



### SUMMARY

Recognising the need to improve building energy efficiency to;

- guard against building comparative obsolescence,
- enhance building tenant attraction, and
- protect asset values.

Challenger Life Company completed an energy retrofit project of Makerston House.

### BUILDING DESCRIPTION

The property is a substantial commercial building comprising 13 storeys of commercial office of approximately 13,878m NLA plus additional storage of 300m; ground floor retail, approximately 750m and a 4.5 level car park having approximately 164 bays. Both vehicle and personnel access is from the Makerston street level.

The building was initially constructed in 1974 with refurbishments of plant and building completed in 1997 and 2000.

### PROJECT TIMEFRAME

The project was completed over a period of 10 months.

### PROJECT STRATEGY GOALS AND TARGETS

To improve the energy performance of the asset to retain existing tenants and attract new.

The project was designed to provide a guaranteed result of a 3.5 Star NABERS Energy Rating and a 4 Star NABERS Water rating.

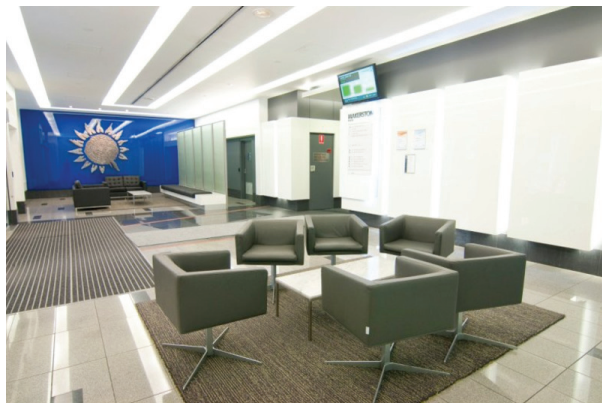
### MAIN STAKEHOLDERS

Challenger Life Company – Owner

Challenger Investment Partners – Asset Manager

Honeywell Building Solutions – Works Contractor

Green Building Fund – Federal Government Grant Provider



## SOLUTION DESCRIPTION

The Makerston Street site was operating at a 1.5 Star NABERS Energy Rating when initially assessed. Challenger reviewed its alternatives considering capital costs for the improvement works, tenant retention risk, energy consumption costs and overall impacts on asset value. Financial models were completed based on the building attaining a NABERS rating improvement to 3.5 Stars.

In parallel to the energy efficiency improvements water consumption was also considered and in particular the efficiency of the Cooling Towers. The building was initially rated at 3.5 Stars NABERS Water rating.

The proposed solution included a range of energy saving measures, including;

- Installation of high efficiency chillers,
- Installation of variable speed drives for the water cooling systems,

- Installation of a new Building Management system and adoption of new efficient HVAC equipment control strategies,
- New lighting controls for the base building and tenancies,
- Lighting retrofit of existing light fittings to reduce lighting energy consumption and building heat load,
- Improving water efficiency of the Cooling Towers,
- Implementation and use of sophisticated energy management dashboards and tenant displays to monitor building energy consumption and comfort conditions,
- Addition of an afterhours air conditioning management system for use by tenants to schedule use and capture and allocate costs, and
- Completion of the project out of hours to ensure minimal tenant disruption



## ENERGY PROJECT DETAILS

### Project Cost

The complete project cost including consultant fees was approximately AUD \$2.4million. The financial models completed during the project review and approval period considered everything including; capital cost versus consumption cost reductions, reductions in planned capital expenditure, maintenance cost reductions and allowances for additional revenue through tenant attraction and reduced letting up allowances. At this time the project to deliver a 3.5 star building was cost neutral however the project delivered a 4.5 Star building which resulted in a positive financial outcome. An indication of consumption cost reduction for a 1 star NABERS improvement was approximately AUD\$150k/annum at the time of the project.

### Funding Grant

At the time of scoping and finalising the project inclusions the Australian Federal Government launched a program of incentivising commercial building owners to improve their buildings energy efficiency. Challenger made application to this fund and was successful in receiving AUD\$500k.

## CONTEXT AND DRIVERS

To improve tenant attractiveness and reduce risk of comparative obsolescence of the site Challenger created a new leasing strategy including the repositioning of the asset within the western fringe of the Brisbane CBD. As part of this repositioning it was recognised that Challenger needed to improve the operating efficiencies of the building including its energy, sustainability and its NABERS Rating and Green House foot print.

Challenger undertook a Level 3 Detailed Energy Audit as nominated under Australian Standards and the results of the audit provided information on how to achieve NABERS ratings improvements.

Challenger were keenly aware that government tenants throughout Australia had mandated the requirement that their tenancies should only be housed in buildings with a minimum rating of a 4.5 Star NABERS Energy rating. As non-Government tenants became more educated to “whole” of tenancy costs (which include outgoings), they too were moving to demand energy efficiency in their buildings. Challenger saw this as a significant risk which needed to be addressed.

### Energy Conservation Measures

The project included the following energy conservation measures;

Measure	Benefit
Replace 2 x chillers with high efficiency chillers	Reduced energy consumption and reduced environment impact due to improved refrigerant.
Variable Speed Drivers on cooling tower fans	Reduced energy consumption and improved chiller energy consumption due to run time efficiencies. Reduced water consumption due to reduced run times.
Replacement of Building Management System	Reduced energy consumption due to optimal control of air conditioning equipment. Improved tenancy comfort.
Addition of a web based afterhours air condition control system	Reduced energy consumption due to optimum time control of the air condition plant. The capture and pass back to the requesting tenant of the costs for operation.
New Variable Air Volume controllers	Reduced energy consumption and enhanced tenant comfort.
Air balancing, water balancing and building system commissioning	Reduced energy consumption and enhanced tenant comfort.
Retrofit of base building lighting to energy efficient lighting (foyers, car park and common areas)	Reduced energy consumption
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### Implementation

Challenger engaged an energy auditor to complete a detailed energy audit. This audit included recommendations to achieve improvements in NABERS energy ratings. The contractor was then engaged by form of a guaranteed energy performance contract which was fixed and firm and tied to a guaranteed energy outcome of achieving a minimum of 3.5 Stars NABERS Energy.

The entire project was internally managed by Challenger and was extremely tenant focused. The tenant focus came as Challenger recognised that the building being fully tenanted during a large project of this nature could be very disruptive if not managed correctly. Tenants were included in site project meetings and were provided with regular project updates throughout. Additionally, by including the tenants in the project it was hoped that this might provide motivation to tenant staff and result in improved behaviours and improved sustainability outcomes.

### PROJECT OUTCOMES

The project resulted in Challenger exceeding their target and achieving a 4.5 Star NABERS Energy rating and a 4 Star NABERS water rating for the asset. Financially, this resulted in a consumption reduction in dollar terms of approximately \$150k per annum. Leasing was assisted through tenant attraction and securing existing tenants. Tenants can now keep updated on the energy performance of the building via the display located in the foyer.