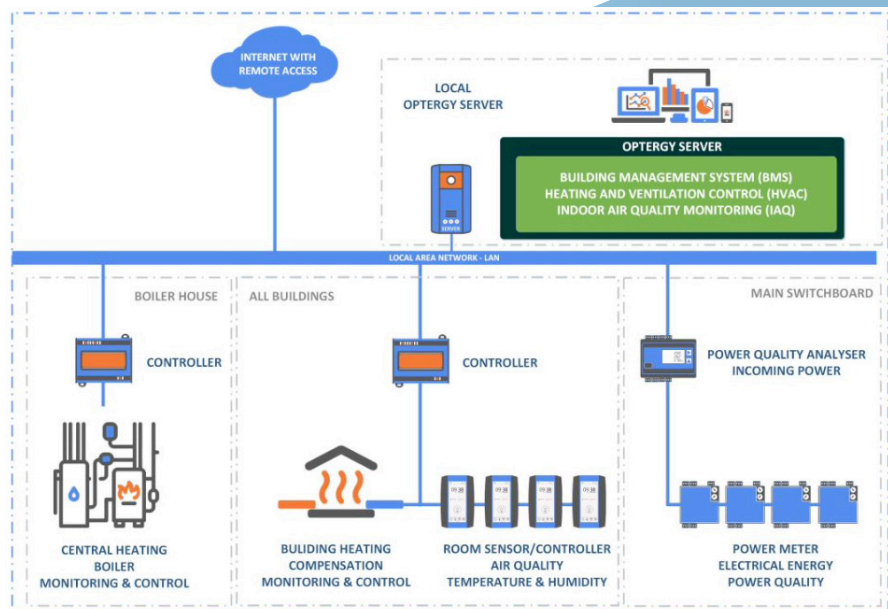
Waitaki Boys High School, as the second oldest school in New Zealand, faced unique challenges in heating its premises efficiently. The project aimed to integrate advanced technology solutions to enhance air quality and energy management within the school's multiple buildings, aligning with New Zealand's focus on healthy learning environments, while also preserving the integrity of its heritage buildings.

Objectives

The main challenges included controlling an outdated heating system, improving air quality, and integrating a comprehensive building management system. There was a significant need for technology that could link air quality sensors with the building management system, as the school's existing electrical system only included basic meters.

Key Solutions

Led by IQnexus, the project saw the integration of Optergy's advanced P864 controllers, which played a crucial role in managing the heating systems and CO2 sensors across the school. These controllers enabled the effective management of an older boiler system and laid the groundwork for future upgrades to more sustainable heating solutions. The project also involved installing energy meters and leveraging Optergy's versatile 'Lego block' approach. This allowed for an open and adaptable system, capable of interfacing with products from other companies like Thermokon.



The layout comprises multiple buildings, constituting a large-scale installation. One of the educational aspects for the school staff was understanding the type of data available and how to utilise it effectively.

Specific Applications:

The project incorporated 64 CO2 sensors, along with VOCs, and temperature and humidity sensors. Each building was equipped with a P864 unit, allowing for comprehensive monitoring and control of the heating systems and air quality.

Problem Solving:

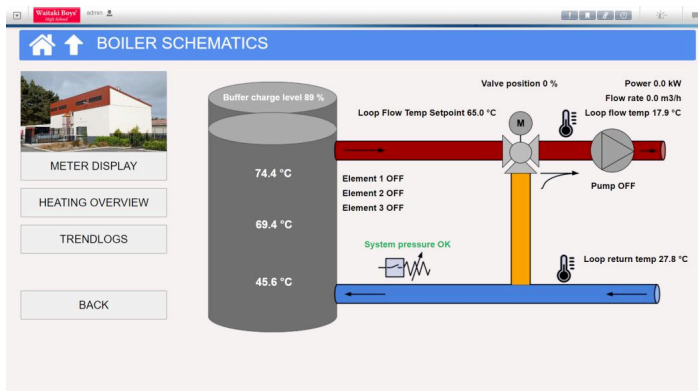
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Integration and User Experience:

The integration of Oprety products was notably smooth, with the dashboards being user-friendly and intuitive. These dashboards facilitated easy monitoring of the boiler, air quality, and energy consumption, enabling steps towards net-zero targets.

Real-Life Application and Energy Management:

The implementation demonstrated how Oprety products could be used in real-life applications for both Energy Management Systems (EMS) and Building Management Systems (BMS). Users could identify excessive energy usage in specific areas and adjust accordingly, offering a comprehensive view of energy and building operations.



School Controls Description:

Building Management System (BMS) Server with Oprety Software

- ✔ Visualisation accessible from any computer
- ✔ Utilisation of the existing school network (LAN) or Remote Access for support
- ✔ Individual heating and ventilation schedules for most areas
- ✔ Measuring and trending of all relevant system parameters

Building level control

- ✔ Flow temperature optimisation
- ✔ Air quality monitoring for most rooms
- ✔ Temperature, relative Humidity, Carbon Dioxide (CO2) and Volatile Organic Compounds (VOCs)

Energy metering with Power Quality Analyser

- ✔ Main Incomer real-time monitoring
- ✔ Sub-meter for four Buildings
- ✔ Thermal heating energy metering

Notable Features and Scalability:

The implementation of a Building Automation System by IQnexus at Waitaki Boys High School has proven to be a successful endeavour, resulting in improved indoor air quality, energy efficiency, and operational effectiveness. This case study serves as a testament to the benefits of adopting advanced building automation solutions in educational institutions, ultimately creating a better environment for learning while reducing operational costs and environmental impact.