

# *Clean energy certificate opportunities for renewable energy installations and energy efficiency upgrade*

Clean Energy Regional Responses Conference 2014,  
Kurri Kurri, Friday 21 November 2014  
Panel session 3.35pm – ....pm

*Presented by*

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Rewarding sustainable choices



Green Energy  
Trading



## Setting the scene

- Financial incentives available to energy consumers for RE installations & EE upgrades in NSW
- Making your offer more attractive through quicker payback times
- Contraction of the solar market; shift from residential to commercial solar
- Policy uncertainty
- Business opportunity for solar installers to offer more than just solar





# Green Energy Trading

- Green Energy Trading is one of Australia's largest leading environmental agents. We aim to increase the accessibility of clean energy options.
- We offer:
  - ✓ Access to a range of incentives
  - ✓ Reduced compliance risk
  - ✓ Reduced price risk
  - ✓ Independence
  - ✓ Market insights
  - ✓ Education and training support
  - ✓ Flexibility
  - ✓ Personalised service
  - ✓ Experience

## **NEW:**

- Finance options for RE & EE
- Online STC creation





## Making incentives for the use of clean energy more accessible to Australians

[Read more about us →](#)

[View our services →](#)

### New online certificate creation portal

[Read more →](#)

#### [Introducing Green Energy Online](#)

Green Energy Trading is pleased to announce the launch of its online certificate creation portal – Green Energy Online.

#### [Advocating for the RET](#)

The Australian Government has announced its review of the Renewable Energy Target. Market confidence surrounding the review has contributed to a drop in LGC price.

#### [How to reduce your risk at a time of potential regulatory change](#)

Proposed changes to the NSW ESS have been open for consultation for some months.

[Solar PV calculator](#)

[Launch calculator →](#)

[Today's prices](#)

[\\$22.50](#)

[We're on Twitter](#)













- Fossil fuel subsidies worldwide:



# Assessment of last 12 mths or so

Sector	Last 12 mths	Next 1-2 years	Why?
Large scale solar (>100kW)			RET Review uncertainty
Commercial solar PV (10 to 100kW)			RET Review uncertainty
Residential solar PV (<10 kW)			RET Review uncertainty
Solar hot water			RET Review uncertainty



# NEM assessment – 2013



## Research Note: 1-2014

### **NEM power consumption falls 2.8 per cent in 2013 Scheduled renewables now make up 12% of NEM**

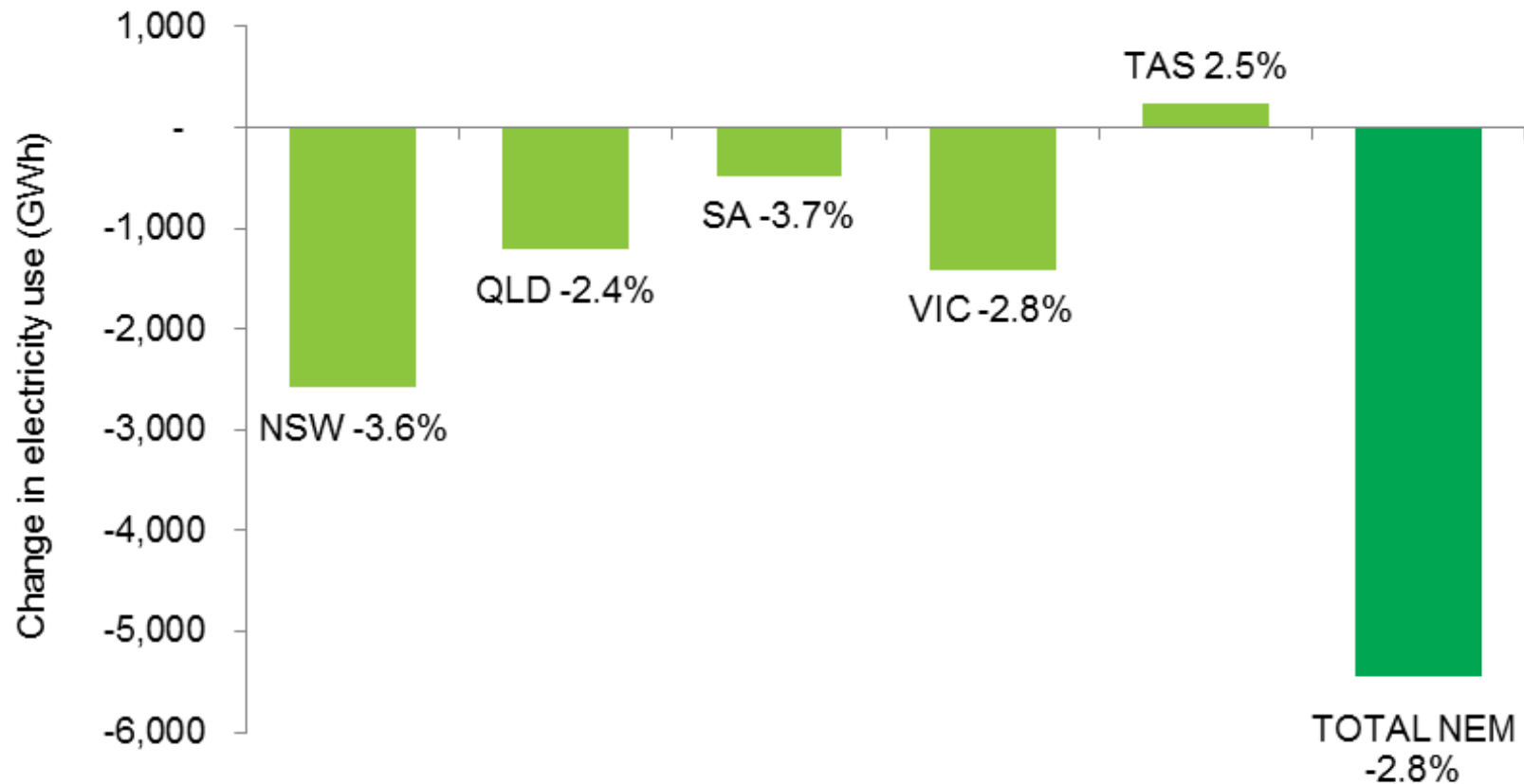
#### 1. Summary

Consumption of electricity within the National Electricity Market (NEM) states (excluding Western Australia and the Northern Territory) has fallen for the 5th consecutive calendar year. Electricity consumed within in the NEM in 2013 was 2.8 per cent lower than the electricity consumed within the NEM in 2012.

Note: NEM accounts for 76% of total generation

# NSW consumption has fallen furthest

**Figure 2. Change in scheduled electricity consumption (2013 cf: 2012)  
(no allowance for leap year impact)**



Note: closure of Kurri Kurri smelter will have had a significant impact

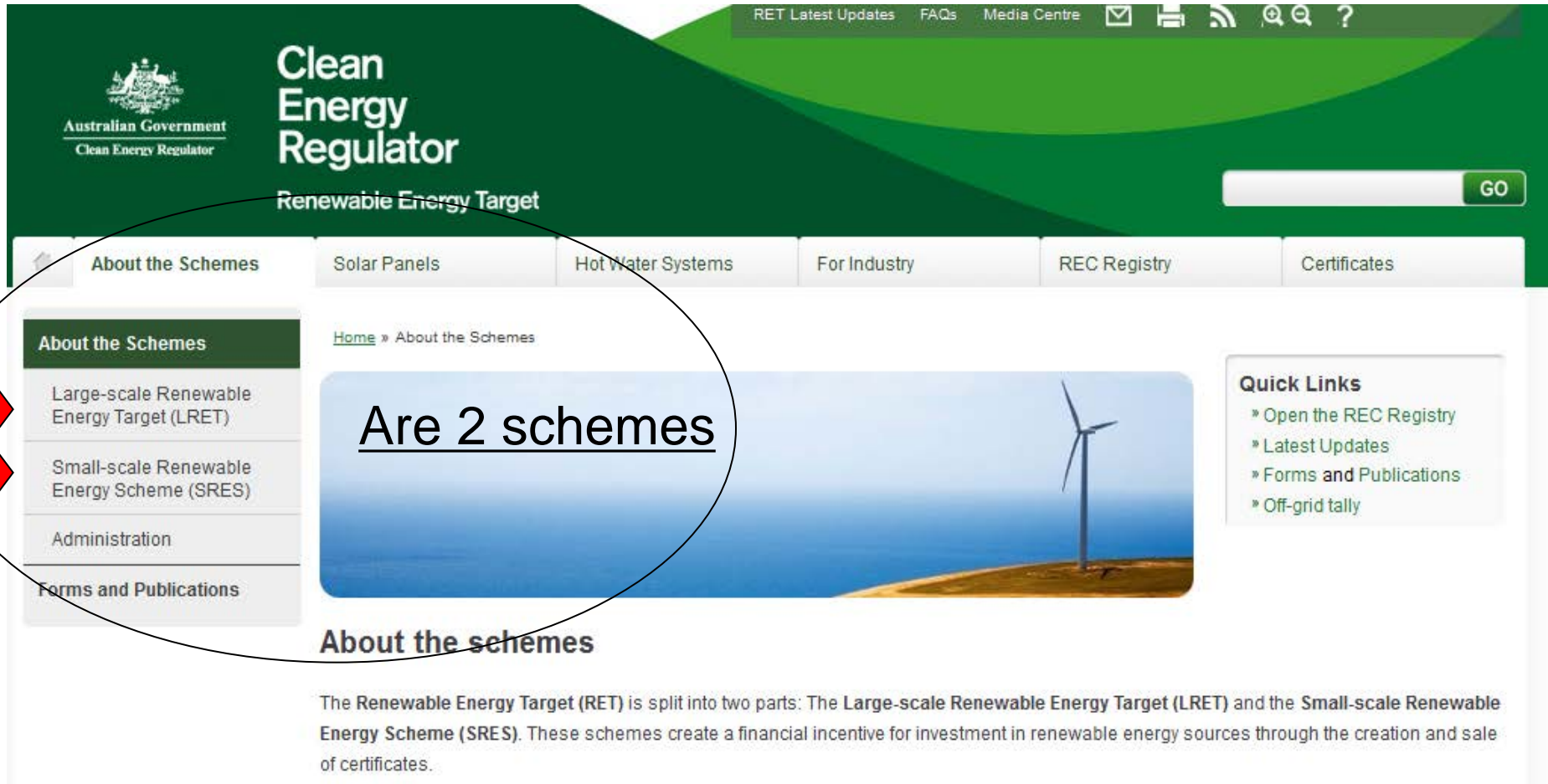


# Wholesale price has fallen with oversupply

- Reduced demand and oversupply of coal fired generation has put downward pressure on wholesale price
- Rising gas prices (due to LNG) is increasing prices in SA and Qld which rely on gas more than Vic and NSW



# Renewable Energy Target (RET) is now primary policy support for solar



The screenshot shows the website for the Australian Government Clean Energy Regulator. The main heading is "Renewable Energy Target". A navigation menu includes "About the Schemes", "Solar Panels", "Hot Water Systems", "For Industry", "REC Registry", and "Certificates". The "About the Schemes" menu is expanded, showing "Large-scale Renewable Energy Target (LRET)", "Small-scale Renewable Energy Scheme (SRES)", "Administration", and "Forms and Publications". A central banner features a wind turbine and the text "Are 2 schemes". A "Quick Links" box on the right lists "Open the REC Registry", "Latest Updates", "Forms and Publications", and "Off-grid tally".

**Are 2 schemes**

**About the schemes**

The Renewable Energy Target (RET) is split into two parts: The **Large-scale Renewable Energy Target (LRET)** and the **Small-scale Renewable Energy Scheme (SRES)**. These schemes create a financial incentive for investment in renewable energy sources through the creation and sale of certificates.

# Renewable Energy Target



- Scheme announced in Nov 1997 (Kyoto package)
- Scheme commenced in 2001
- Objective to encourage additional power generation
- Initial target of 9,500 GWh by 2010 – expanded to 45,000 GWh (notional 20% market share by 2020)
- Scheme split from 2011 (small and large scale)
- Electricity retailers (and other liable parties) need to surrender an identified amount of Certificates by 14 February each year (creates demand)
- Pay a penalty of \$65/REC/MWh for non compliance
- Renewable generators produce Certificates
- Small generators (wind/PV) and SWH can produce RECs “up-front” (on a deemed basis)

# Key features (for small-scale)



- From 1 Jan 11 we have two separate schemes
  - Large-scale Renewable Energy Target (LRET)
  - Small-scale Renewable Energy Scheme (SRES)
- Liable parties (electricity companies) to purchase and surrender certificates under both schemes (this creates demand for certificates)
- SRES uncapped with fixed price of \$40/REC through clearing house (target will be determined each year based on expected supply)
- Independent review after 30 Jun 2012, then every 2yrs
- Heat pumps above 425 litre capacity excluded

# Deemed RECs (receive generation up front)

## Small Generating Units (SGU)

- Solar (PV)



**15 years**

- Wind and Hydro



**5 years at a time**

## Solar Water Heaters

(incl air sourced heat pumps)



10 years



# Calculating Number of Certificates for PV



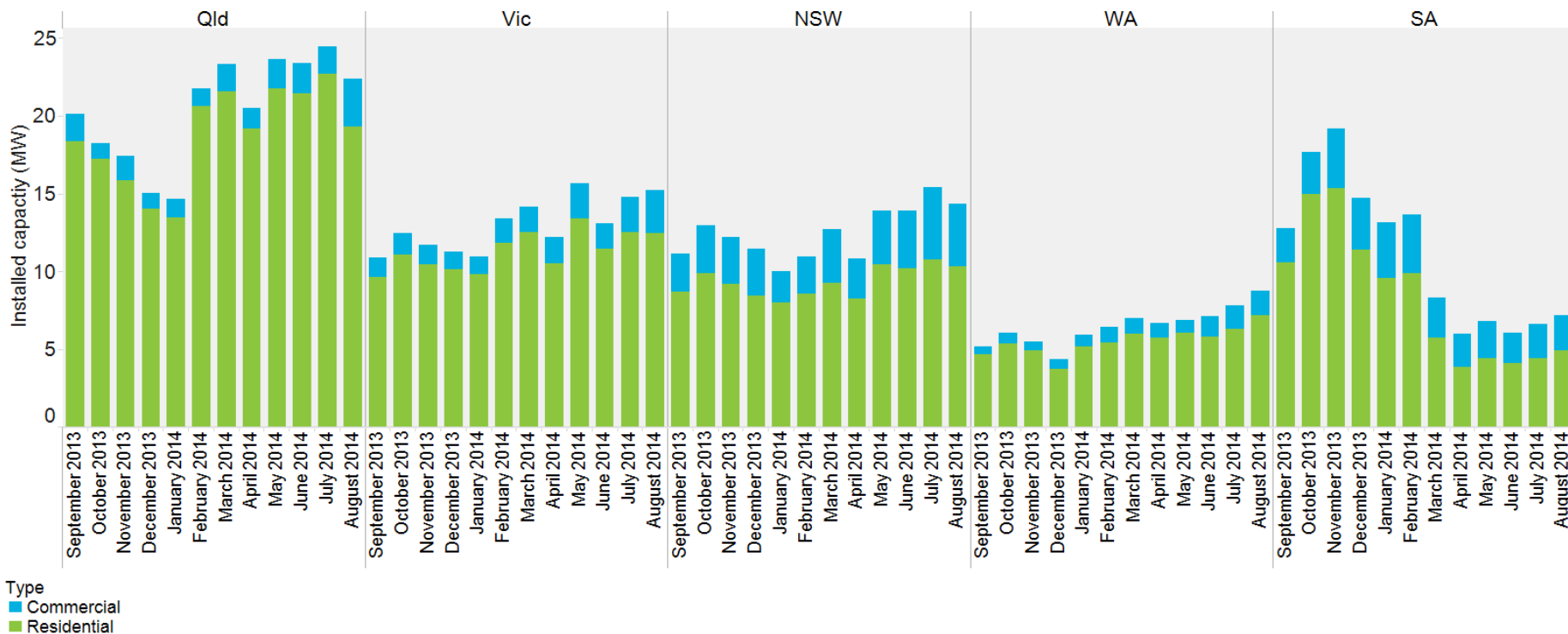
$$\frac{\text{Capacity} \times \text{Zone rating} \times \text{Years} \times \text{Solar}}{\text{Credit Multiplier\#}}$$

$$3.0 \text{ kW} \quad \times \quad 1.185 \quad \times \quad 15 \quad \times \quad 1 = 53.33 \text{ Certificates}$$

Rounded down to 53 Certificates

# Note: Solar Credit Multiplier was reduced to 1 from 1 Jan 2013

# Commercial sized systems increasing



Define commercial size systems at >10kW

# Case study small scale installation - STCs



# Large-scale solar market



Greenough River Solar Farm (WA)

# Large scale solar is negligible in Australia at present



- Created 34,601 LGCs in 2013 cf: 20,706 in 2012 (67% increase)
- Represents only 0.3% of total LGC creation in 2012 (13.9 million)
- 27 solar power stations created more than 100 LGCs pa (20 Last year)
- Are 4 projects (22.16 MW) committed and under construction
- Range of other projects under development (incl Solar flagships)

Largest 10 Solar Power stations (by LGC creation) as at May 2014	State	Capacity (kW)	LGCs in 2012	LGCs in 2013
Greenough River	WA	10,000	9,870	24,321
Uterne Solar Farm (Solar City)	NT	1,000	2,440	2,170
University of Qld	QLD	1,220	1,472	-
Adelaide Showgrounds	SA	1,000	1,179	1,099
Alice Springs Airport	NT	235	595	282
Marble Bar	WA	505	580	456
Crowne Plaza	NT	304	535	176
Bendigo Solar Park (Solar City)	VIC	300	533	503
Singleton Power Station	NSW	400	498	486
Ballarat Solar Park (Solar City)	VIC	300	345	322
Carnarvon – Massey Bay Rd	WA	510	457	302

# Large scale solar will find going tough over next few years

- > 100kW in LGC market and competes with wind as lowest cost renewable generator
- LGC price is still low though recovering
- Uncertainty over RET Review and future value of electricity
- Wholesale power price low due to lower demand
- Wholesale power market is going to be tough with significant oversupply of capacity (particularly coal-fired generation)
- Solar will be attractive in niche markets (eg. off-grid, remote, end of grid, behind the meter) – where power price higher



Alice Springs Airport  
(c/- Ingenero web site)



# Case study large scale installation - LGCs

# Emerging issues and challenges for solar



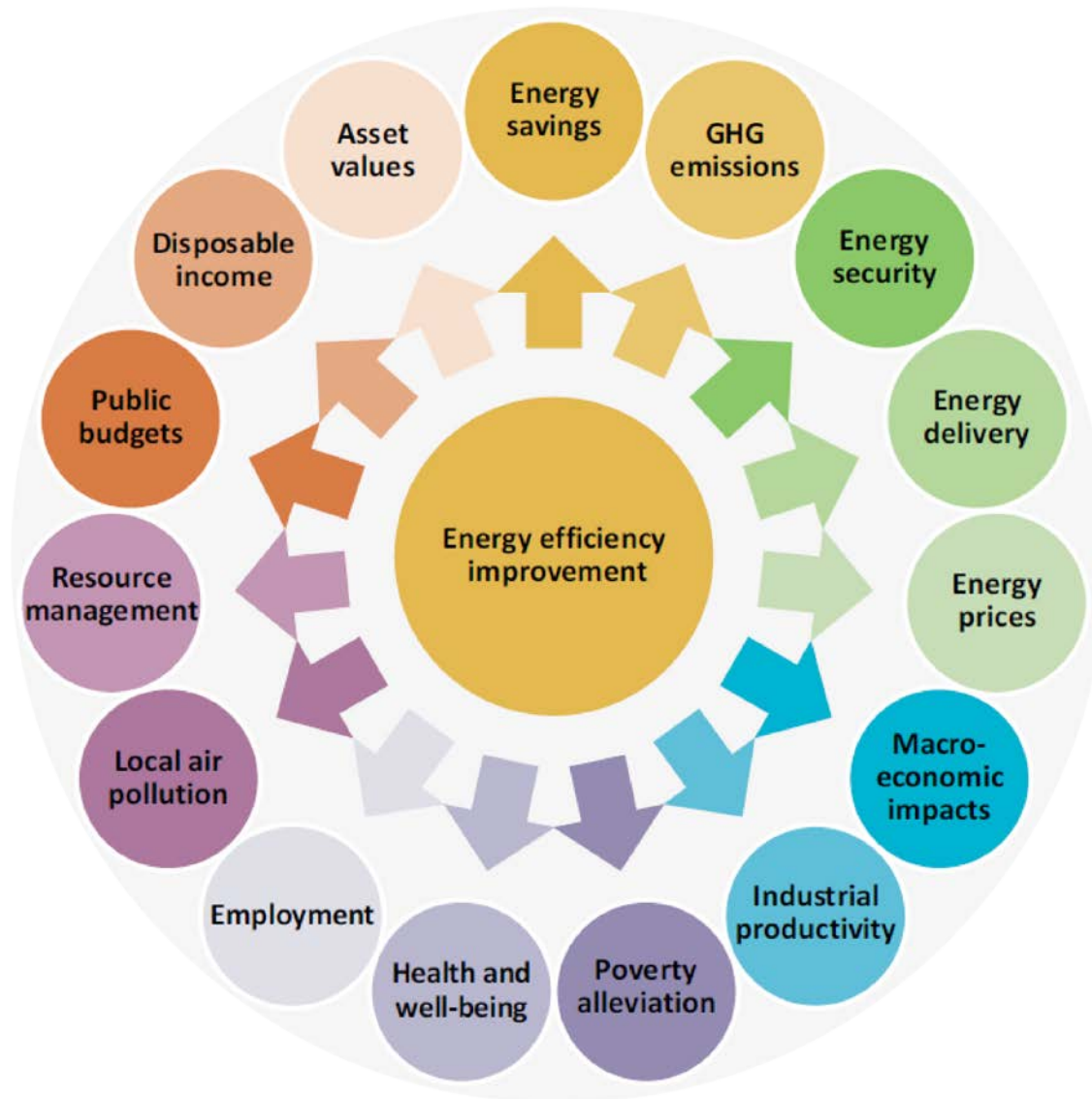
- RET Review
- Network charges and cross-subsidies
- Connection and access

# Renewable Energy Outlook

- Uncertainty around the RET Review clouds the future for solar
- Small-scale solar PV market expected to continue decline which will result in industry rationalisation
  - Residential market slowing
  - Commercial market (>10kW growing)
- Large-scale solar PV market to grow but will need additional support for some time yet to compete with wind



# Existing state based EE schemes



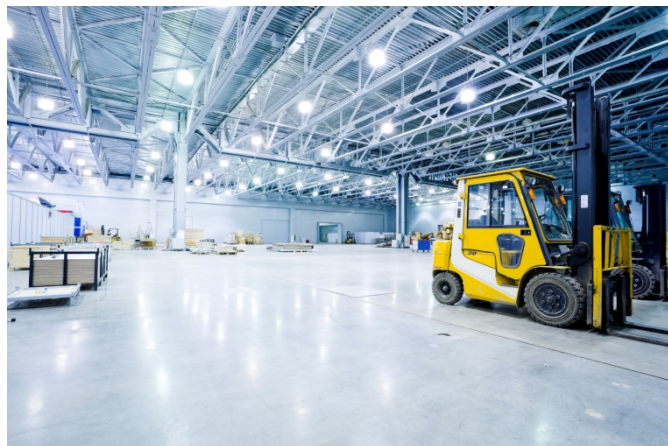
- 20 EE certificate style schemes currently operate globally
- Plus numerous policies with a direct EE obligation
- In Australia, 4 state / territories have EE schemes

Figure 2: The multiple benefits of energy efficiency (IEA)





# Photos







# Aims of the NSW Energy Saving Scheme (ESS)

- Create a financial incentive to reduce electricity consumption by encouraging energy saving activities
- Reduce the cost of, and the need for, additional energy generation, transmission and distribution infrastructure
- Reduce greenhouse gas emissions
- Drive additional EE investments (i.e. excluding required upgrades under other legislation such as BCA Section J6 and BASIX)
- Voluntary participation

# How does the ESS work?

## Demand created

Energy retailers are required to surrender EE certificates to achieve an annual target

## Energy savings

EE activities designed to reduce energy consumption are eligible to create certificates

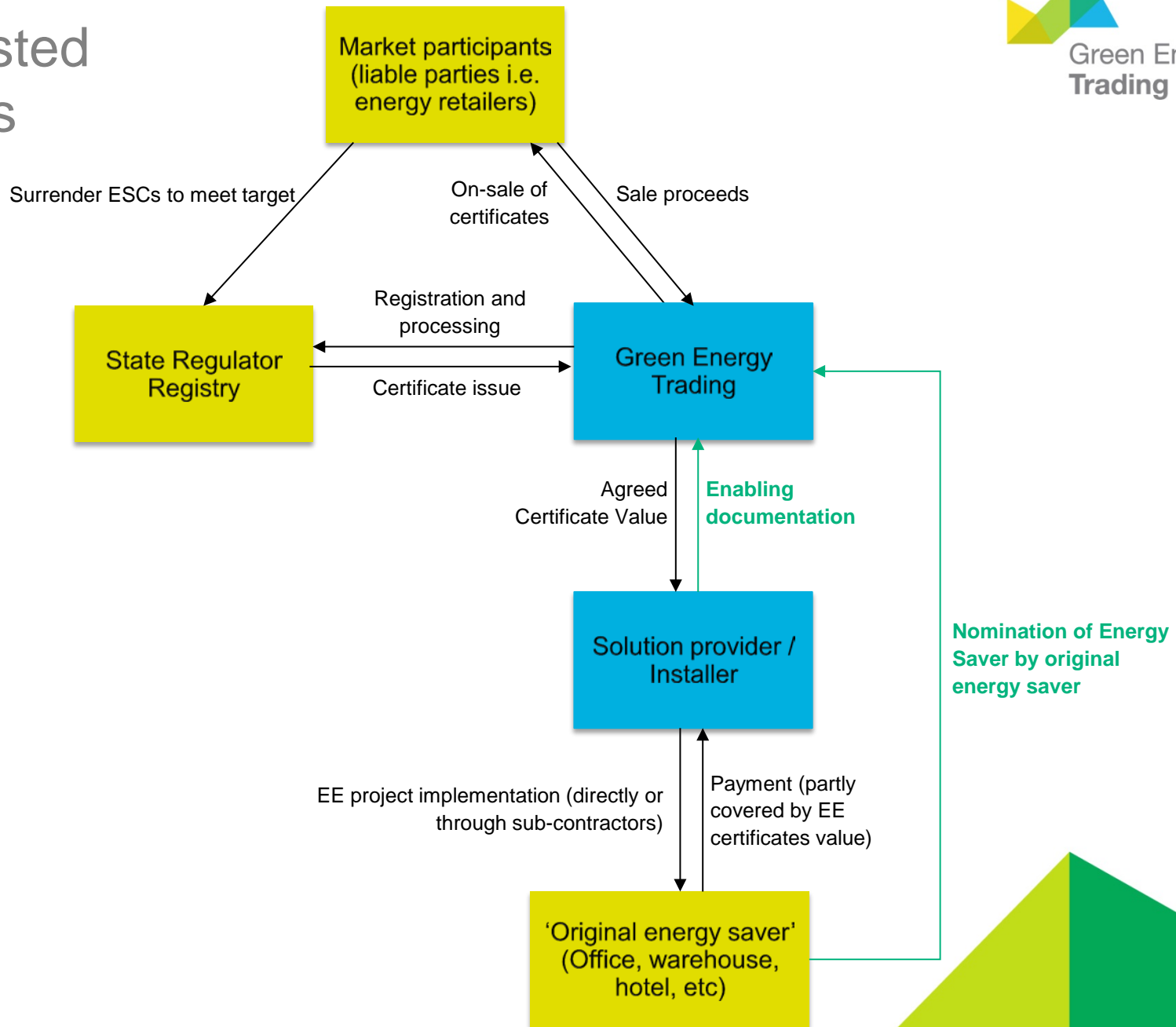
## Certificate creation

Certificates can only be created by an Accredited Certificate Provider (ACP)

## Compliance

Vigorous compliance requirements ensure robustness of activity and energy savings

# Interested Parties





# ESS / VEET – case study office

Installation of **90 x 40W LED panels**, replacing **347 x 18W** T8 fluorescent tubes with magnetic ballast in an office with air-conditioning, motion sensors; and **8 x 8W LED MR16s** replacing **8 x 50W** halogen downlights with magnetic transformers, no control devices; operating hours: 3000hrs/year

Cost to install = **\$12,800** (including product, installation and recycling costs)

	NSW	VIC (metro)
Electricity Saving deemed by regulator for the life of the product (30,000 hours)	208 MWh	147 MWh
Number of certificates created	220 ESCs	138 VEECs
Today's price per certificate	\$7.25	\$10.00
Total certificate payment	\$1,595	\$1,380
Total project cost after certificate reduction	\$11,205	\$11,420
Electricity savings/year (based on 23 c/kWh)	\$4,784	\$3,381
Original payback period (based on 23 c/kWh)	2 years & 8 months	3 years & 9 months
Payback period with certificate value	2 years & 4 months	3 years & 5 months

# ESS / VEET – case study warehouse

Installation of **19 x 240W Linear T5 Highbays**, replacing **22 x 400W** mercury vapour highbays with magnetic ballast in a storage warehouse without air-conditioning, installing occupancy & daylight sensors; operating hours 24/7: claimed hours VIC 3000hrs/year, NSW 5000hrs/year

Cost to install = **\$ 15,639** (including product, installation and recycling costs)

	NSW	VIC (metro)
Electricity Saving deemed by regulator for the life of the product (30,000 hours)	308 MWh	198 MWh
Number of certificates created	326 ESCs	187 VEECs
Today's price per certificate	\$7.25	\$10.00
Total certificate payment	\$2,364	\$1,870
Total project cost after certificate reduction	\$13,275	\$13,769
Electricity savings/year (based on 23 c/kWh and 24/7 operation)	\$9,845	\$9,845
Original payback period (based on 23 c/kWh)	1 year & 7 months	1 year & 7 months
Payback period with certificate value	1 year & 4 months	1 year & 5 months

## Conclusion

- EE schemes form a great opportunity to diversify your business and combine solar PV with EE upgrades
- State based EE schemes will be the key policy measures supporting growth of EE industry
- Potential of integration of the Emission Reduction Fund with the existing state schemes



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