



Optimisation of 453 - 463 Kent St Sydney

The collaboration of the major influencers of energy management at 453-456 Kent St (Property NSW, JLL, Precise Air Group, Buildings Alive and Veolia) has resulted in substantial energy savings, improved NABERS ratings and building performance.

Although the property has aging mechanical systems, 453-456 Kent St was operating at a level far below its capability.

Previously rated at 1.5 Star NABERS Energy, the building has now achieved a 3.5 Stars Energy and 3 Stars Water.

“The property achieved a 3.5 Star Energy Rating without green power compared to a 1.5 Star rating 12 months ago,” explains Parag Shinde, Property NSW Senior Manager Energy and Sustainability.

“This is a phenomenal improvement for a site over one rating period without any major Opex or Capex. This was primarily achieved via building optimisation and fine tuning.”

This has resulted in a 26% reduction in annual electricity use since the last rating period.

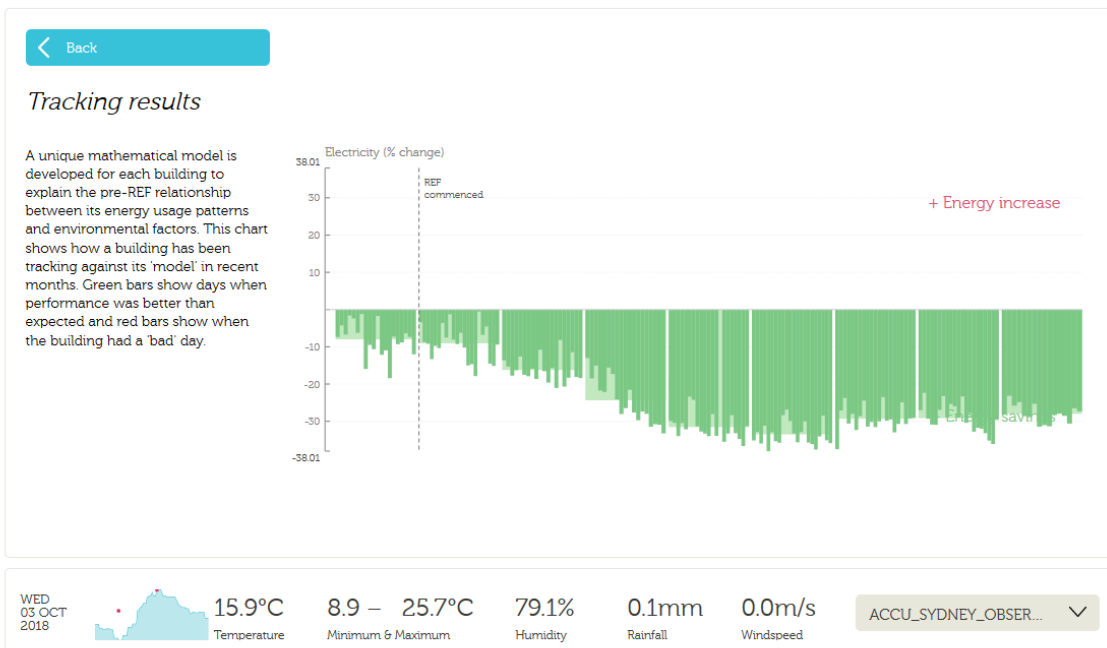
Overview

Contract	Property NSW
Location	453-456 Kent St Sydney
Client	Property NSW
FM	JLL
Energy Monitoring	Buildings Alive
BMS	Veolia
Sustainability	1.5 Stars NABERS Energy and Water before optimisation- 3.5 Stars NABERS Energy and 3 Stars Water after optimisation



NABERS increase via fine tuning with additional Opex and no Capex or Green Power

Metrics for 453-463 Kent Street (Building 214)



Opportunities for improvement from fine tuning

Intent of portfolio optimisation

Precise Air Group commenced the mechanical, electrical and fire contract for the Property NSW portfolio in January 2018.

The Building Performance Optimisation (BPO) team was engaged to improve the overall portfolio NABERS ratings for Property NSW, to meet the intention of achieving an average of 5 Stars by 2020 across the portfolio.

453-456 Kent St is one of 28 properties with BMS in this portfolio.

Prior to commencement on the contract, Precise Air reviewed the BMS within the portfolio to gain an understanding of the status and opportunities for improvement.

The starting point was the proposition that all aspects were open to examination to identify ways in which we could improve service

delivery, total lifetime costs and energy efficiency.

Property NSW scoped the ongoing building optimisation, fine tuning and strategic reporting requirements in the contract managed by JLL on their behalf. JLL manages the ongoing optimisation program alongside PNSW with Precise Air. Precise manage the optimisation advisory and implementation services.

The strategy and improvements are driven by the PNSW Energy and Sustainability Manager, JLL Sustainability Manager on the PNSW contract and Precise Air's General Manager BPO.

Round table discussions ensure the objectives of the high level Optimisation Programme are delivered and that members of the team have the support required to meet their objectives.

Weekly Operational meetings are driven by JLL's Sustainability Manager - Property NSW, Paul Suter.

They are an opportunity to discuss each of the initiatives undertaken and planned for that week and remove any roadblocks.

Unique challenges

At 453-456 Kent St, the necessarily high security protocols required by the tenant, an agency with high security clearance requirements, means that there can be no remote access to the BMS, thus limiting the day to day optimisation at that level.

Security clearances and access is also limited on the ground to one HVAC technician, one BMS technician and one optimisation engineer.

Therefore maintenance works and optimisation tasks must be meticulously planned and cleared in advance.

Ensuring that Precise Air carefully manages collaboration between all parties is integral to the success of the optimisation programme.

Inefficiencies rectified across the spectrum

Our solution

Step 1. Rescope the BMS

Precise Air's BPO team reviewed the preventative maintenance program proposed by the BMS provider.

We assessed the value of each of the tasks and determined that more than 35% were redundant and skilled resources were under-utilized. That is, highly skilled technicians were duplicating checks across the system and completing simplistic tasks.

We then re-scoped the BMS maintenance tasks to focus on identifying abnormalities, alarm management and improving performance.

2. Understand the systems

Property NSW and JLL had an arrangement with Buildings Alive to monitor the energy use of high priority

buildings in the portfolio, including 453-456 Kent St.

Daily and monthly reports are provided, comparing the building's energy use to comparable days based on outdoor temperature.

Pictured opposite and as explained by Buildings Alive, the chart is based on a model developed for this particular building and tracks its performance against environmental and energy usage factors. Simplified, it shows when the building is have a 'good day or a bad day'.

3. Assess performance

Precise Air's BPO team began by doing a site assessment for all floors, establishing a baseline of historical data and examining the performance of individual plant.

The engineer found a number of inefficiencies around:

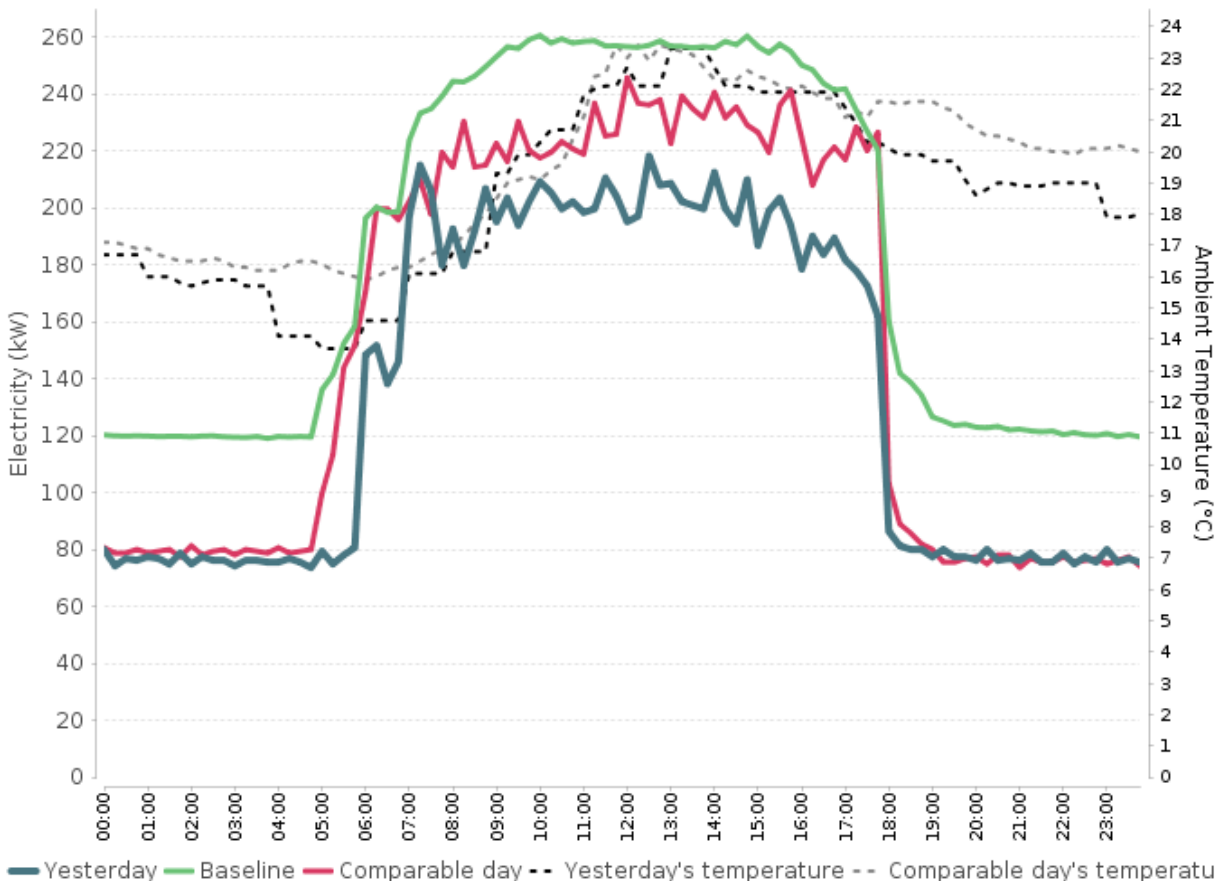
- time schedule optimisation
- zone temperature control optimisation
- AHU variable demand control
- AHU Economy mode
- AHU CO2 control
- thermal plant optimum stop.

4. Fine tune the building's systems

Precise Air then set about implementing the new control methodologies.

The above changes saves energy, increases human comfort and reduces plant operating times and hence reduces maintenance.

Changes were made after studying the building and monitoring inside and outside the premises. This was a team effort involving Property NSW, JLL, Buildings Alive, Precise Air and Veolia.



Daily graphs show the electricity performance of the building in comparison to the baseline, usage on the previous day and performance on a comparable day (based on outdoor temperature)

	Month	Last 6 months (cumulative)		Last 12 months (cumulative)	
February	-3%	\$280	No data		-1% \$700
March	-8%	\$750	No data		-2% \$1,820
April	-14%	\$1,260	No data		-3% \$3,330
May	-10%	\$2,810	-10%	\$5,600	-5% \$6,080
June	-30%	\$2,180	-15%	\$8,140	-8% \$9,040
July	-31%	\$4,500	-23%	\$18,560	-13% \$21,190
August	-28%	\$5,380	-26%	\$27,490	-16% \$32,250
September	-30%	\$4,960	-29%	\$30,110	-19% \$36,790

Savings programme delivered throughout portfolio

Results

Early results have shown substantial improvement in:

- reduction in Opex
- increased maintenance efficiency
- energy savings, below target.
- financial savings
- improve equipment lifecycle
- 2 NABERS stars improvement

“We’ve made considerable results by making the most of the Kent St building’s existing systems without the need for Capex or upgrades,” said Wissam Salama, Precise Air’s General Manager - Building Performance Optimisation.

“The building has a proprietary BMS and we had the pleasure of working

and collaborating with the service provider to really get the most out of the systems,” explained Wissam.

JLL’s Sustainability Manager – Property NSW, Paul Suter, explains that “the Precise Air team have worked closely with our facility managers to identify sensible, cost-effective improvements for this site - adding to the energy savings we had achieved with the previous contractor.”

Extending results across portfolio

“The results that Precise Air’s BPO team have delivered through optimisation and fine tuning are not just confined to this one building,” said Sean McKeon, Contract Manager, Portfolio Management Group for Property NSW.

“PAG’s Building Performance Optimisation team in consultation with Property NSW and JLL is making some great improvements in energy ratings and cost savings across the entire portfolio,” Sean continued.

Precise Air BPO doesn’t rely on software only.

We have in-house engineers who attend sites to monitor and review plant performance, and to coordinate with building owners, facilities managers, tenants, BMS contractors and Mechanical contractors.

The more time we spend on site working with these parties and off site analysing critical data, the more we learn about the building and the more energy we save.

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Property NSW Senior Manager Energy and Sustainability**