

# ENERGY EFFICIENT COUNCIL BUILDINGS

## CASE STUDY: INDIGO SHIRE OFFICE

### YACKANDANDAH

2017

Indigo Shire's office building and library is located in Yackandandah, Victoria. The building houses staff from planning, statutory services and community development. The building is relatively new (2014) and has been well designed with energy efficient equipment installed. 16kW of solar PV is installed on the roof.

Wodonga council staff undertook an energy efficiency assessment on this building as part of a joint project with Indigo Shire funded under DELWP's Collaborate Council's Sustainable Fund Partnership Program.

#### The energy efficiency assessment:

- Was conducted in accordance with AS 3598.1:2014: Energy Audits Part 1: Commercial Buildings.
- Involved a review of 12 months of electricity bills
- Installed a data logger on the main switchboard to capture the electrical load profile of the site



#### *The energy efficiency assessment identified:*

- ⇒ Ongoing savings of \$5,590 per year
- ⇒ Return on investment of 4.47 years
- ⇒ Green house gas emission reduction of 27% from this building

*If all recommendations are implemented*

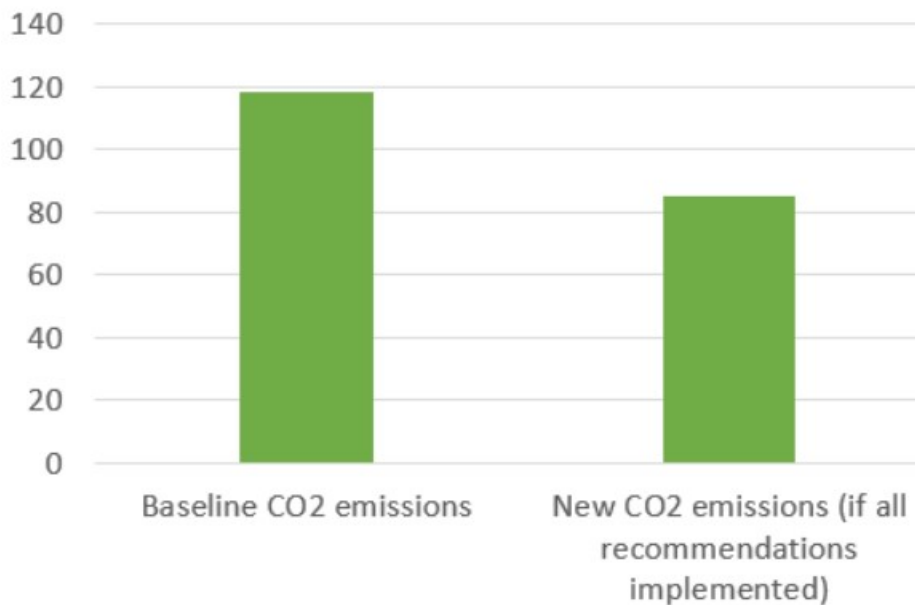
# Key Findings

- ⇒ The building has been well designed and is generally energy efficient.
- ⇒ The rooftop solar PV is not of an adequate size to cater for the usual day time consumption. An additional 20kW is recommended.
- ⇒ There is currently no data monitoring/logging feature available on the solar system to determine if it is functioning as it should be.
- ⇒ There is some confusion about the size of the existing PV installation. Indigo Shire staff are of the understanding that the system is 25kW, the energy efficiency auditor has stated it is 16kW based on the size and number of panels.

Live monitoring results summary from Metertrac device				
Parameter:	Minimum	Average	Maximum	Recommended
Power factor	0.64	0.86	1	≥0.95
Voltage	239.06	243.93	248.32	220*
Amps	6.91	21.67	83.53	-
kVA demand	5	15.82	60.35	-
kW demand	3.72	13.93	57.79	-

\*recommended voltage based on equipment nameplate

## Greenhouse Gas emission reduction (tonnes CO<sub>2</sub>-e)



# Recommendations, cost and benefits

Recommended equipment	Total Cost (purchase & install)	Annual electricity bill and maintenance savings	Rebates (one-off)	Return on investment (months)
Solar PV (20kW)	\$35,000 (approx.)	\$5589.38	\$10,000	53.7
Total:	\$35,000 (approx.)	\$5589.38	\$10,000	53.7

**Conditions and caveats:**

- Further cost breakdown is available in the Excel project workbook, available on request.
- The required size of the additional solar panels will be calculated after other recommendations have been implemented to ensure the sizing is optimal for the new electricity consumption.
- All figures are based on information within the current electricity account and information provided by the client.
- Rebates quoted for VEECs (lighting) and SGC (solar) rebates are estimates only, and subject to change as a result of Government policy and spot price fluctuations .

Savings over 10 years vs capital expense



# Recommendations

Action	Timing	Responsible
Install additional 20kW of solar panels	(For ISC to complete)	Brett Direen
Ensure that monitoring/display of existing and new solar panels is available to enable visual checking of system function.		Helen Jones



Photo: Energy efficient lighting at Yackandandah library

Further information and calculations to verify statements in this report are available on request.  
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