

## SOLAR CASE STUDY: 101 COLLINS, MELBOURNE



### Location:

101 Collins Street, Melbourne

### System Size:

59.4 kW

### Solar Panels:

180 x 330W BENQ - mono

### Solar inverter:

2 x SMA STP25000 Tripower

### Funding model:

Upfront payment including City Of Melbourne solar rebate

### Installation date:

October 2015

### Installer:

Solar Backup

### Premium office building, 101 Collins, is setting sky high sustainability goals with the highest solar PV array in Australia.

With its black granite floors and travertine marble columns, 101 Collins St is considered Melbourne's most prestigious commercial address. Retail tenants include Cartier, Monards, Harrolds Outfitters, and Bally, while the office tower houses notable financial tenants such as JP Morgan, Goldman Sachs, Morgan Stanley and Macquarie Group, and legal tenants such as Herbert Smith Freehills and Allens.

The 101 Collins owners and management team take sustainability seriously. Proud of their 4 star NABERS building rating, they feel a responsibility to keep improving and continue taking action on energy efficiency and sustainability.

This system, Solar PV, will generate a virtually guaranteed output of carbon free energy for years to come. It fits with one of our operating principles which is, "Do It Right and Do It Once", said Ross Boreham - Senior Manager Engineering & Sustainability for 101 Collin St.

### Energy efficiency

Following a tenant sustainability survey carried out in 2008 to understand priorities, a number of energy efficiency initiatives have been undertaken across 101 Collins. Extensive energy efficiency lighting upgrades have been carried out; primary HVAC chillers were replaced and controls were retuned for greater efficiency; and toilets were upgraded across the building, reducing water use by 14 million litres per year. After completion of such sustainability projects, the 101 Collins management team produces a briefing paper to communicate the sustainability actions being taken to the building's tenants.

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## The next logical step

To take sustainability to the next level, 101 Collins management and owners started exploring solar PV around five years ago. They initially looked into wind turbines, but with disturbed winds at high levels, solar was more appropriate. Several options were explored, including installing traditional solar panels on an apron at a lower level, affixing them on the building's vertical façade, or even trying emerging technologies such as photovoltaic window film. After years of thought, negotiations and reports, the decision essentially came down to timing and pricing.

The 59.4kW system made up of 180 vertically oriented solar panels is expected to produce 47,000 kWh of electricity per annum and will be used to offset the building's tenant condenser water system.

## Reaching new heights

The solar array being installed on level 56 of 101 Collins is believed to be the highest in the Southern Hemisphere. While this makes the project a notable one, it has also brought its challenges.

Initial wind load tests assessed wind strength and how securely panels need to be attached, however further testing down the track found that the panels needed to be significantly more securely affixed. While they received capital works approval in January 2015, getting the design and engineering took 7 months and the panels were in storage on-site for months before installation could commence at level 56.

## Investing in the future

The original costing of \$160,000 was marginally justifiable, but the additional design and engineering required to suit the wind load, added an extra \$70,000 to the project cost. 101 Collins received a solar rebate from City of Melbourne.

On a "present day" simple payback basis, the project is marginal. However, as the design life of the project is 40 years, and this project is about investing in the future, we are absolutely satisfied this project will prove to be a significant contributor to our substantial goals in both the short and long term!

[melbourne.vic.gov.au/solar](http://melbourne.vic.gov.au/solar)



*101 Collins St. Melbourne*