

# CLEAN ENERGY FINANCE CORPORATION

OEH Solar Financing Guide Launch  
Simon Brooker, Executive Director, CEFC, July 2015



## **CEFC Mission**

Accelerate Australia's transformation towards a more competitive economy in a carbon constrained world, by acting as a catalyst to increase investment in emissions reduction

# Agenda

1. About the CEFC
2. Solar in NSW - Context
3. Financing Options



## About the CEFC

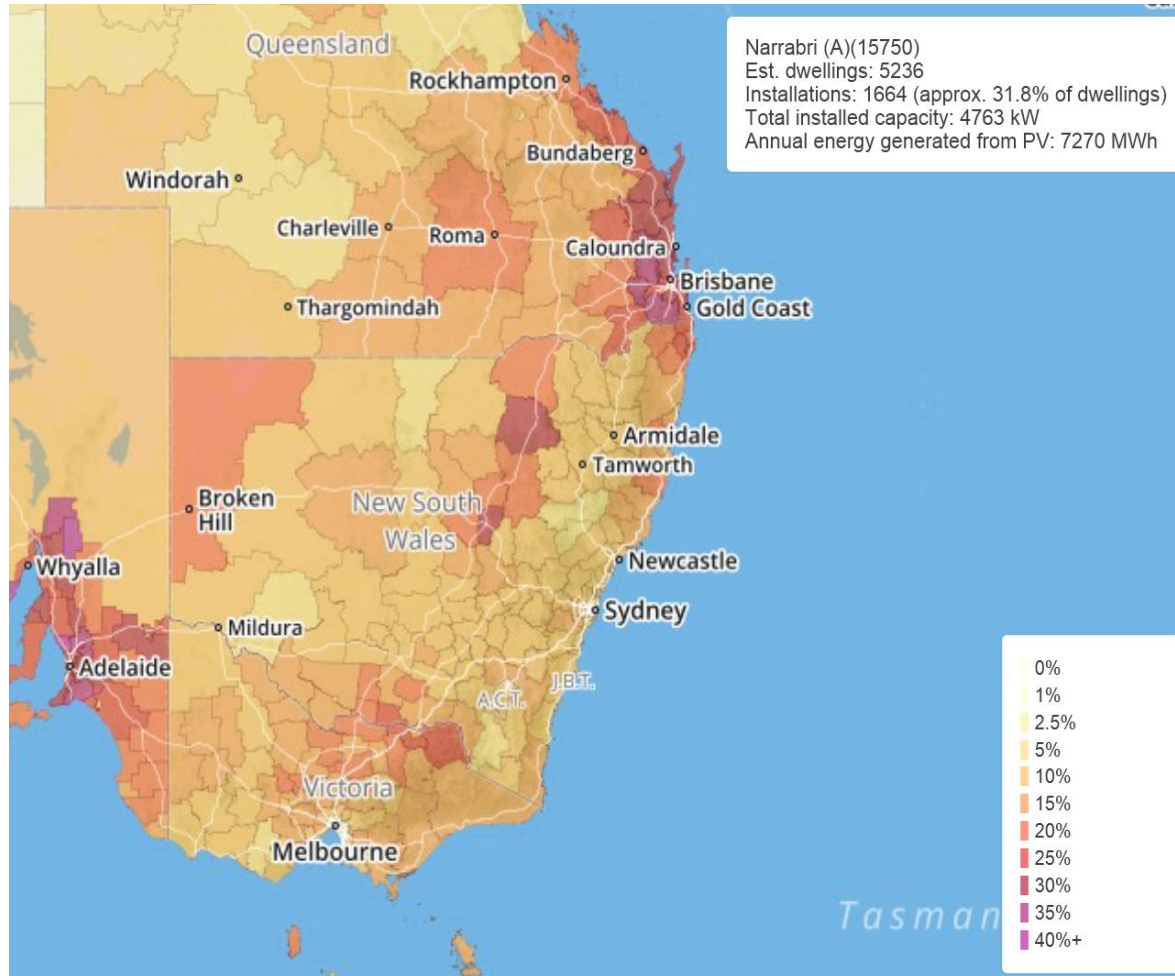
### Facilitating increased flows of finance into clean energy in Australia

- Australian Government institution that operates like a traditional financier
- Finance for renewable energy, energy efficiency, and low-emissions technologies
- Access to \$10 billion over 5 years
- Developing the Solar financing market is a key area of focus
- Longer tenor, fixed rate debt assists lenders and financiers in reducing the cost of finance to the customer
- Source of wholesale finance to aggregation parties (Solar PPA Providers, Retail facing financiers)





# Solar in NSW: Untapped Potential for commercial and storage



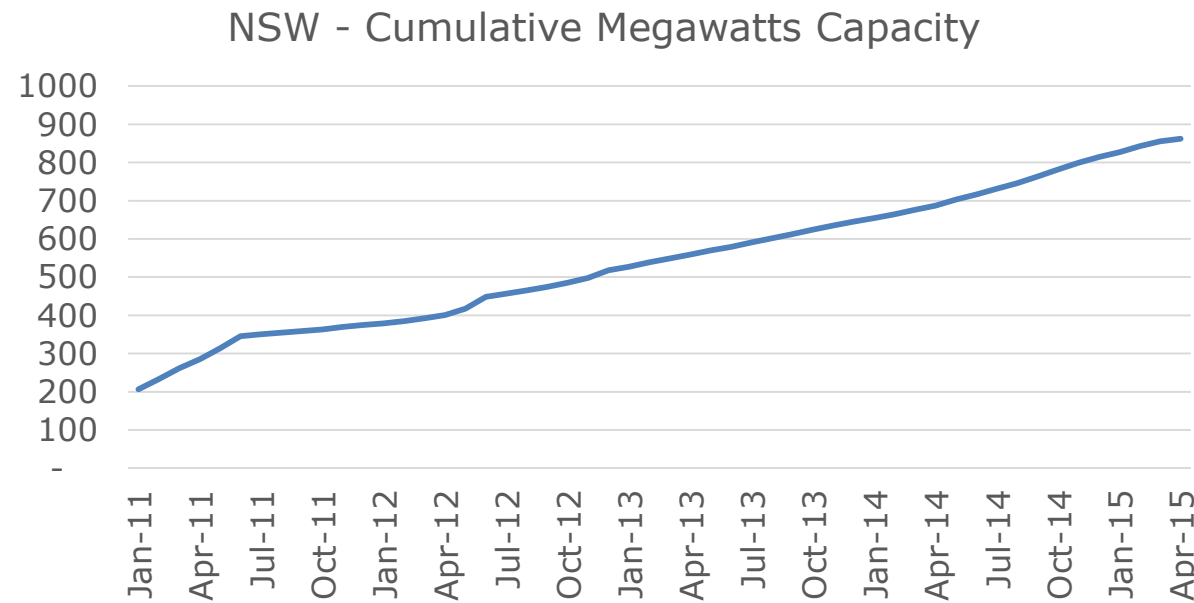
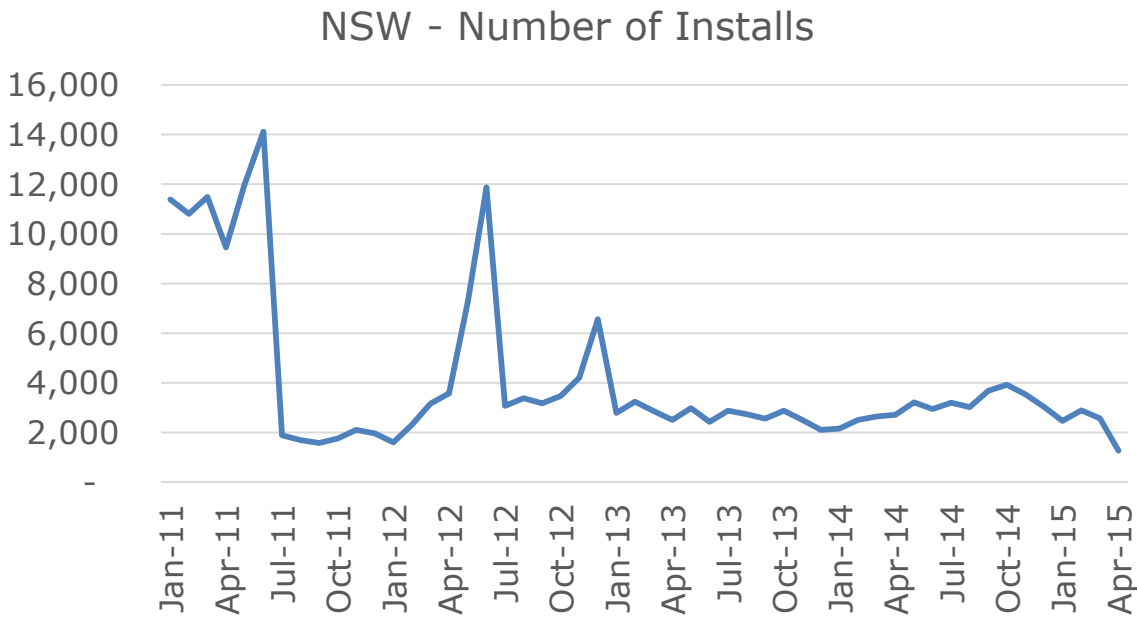
Australian PV Institute (APVI) Solar Map, funded by the Australian Renewable Energy Agency, accessed from [pv-map.apvi.org.au](http://pv-map.apvi.org.au) on 14 July 2015

- 870 MW of PV installed in NSW to May 2015
- Average penetration rate <20% of households
- Slow residential market
- Potentially large commercial market
- Significant number of systems coming off the 60c FIT in January 2017 – opens the market for battery systems?

System cost per kW since 2010, by installation size



# Solar in NSW: Number of installs steady but capacity increasing



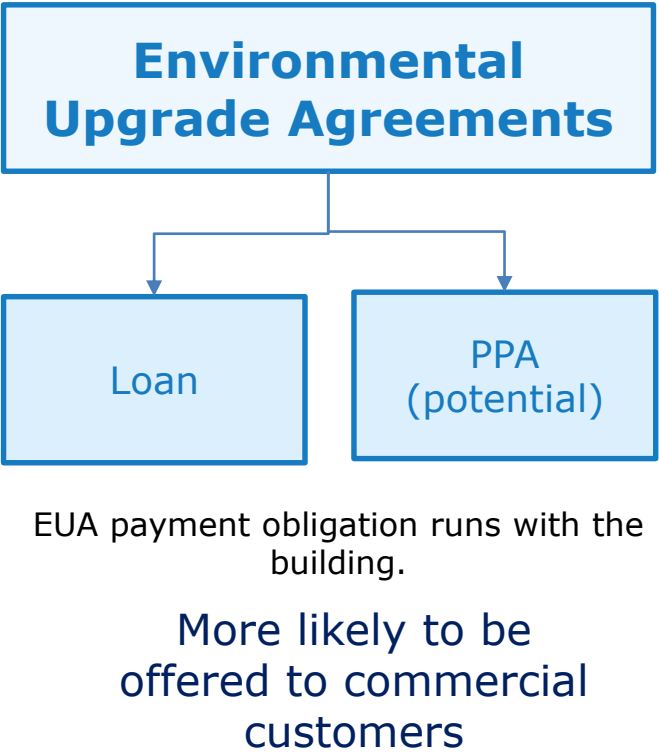
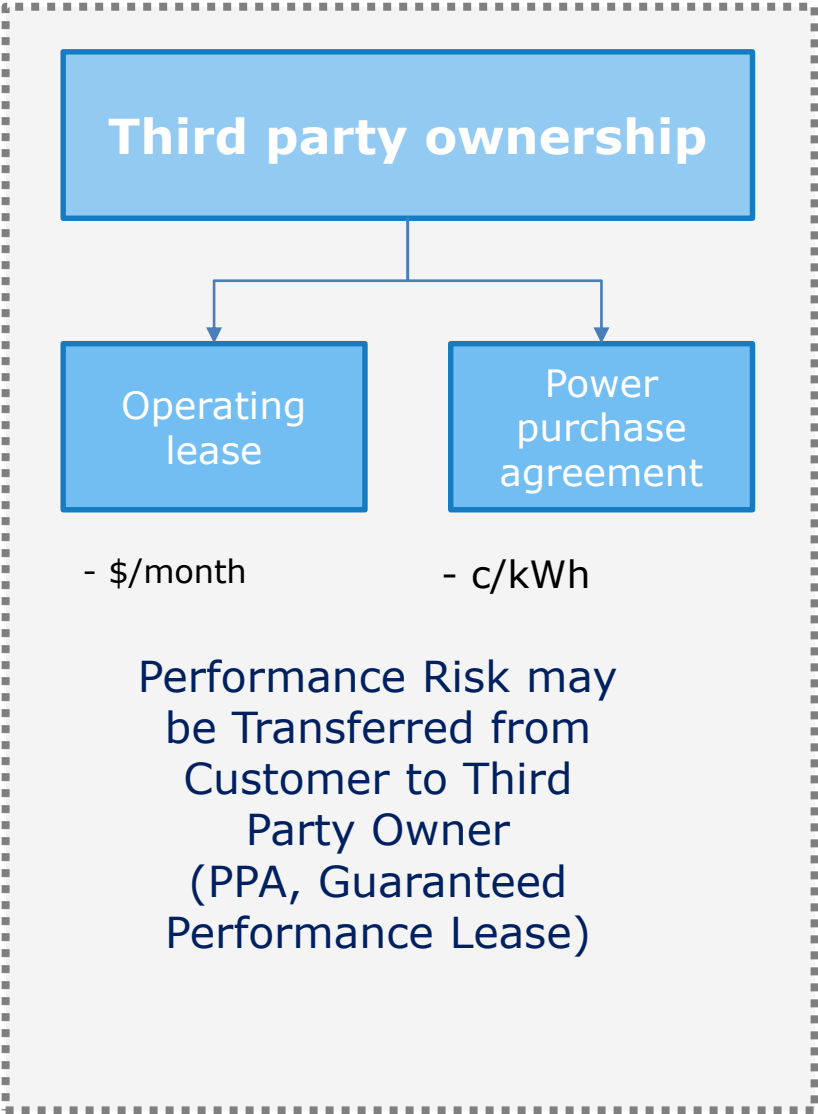
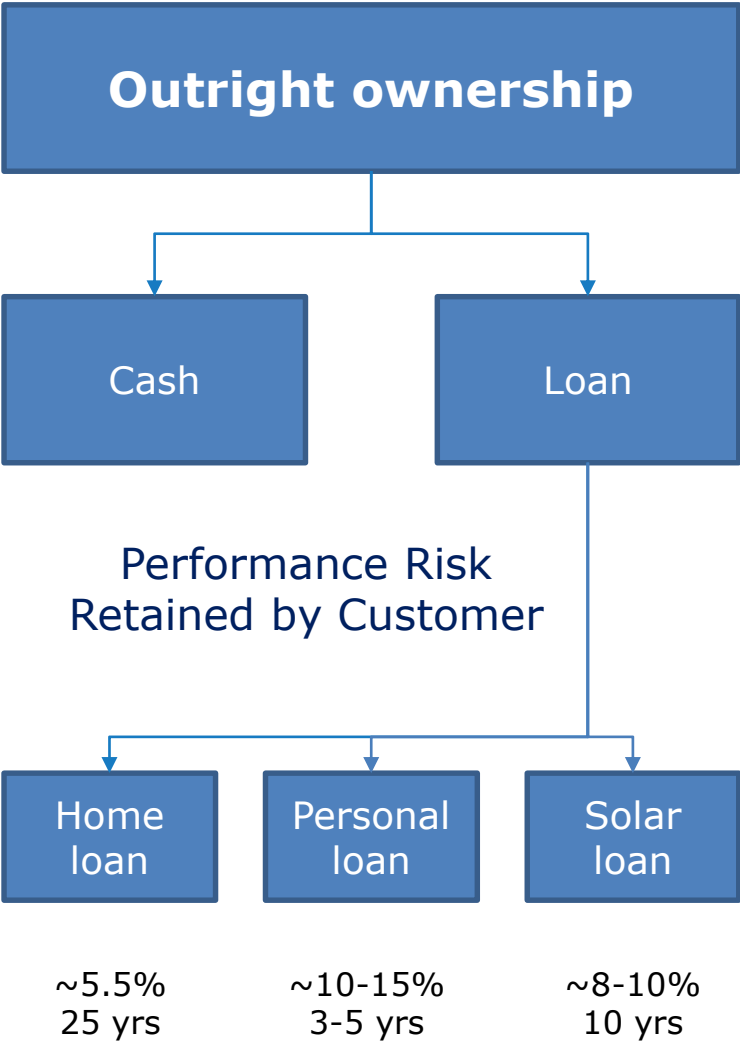
**System size is increasing, growing role for finance**

# When Can Financing Make Sense for the Customer ?

- Customer does not have available funds
- Business customer wants to manage cashflow
- Customer can deploy available capital in better investment alternatives (eg, own business)
- Customer wishes to pass operating risk to third party and only pay for performance (PPA or guaranteed performance lease)
- Borrower wants to procure energy not an asset (PPA)
- Borrower is able to access solar funding at a cheaper rate than their own borrowing cost (EUA)



# Types of Solar Financing Options Available in the Market



# What Determines Finance Rates?

A Financier's WACC is driven by

- Gearing
- Equity Risk Premium
- Debt Risk Premium
- Market Base Rates (rates are falling)
- In a loan or lease, the financier takes **credit risk**
- In a **PPA** or **Performance Lease**, the financier takes **credit risk** and **system performance risk**
- Traditional lenders have varying levels of risk appetite and may be tenor constrained
- The CEFC is working on ways to drive down financing costs

## Financier WACC

	Gearing		50%		Debt Rate
	4.5%	5.5%	6.5%	7.5%	8.5%
Financier ROE					
10%	7.3%	7.8%	8.3%	8.8%	9.3%
12%	8.3%	8.8%	9.3%	9.8%	10.3%
14%	9.3%	9.8%	10.3%	10.8%	11.3%
16%	10.3%	10.8%	11.3%	11.8%	12.3%
18%	11.3%	11.8%	12.3%	12.8%	13.3%
20%	12.3%	12.8%	13.3%	13.8%	14.3%
22%	13.3%	13.8%	14.3%	14.8%	15.3%

	Gearing		60%		Debt Rate
	4.5%	5.5%	6.5%	7.5%	8.5%
Financier ROE					
10%	6.7%	7.3%	7.9%	8.5%	9.1%
12%	7.5%	8.1%	8.7%	9.3%	9.9%
14%	8.3%	8.9%	9.5%	10.1%	10.7%
16%	9.1%	9.7%	10.3%	10.9%	11.5%
18%	9.9%	10.5%	11.1%	11.7%	12.3%
20%	10.7%	11.3%	11.9%	12.5%	13.1%
22%	11.5%	12.1%	12.7%	13.3%	13.9%

	Gearing		70%		Debt Rate
	4.5%	5.5%	6.5%	7.5%	8.5%
Financier ROE					
10%	6.2%	6.9%	7.6%	8.3%	9.0%
12%	6.8%	7.5%	8.2%	8.9%	9.6%
14%	7.4%	8.1%	8.8%	9.5%	10.2%
16%	8.0%	8.7%	9.4%	10.1%	10.8%
18%	8.6%	9.3%	10.0%	10.7%	11.4%
20%	9.2%	9.9%	10.6%	11.3%	12.0%
22%	9.8%	10.5%	11.2%	11.9%	12.6%



# Lower WACC, Longer Tenor: Drives down the cost to customers

Energy Equivalent cost in c/kWh / for given financing term and WACC

100% self consumption assumed

4kW system \$1.70/W Sydney

Loan/Lease Term	Customer Finance Rate							
	5.50%	6.50%	7.50%	8.50%	9.50%	10.50%	11.50%	12.50%
3	44.49	45.32	46.15	46.99	47.84	48.69	49.54	50.40
4	34.24	35.03	35.83	36.64	37.45	38.27	39.10	39.93
5	28.11	28.88	29.66	30.46	31.26	32.07	32.88	33.71
6	24.03	24.79	25.57	26.36	27.16	27.96	28.78	29.61
7	21.12	21.88	22.66	23.45	24.25	25.06	25.88	26.72
8	18.95	19.71	20.49	21.28	22.09	22.91	23.74	24.58
9	17.26	18.03	18.82	19.61	20.43	21.26	22.10	22.96
10	15.92	16.70	17.49	18.29	19.12	19.95	20.81	21.68
11	14.83	15.61	16.41	17.22	18.06	18.91	19.77	20.66
12	13.93	14.71	15.52	16.34	17.19	18.05	18.93	19.83
15	11.96	12.76	13.60	14.45	15.33	16.23	17.15	18.09
20	10.04	10.89	11.77	12.68	13.62	14.58	15.57	16.57
25	8.95	9.84	10.77	11.73	12.72	13.73	14.77	15.84

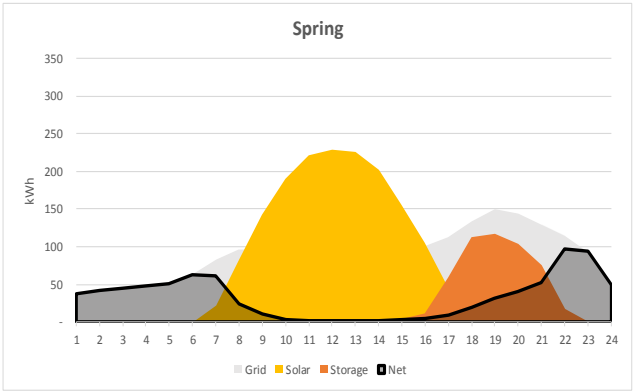
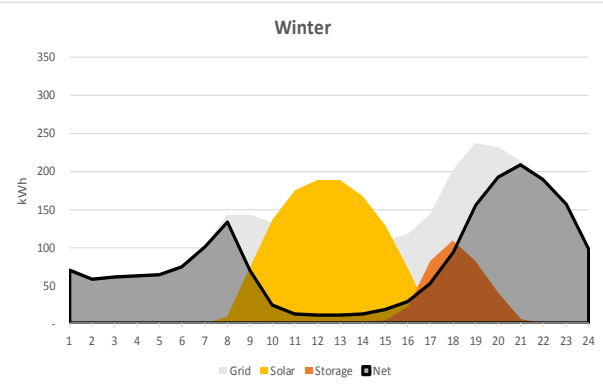
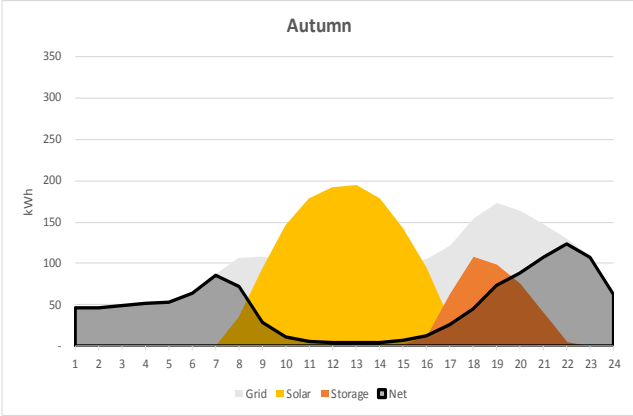
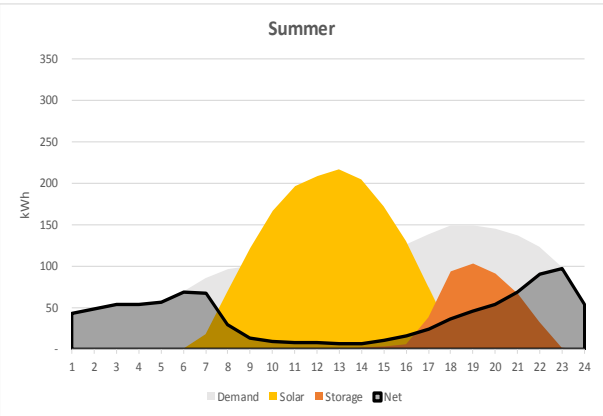
Note, in practise,  
Customers do not achieve  
100% self consumption.

Sizing the system to  
minimise export is  
important if the price for  
exported power will be less  
than the implied cost of  
self generated power

# The Potential for Battery Financing in NSW (60c FiT Customers post 1 Jan 2017)

Cost comparison (*no solar* vs *paid for solar & new battery* with an *existing 4kW* solar system making a *7kWh battery retrofit*)

**Assume** : pro-forma residential 10,000 kWh load profile, Battery Cost \$1300 / kWh , 80% useful life at end of 10 years,10 year lease term at 8% lease rate, Sydney area, Origin tariff structure, 2.5% inflation.



Year	Payments	Base Case	Difference
0			
1	2,515	2,475	40
2	2,552	2,537	15
3	2,591	2,600	- 10
4	2,630	2,665	- 35
5	2,671	2,732	- 61
6	2,714	2,800	- 86
7	2,757	2,870	- 113
8	2,802	2,942	- 139
9	2,849	3,015	- 167
10	2,896	3,091	- 194

LCOE at 5.5%

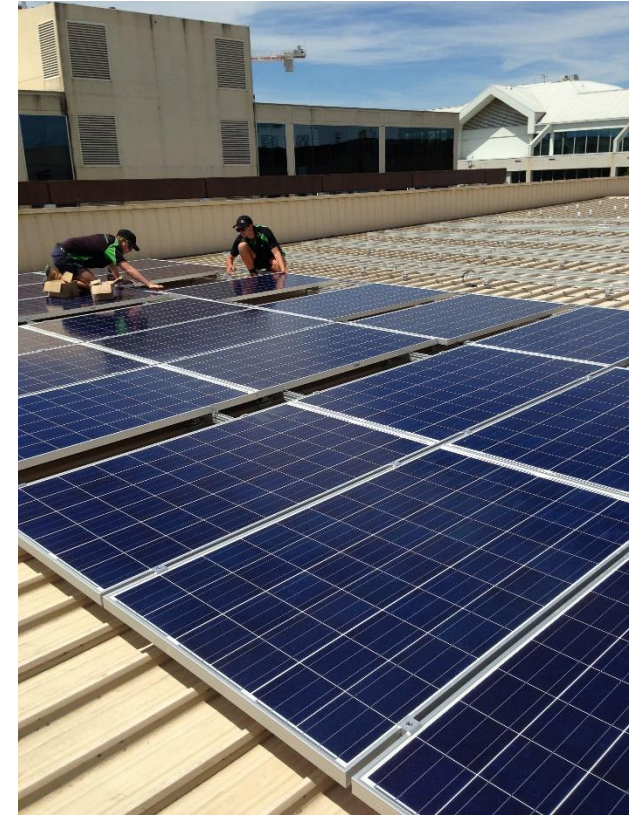
25.30

LCOE at 10%

25.51


## Around \$275 million in CEFC funding for solar delivery and financing models


- PPA and guaranteed lease programs being brought to market by:
  - Origin (up to \$100m)
  - SunEdison (up to \$70m)
  - Lighthouse / Tindo (up to \$20m)
- Solar loan financing via CBA and NAB bank partnerships (up to \$70m)
- Solar loan financing via FirstMac (up to \$16m)



# Thank-You

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