

Jade Apartments Sustainability Case Study



Project Overview

Jade is a 4-building, 6-floor residential complex located in Albion, Brisbane. It houses 369 apartments, 265 of which are occupied. Of these, 235 are tenanted.



Aerial view of Jade

Jade management has engaged Wattblock to produce a case study based around four sustainability topics:

- **Solar Feasibility for Strata**
- **Energy Efficiency for Common Property**
- **Electric Vehicle Charging**
- **Water Usage Investigation**

From this case study, several cost-saving investment opportunities were identified, and are summarised below:

Topic	Options	Investment cost	Annual cashflow	Payback period
Solar Power	100kW	\$114,820	\$20,720	5.2 years
	200kW	\$348,980	\$48,396 to \$61,333	7.0 years
	500kW + Battery storage	\$1,115,820	\$105,435 to \$146,833	12.7 years
Carpark Lighting	Replace with LED batten on individual sensors	\$105,763	\$32,738	2.4 years
	Refit existing fluoro batten with LED tubes	\$48,063	\$26,246	1.4 years
DHW	Heat pump upgrade	\$278,300	\$63,954	4.4 years

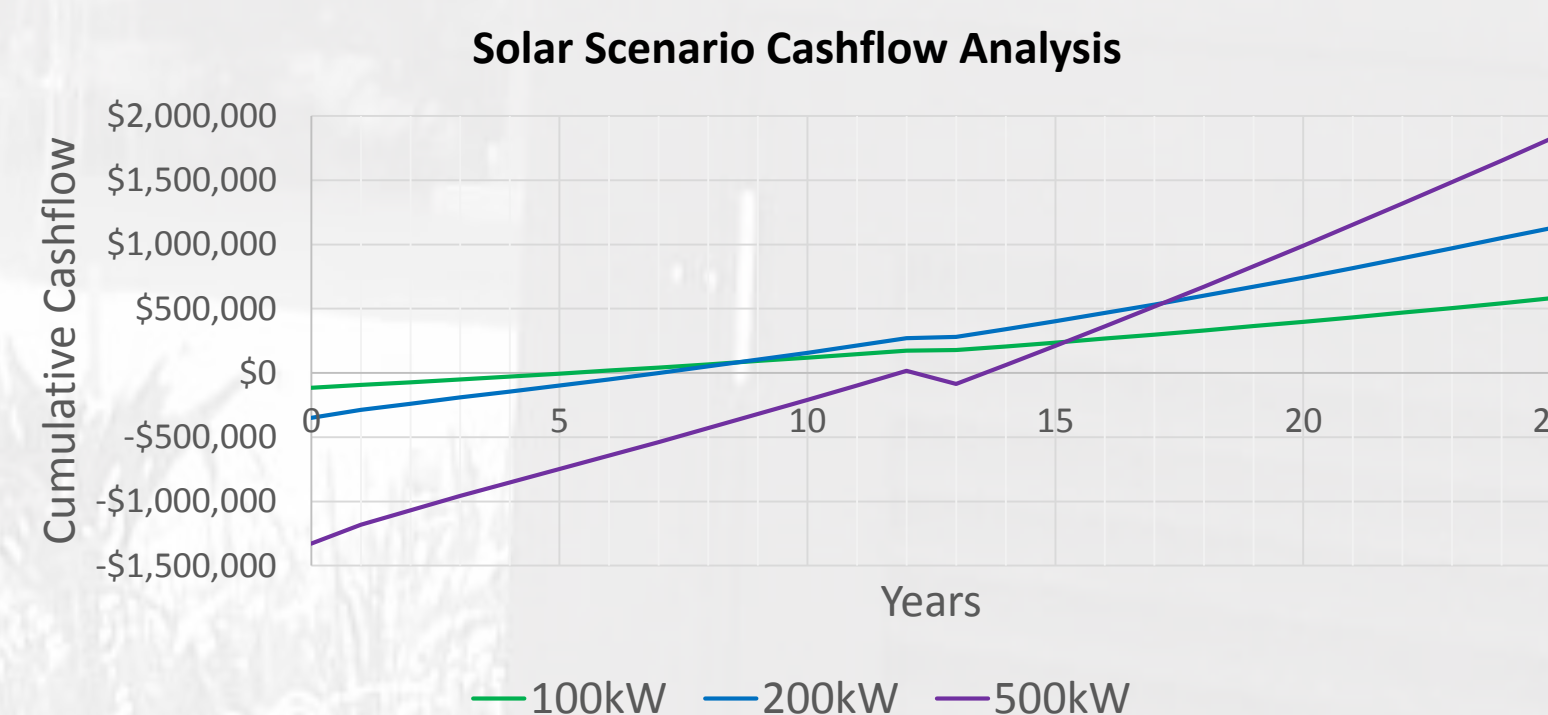
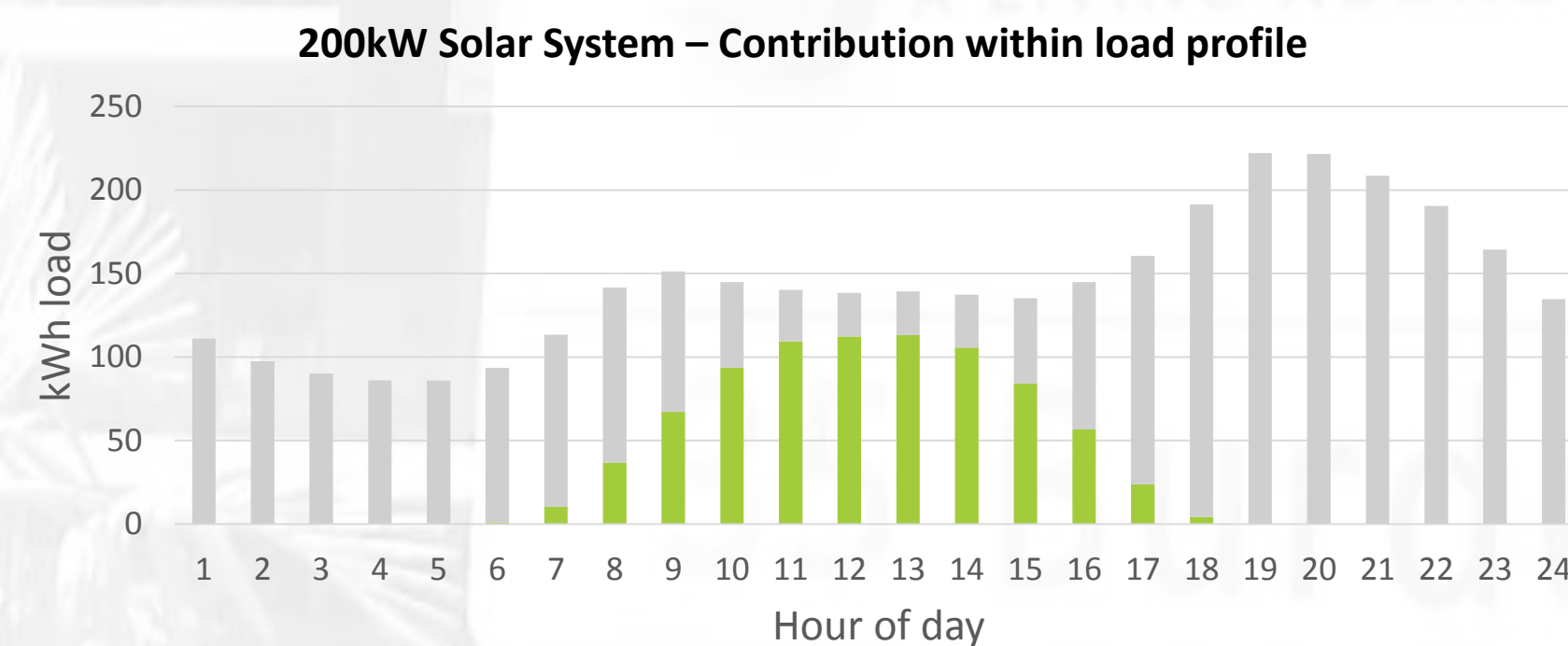
Solar Feasibility for Strata

Solar power generation is examined as a method to reduce electricity costs to the body corporate. Jade's large open rooftop spaces and embedded electrical network make it ideal for collecting and utilising solar energy.



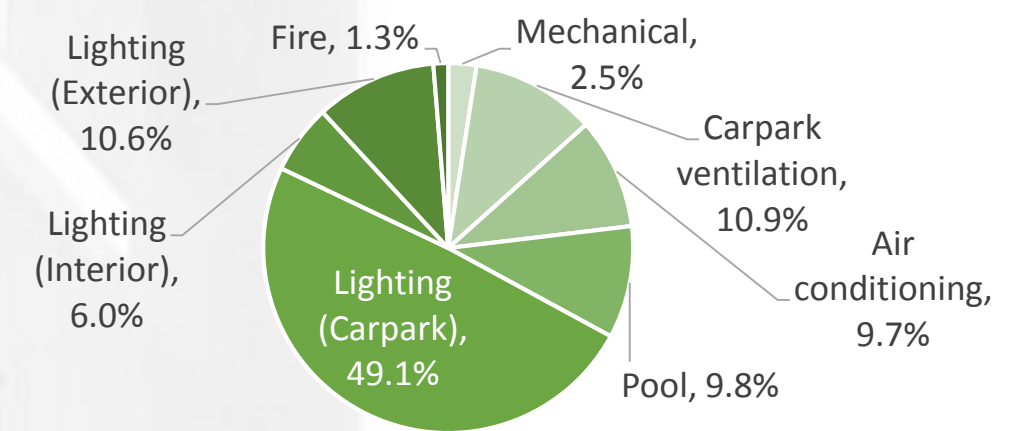
Solar System Conceptual Layout

Three scenarios are considered for systems of various sizes, with the aim being to use this energy within Jade for fastest payback. To do this, system sizing is modelled around the energy load profile of the complex.



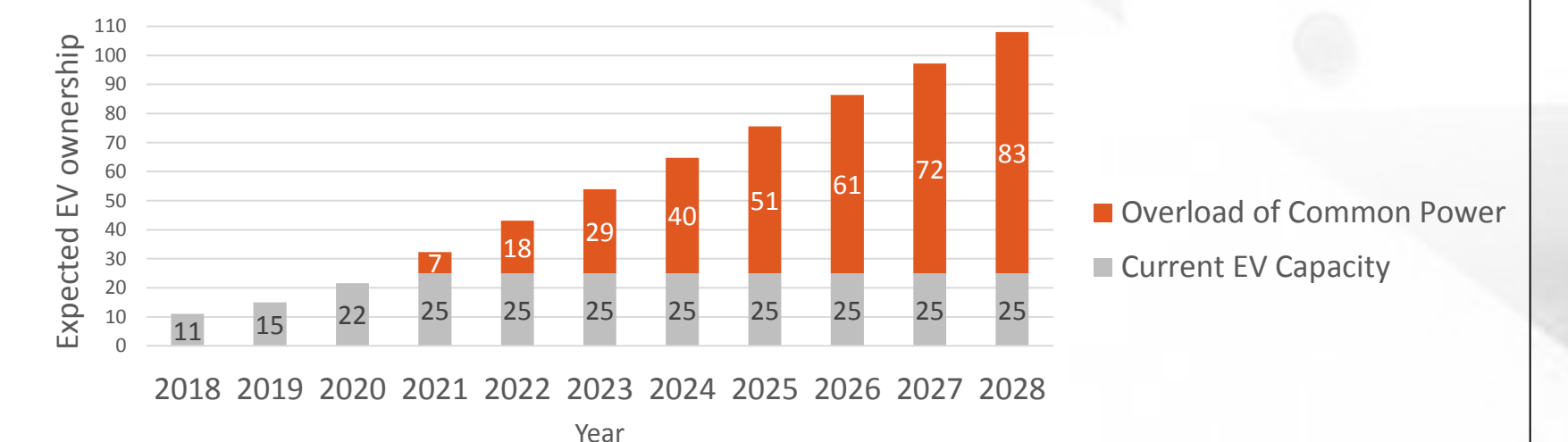
Energy Efficiency for Common Property

Energy assets at Jade operate at a high level of efficiency, with the exception of carpark lighting. Two LED upgrade options are considered: a replacement of existing fluorescent bulbs with LED tubes, and a refitting of new LED batten with individual sensors.



Electric Vehicle Charging

Electric vehicle ownership is set to increase in the coming years, increasing load on the local electrical network. At Jade, action is required by 2021 to prevent a potential overload of common power.



Water Usage Investigation

Water billing is higher than expected, and manual meter readings show a baseline flow rate of 5kL per hour for all hours of the day. Possible causes were examined, with the most likely cause being identified as a fault with the main water meter.

