




BMS REPORTING  
AND ANALYTICS

# Optimisation Through Insight



**Detailed data, insightful reporting and a comprehensive analytics capability are essential for a modern BMS solution. At Mitsubishi Electric, we implement leading data analysis tools and technology with our building management and energy management systems. We enable real time visibility of facility performance and energy consumption for clients, and support informed decision-making focused on optimising performance and reducing cost.**

In recent years, energy usage has become an increasingly important focus for building owners and facility managers. Along with rising energy costs, meeting and exceeding sustainable building standards such as

NABERS are critical considerations in the construction and long-term maintenance of a facility. At the same time, there is a focus on ensuring our built environments are more comfortable and actively support occupant well-being. Government regulation with regards to climate change is also having a significant impact on property development and the construction of new buildings.

Designing, installing and maintaining a BMS is only the first step in supporting compliance with required building standards and the achievement of performance ratings. Our team provides data reporting and analytics to enable ongoing optimisation of buildings and facilities, aligned to equipment performance, energy efficiency and sustainability outcomes.

## **KEY** METRICS, MEASURES AND TARGETS

We work with our clients to understand their key metrics for building performance, which typically include electricity, water and gas usage. This data is then converted into customised dashboards and reports to highlight energy usage and performance of the mechanical and electrical systems in the building. It can also be used to inform alternative approaches and improvements to building usage and BMS strategy.

One example is the monitoring of energy, water and gas meters to report on demand and consumption patterns. This might include hourly, weekly or annual consumption for a specific meter, or calculating and comparing consumption of a specific facility area year-on-year.

## DASHBOARDS AND **REPORTING**

Once key metrics and measures are identified, data can be managed, reported on and analysed for trends and patterns. We assist our clients in organising and presenting data in an easily accessible format which can be manipulated quickly to report required information. Meters can be aggregated or separated to generate reports for larger facility areas or to drill down into specific equipment and assets.

Data is presented in relevant, clear and easily understood dashboards, providing tailored insights aligned to the specific requirements of each client.

# OUR DATA COLLECTION, REPORTING AND ANALYTICS **CAPABILITY** IMPROVES:



## Visibility

Comprehensive dashboard data capture and reporting on building consumption and performance



## Comfort

Enhanced climate and zone control in line with occupancy activities and tenant preferences



## Optimisation

Ongoing building performance improvements through data-informed decision making and strategy adjustments



## Compliance

Monitoring of Australian Standards compliance, and critical controlled environment requirements such as laboratories and operating theatres



## Value

Cost savings via facility performance optimisation aligned to targets for reduced energy consumption



## Sustainability

Improved and ongoing achievement of sustainability standards, energy efficiency and comprehensive usage reporting

## ACTIONABLE INSIGHTS

Monitoring key information in real-time enables immediate action in response to abnormal trends or events, such as triggering a fast response to electrical faults or plumbing leaks. It also assists regular monitoring of performance against climate goals and targets (such as energy reduction targets over a defined time frame) and facilitates the adaptation of the BMS strategy to maintain performance accordingly.

Further, monitoring in real-time also supports easy recognition of periods where higher consumption is expected – such as for an after hours activity or an event in the facility – providing context for records.

## OUR PROCESS

Our process applies tools to monitor, analyse and benchmark performance, to target and address areas for improvement in building performance.



# OUR TECHNOLOGY

In consultation with our clients, we work with a range of platforms and solutions to implement a system which is fit-for-purpose and right sized to enable our clients to achieve their goals. This includes:

## **ICONICS** – A Mitsubishi Electric company

ICONICS analytics software solutions transform large amounts of real-time data into actionable intelligence. With products that drive improvement in productivity, efficiency, quality, and sustainability.

Leveraging easy asset-based configuration, ICONICS analytics solutions offer:

- » Complete statistical process control (SPC)
- » Advanced energy management
- » Visual overall equipment effectiveness (OEE)
- » Key performance indicators (KPIs)
- » Analysis for operational management
- » Predictive maintenance for facility management and alarm management
- » Reporting and analysis capability

ICONICS' energy and facility analysis tools realise time and cost savings for our clients from the outset. This software solution works with both modern and legacy building management systems and can incorporate data from as many buildings as required.

Energy AnalytiX® by ICONICS is an energy monitoring, analysis, and management system, incorporating built-in calculations, analytics, data historian, reporting, and visualisation, enabling informed and proactive decision making toward reducing and managing utility costs and consumption.

With open universal data connectivity, Energy AnalytiX® enables data integration to a wide variety of BMS, SCADA, ERP, and control systems.



## **Niagara Framework®**

Niagara Framework® is an industry leading building management software platform designed to integrate diverse building systems and devices into one seamless system.

Building managers use Niagara's built-in functionality to monitor data flow and create logical structures. It is an open solution, enabling integration with existing and new technologies via standard connectivity systems.

The platform is also able to aggregate and present detailed building activity data for in-depth performance analysis, and to inform strategies for maximising energy efficiency.

All forms of energy data can be collected and analysed. Data is presented in visually appealing graphics and charts enabling users to monitor building consumption. A suite of tools within Niagara Framework® can be used in support of achieving building targets via energy benchmarking and ranking.

Advanced charts can visualise various elements that contribute to energy consumption, with the ability to break down data to daily, weekly, monthly and yearly timelines.

By using Niagara, building owners can expand the existing system, leveraging data and insights toward achieving target consumption reduction goals.

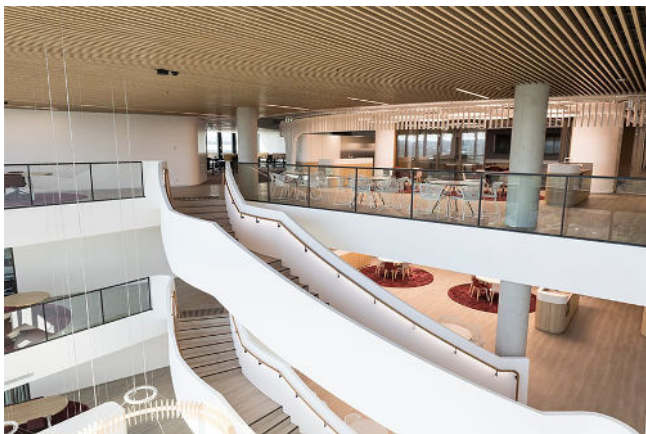
## OUR PROJECTS

We provide a range of energy monitoring, reporting and analytics capabilities for clients across a broad spectrum of industries including healthcare, retail, commercial buildings, education, government, and transport developments.

Our people assist our clients to optimise performance of their assets, enabling visibility and monitoring of key building performance and sustainability metrics.

Current projects include:

### 105 PHILLIP STREET, PARRAMATTA, SYDNEY, NSW



105 Phillip Street is a 12-storey commercial building and was the first 6-star Green Star building in Western Sydney – Parramatta region on completion in 2018.

#### **Scope**

Our project scope included:

- » Building & Energy Management System (BEMS) to monitor and control water cooled chilled water system and gas heating hot water system
- » 400 x Variable Air Volume (VAV) terminal box throughout office space for energy optimisation
- » Floor by floor CO2 monitoring and optimisation
- » Monitoring more than 100 electrical meters and more than 50 water meters
- » Fault analysis and leak detection

#### **Key metrics**

The goal of the project is to achieve 5.5 star NABERS energy and water rating. The BMS tracks the usage of gas, water and electricity to ensure that the goal is achieved. Optimisation of main plants with various cost-saving strategy for the chilled and condenser water system are employed. Forecasting data is added on the BMS to aid the consumption tracking and to identify areas of concern.

## SUBSTATION 164, NSW



Substation 164, located at 183 Clarence Street in Sydney's CBD is an innovative project, bringing together two heritage buildings in a dynamic retail, commercial and public arts venue.

### Scope

Our project scope included:

- » BMS fully integrated solution
- » Main plant control which includes water cooled chillers, hot water generators and associated pumps
- » Chilled water system performance monitoring
- » Control of primary and secondary condenser water system
- » Chilled beam control with 105 different zones
- » Control and monitoring of ventilation system for both essential and non-essential services
- » Monitoring of electrical, water and gas meters

### Key metrics

Monthly consumption for electricity, water and gas are monitored via the BMS. Meters are grouped and virtual meters are created to better visualise the building consumption. This data is used to generate tracking report which is used for NABERS reporting. The BMS also provides data on critical equipment that is not meeting forecast energy benchmarks.



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