

Solar Market Update

Ric Brazzale, May 2015

Solar 2015
Industry and Policy

Rewarding sustainable choices



Green Energy
Trading

- Solars role in the electricity market
- Update on 3 Solar PV segments
 - Falling residential installations
 - Increasing commercial installations (10 kW – 100 kW)
 - Emerging large-scale sector (>100 kW)
- RET review – what are implications of 33,000 GWh

Who is Green Energy Trading?

- Independent REC Agent and accredited for commercial lighting and other activities in NSW & VIC
- Provide competitive pricing and payment terms
- Our difference
 - have best and fastest online system
 - finance broking for business systems



Renewables activism

www.greenenergytrading.com.au

[@greenenergytrad](https://twitter.com/greenenergytrad)



www.greenmarkets.com.au

- Research, consultancy and advisory associate (Green Energy Markets)
- Check out website for prices, research notes and other market information

“Green Energy Online” Fastest – Paperless system



- Several years to develop
- Electronic signatures (using secure certificate – no signing required)
- Compatible with any Web enabled device
- More efficient and timely processing – passing benefit to customers through extra bonus for on-line processing

Nick Butler:

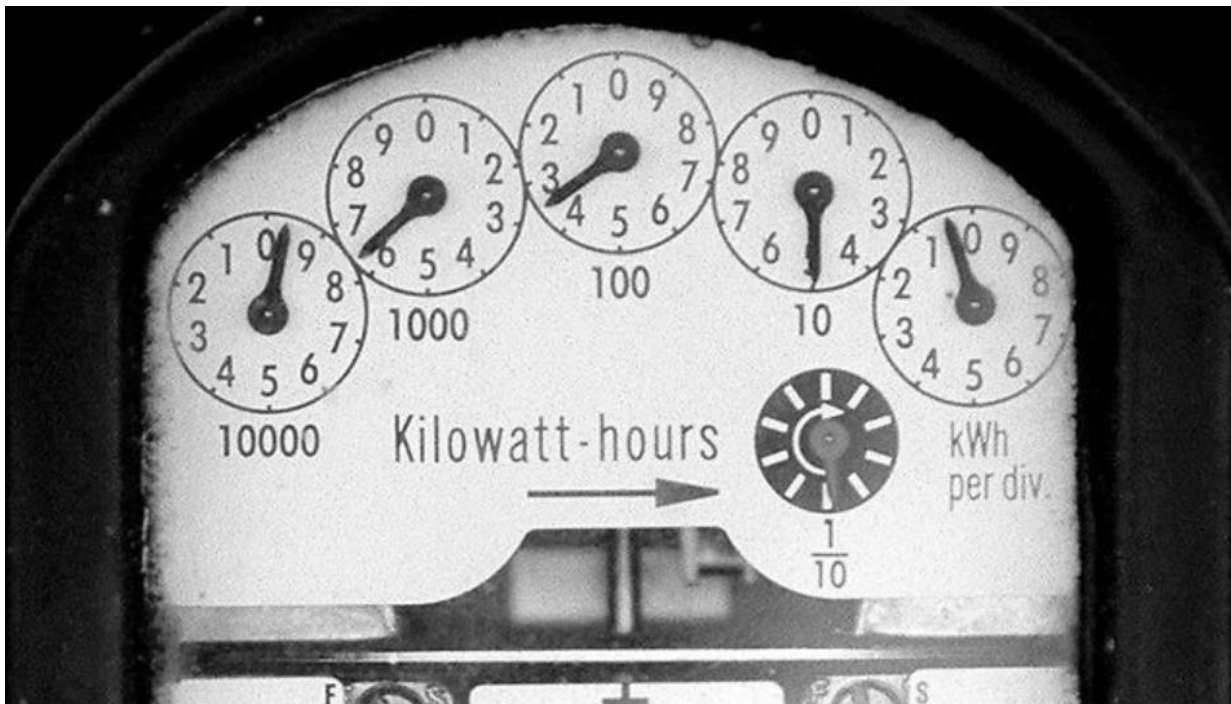
03 9805 0700

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**Save money and time by not
having to chase up signatures**

A screenshot of the "Green Energy Online" PV Installation system interface. The page title is "PV Installation" with a sub-header "PV-15001655 – John Citizen". The interface includes a navigation bar with "Information", "Form", "Submission checklist", and "Documents". A "Complete" status message indicates the assignment was submitted on Friday, May 23rd 2014, at 12:21 pm. The "Certificates" section shows "STC" as "Approved" with 92 certificates, a buyback price of \$37.50, and a value of \$3450.00. The "Agreements" section lists three parties: Designer (Signed by Benjamin, Accepted on Thursday, May 22nd 2014, 3:48 pm), Installer (Signed by Christos, Accepted on Thursday, May 22nd 2014, 4:49 pm), and System owner (Signed by John Citizen, Accepted on Friday, May 23rd 2014, 8:22 am). Each agreement has a "Cancel" button and a "View agreement" button. A small note at the bottom of the Certificates section states: "* Based on STC price on Friday, May 23rd 2014, 12:21 pm. 92 STCs passed by Gregory Taylor/STC Audit Batch 407 (27th May to 2nd June 2014) Date: 30/6/2014 09:41:45".

Solar's role in the electricity market



NEM consumption fell 1.1% in 2014

Review of the NEM in 2014

Green Markets Insights: 1-2015

Ric Brazzale, Director

www.greenmarkets.com.au

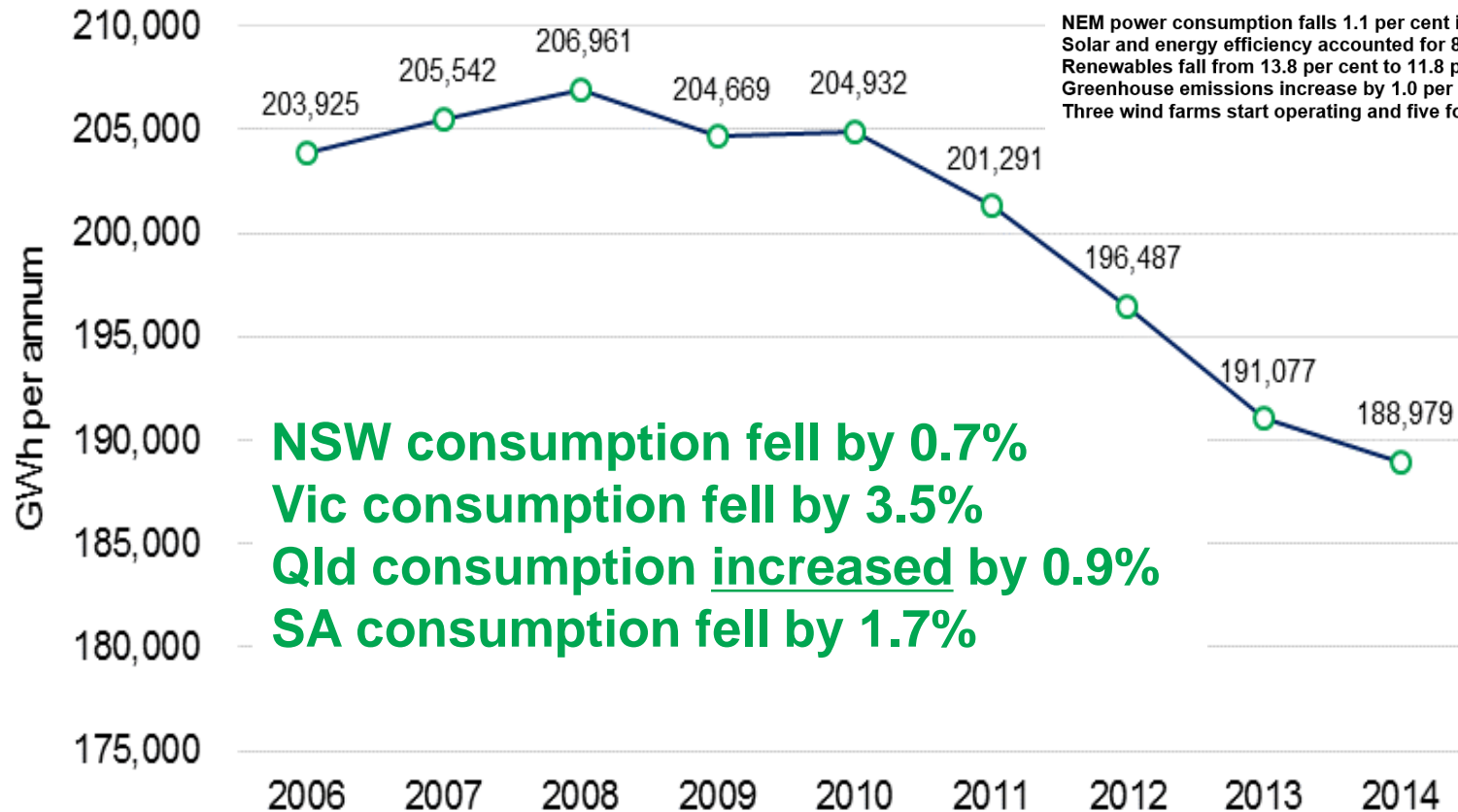
NEM power consumption falls 1.1 per cent in 2014

Solar and energy efficiency accounted for 89 per cent of the reduction

Renewables fall from 13.8 per cent to 11.8 per cent market share

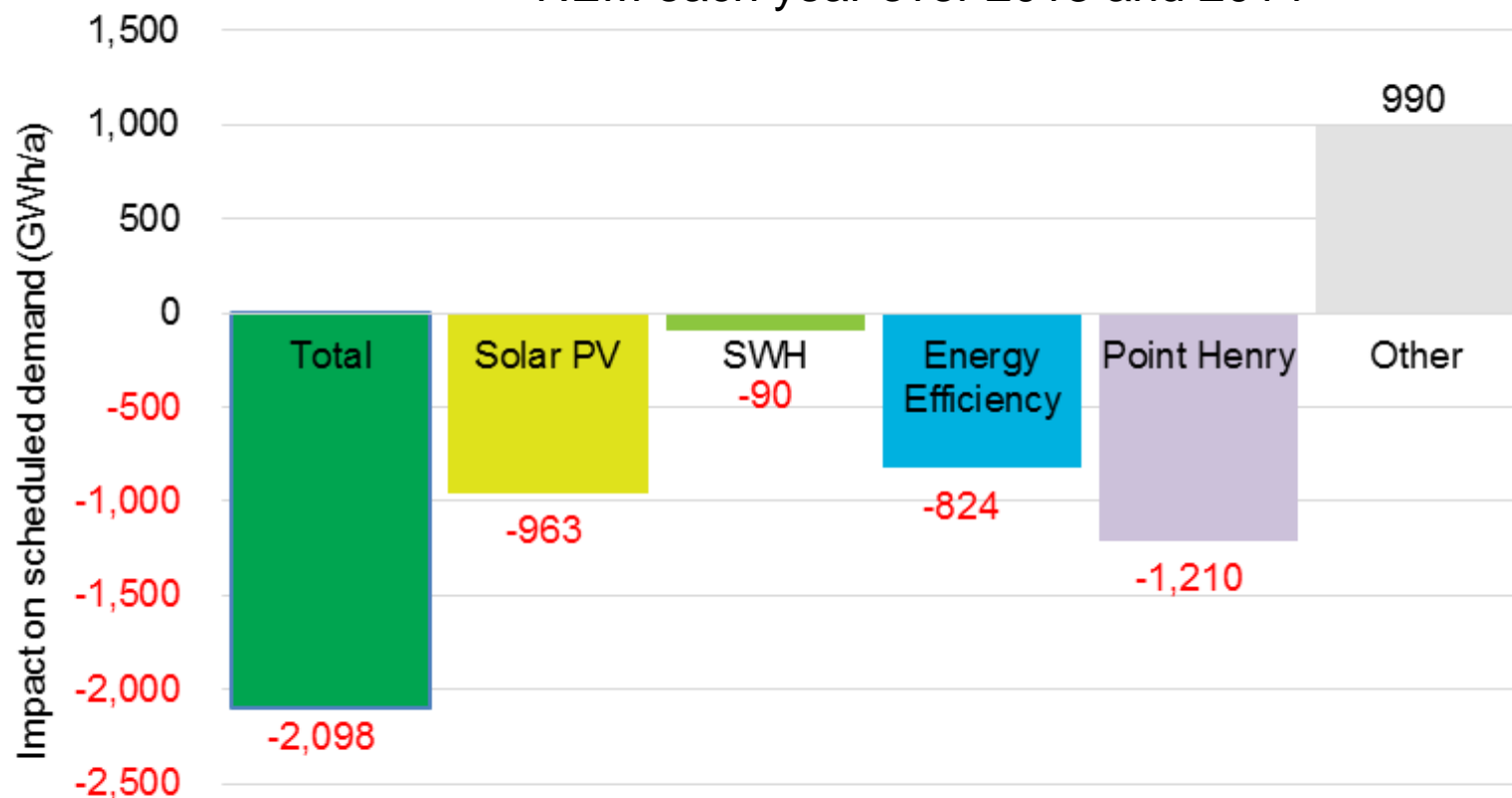
Greenhouse emissions increase by 1.0 per cent in 2014

Three wind farms start operating and five fossil-fuel plants cease



Solar and energy efficiency making material contribution

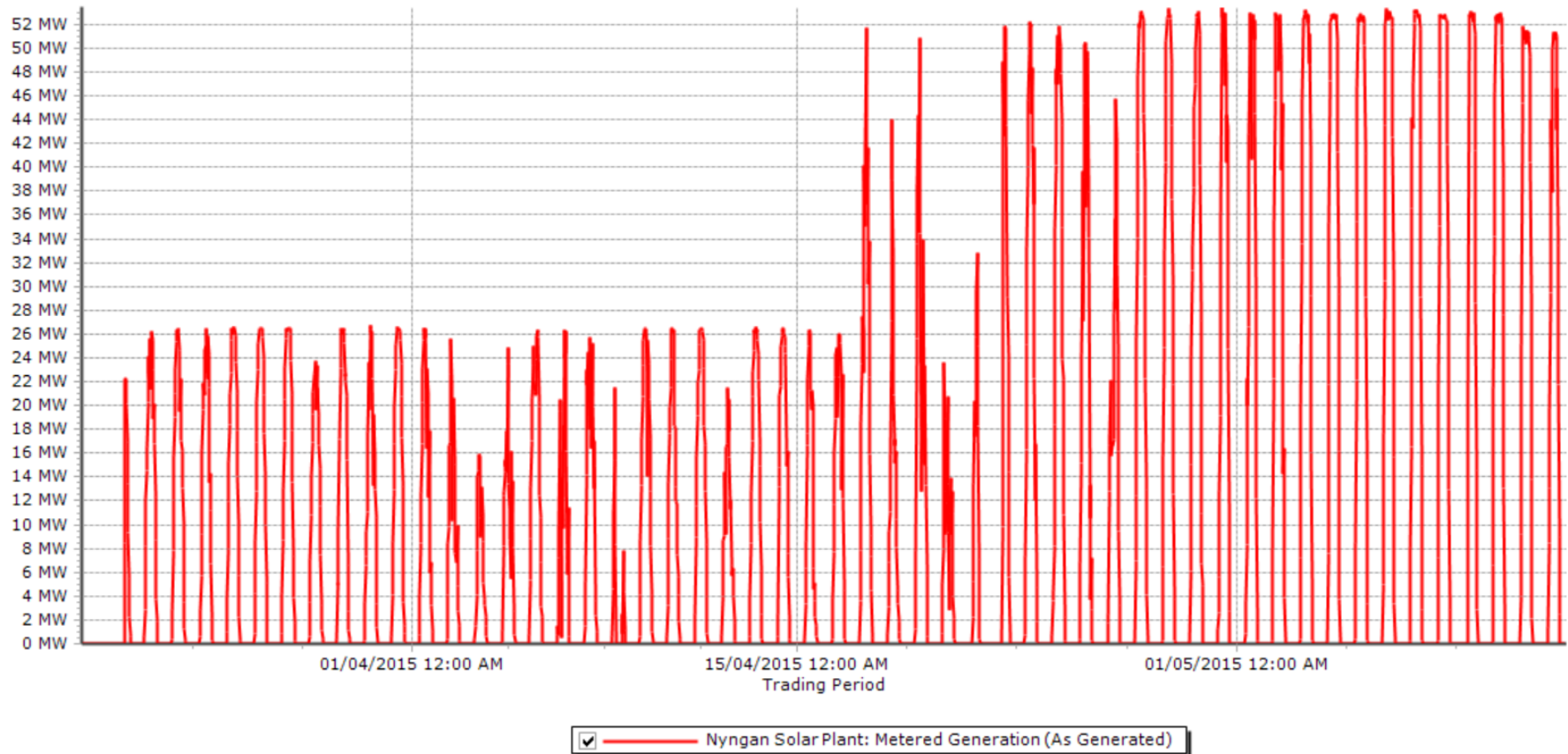
Average of 700 MW of solar PV installed in NEM each year over 2013 and 2014



Solar PV contributed 46% of reduction in power demand

Nyngan came on line on 21 March 2015

Half Hourly Raw Data Market Data between 20/03/2015 and 12/05/2015

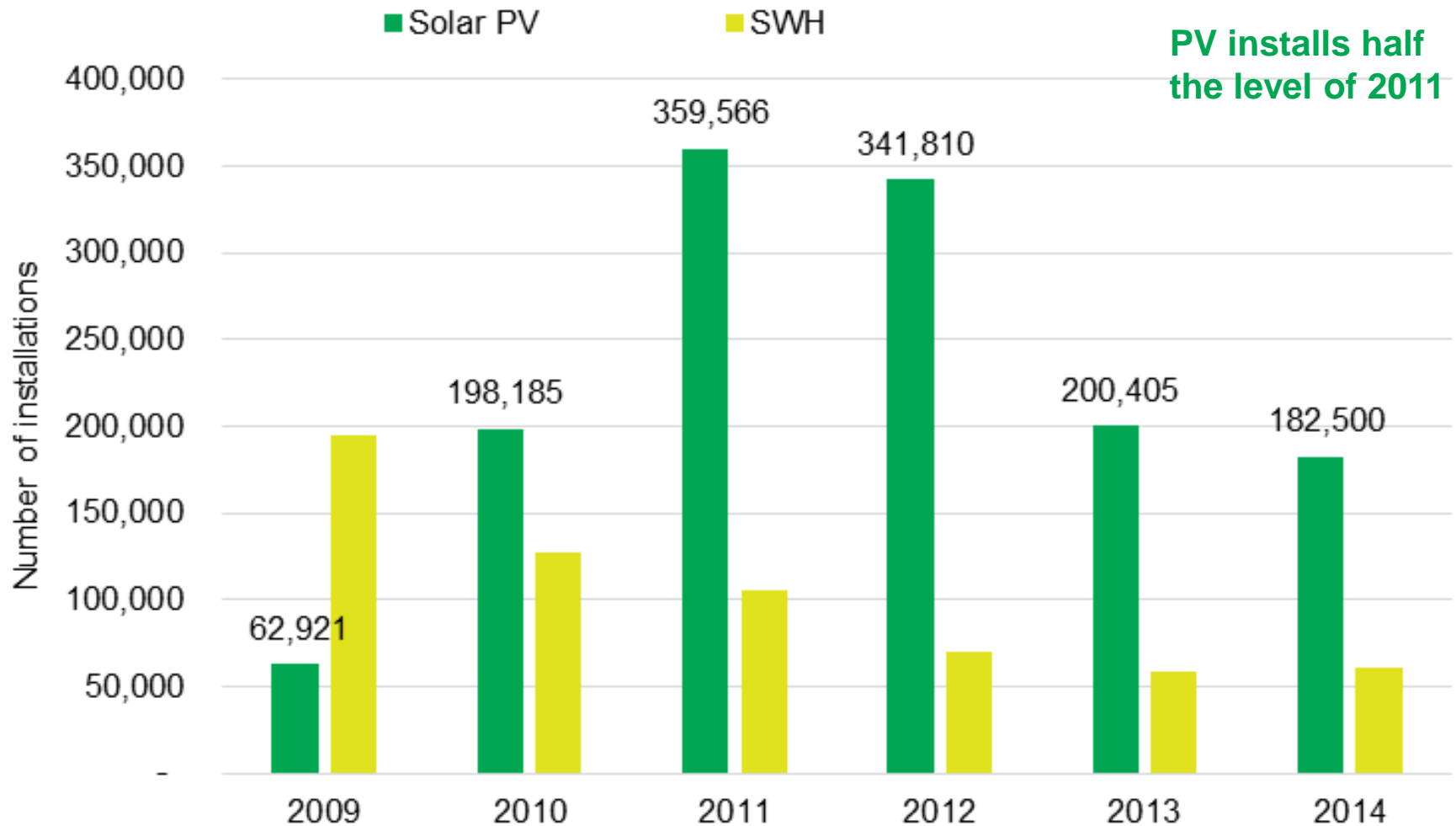


Source: NEM Review

Solar PV Market Assessment



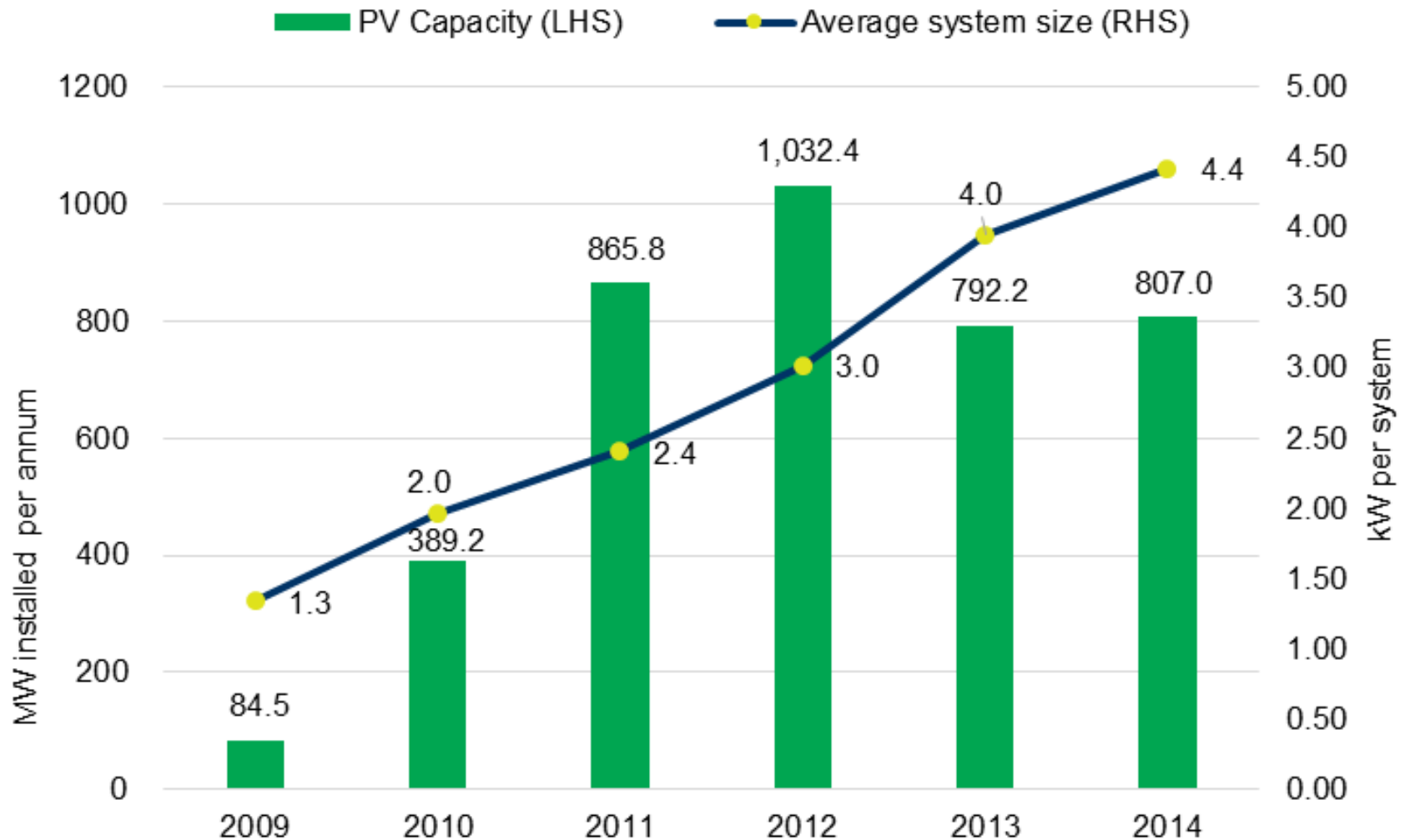
No. of solar installations falling (2014 PV installs half of 2011 level)



SWH installs one-third the level of 2009

PV capacity 20% lower than peak in 2012

System size increased by 47%



Excludes systems greater than 100 kW

PV in Australia – by numbers

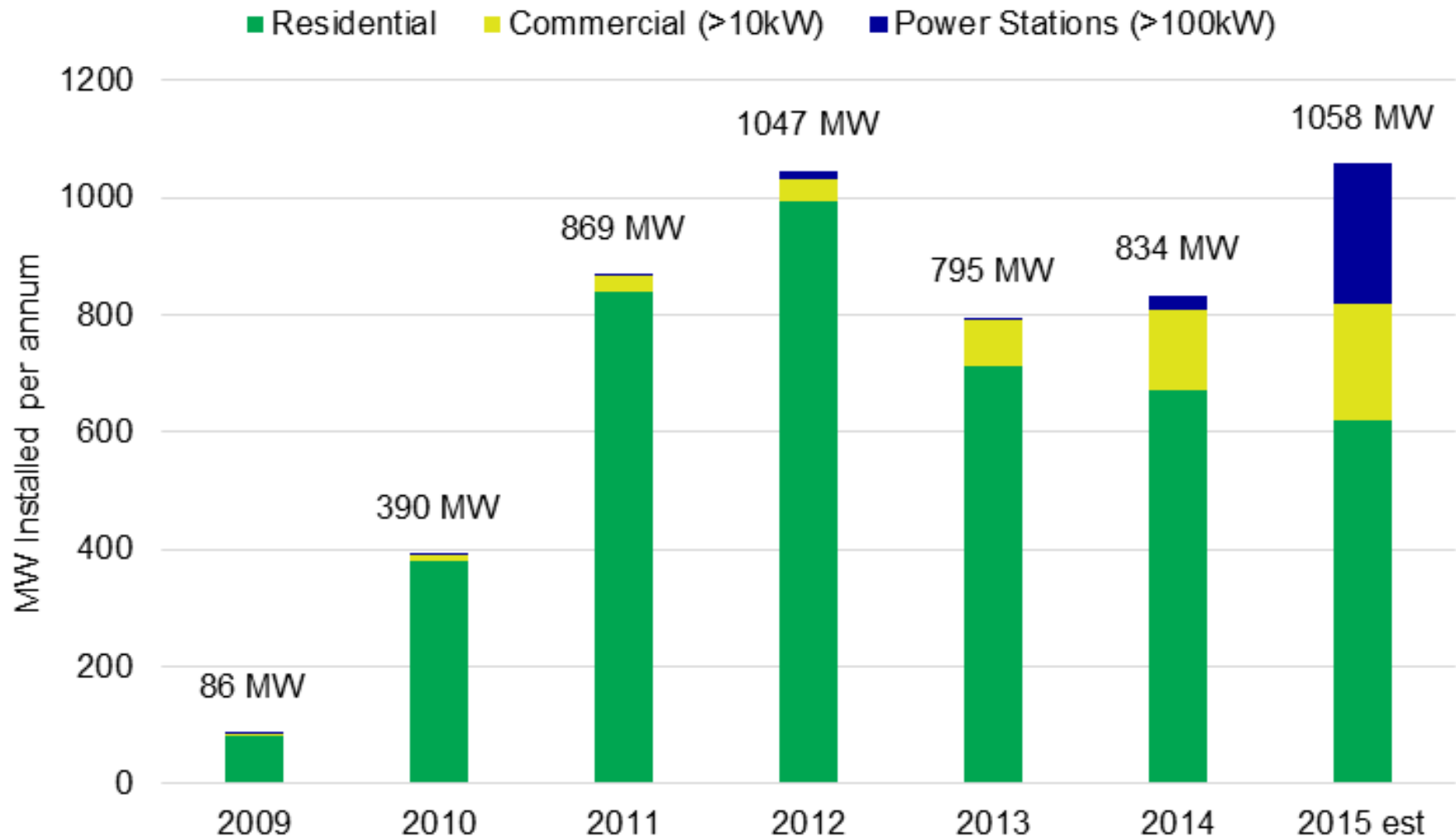
Data as at 10 March 2015 (REC Registry)

| Urban classification | Installations | kW Installed | Market share |
|----------------------|------------------|------------------|---------------|
| ACT | 15,583 | 45,335 | 1.1% |
| NSW | 296,772 | 839,535 | 20.6% |
| NT | 4,102 | 18,677 | 0.5% |
| QLD | 430,294 | 1,308,023 | 32.1% |
| SA | 182,012 | 586,675 | 14.4% |
| TAS | 24,413 | 82,298 | 2.0% |
| VIC | 250,225 | 736,791 | 18.1% |
| WA | 177,738 | 456,441 | 11.2% |
| Total | 1,381,139 | 4,073,776 | 100.0% |

55% of capacity and 51% of systems installed outside capital cities

| Urban classification | Installations | kW Installed | Market share |
|--------------------------------|------------------|------------------|---------------|
| Major urban - Capital City | 671,429 | 1,850,614 | 45.4% |
| Major urban - Non-Capital City | 169,863 | 493,887 | 12.1% |
| Other | 3,615 | 11,892 | 0.3% |
| Regional - High | 176,705 | 535,064 | 13.1% |
| Regional - Low | 101,066 | 333,685 | 8.2% |
| Rural | 258,461 | 848,633 | 20.8% |
| Total | 1,381,139 | 4,073,776 | 100.0% |

Total PV Market expected to be more than 1000 MW in 2015



STC Modelling Report



Green Energy
Markets

**Small-scale technology certificates
Data modelling for 2015 to 2017**

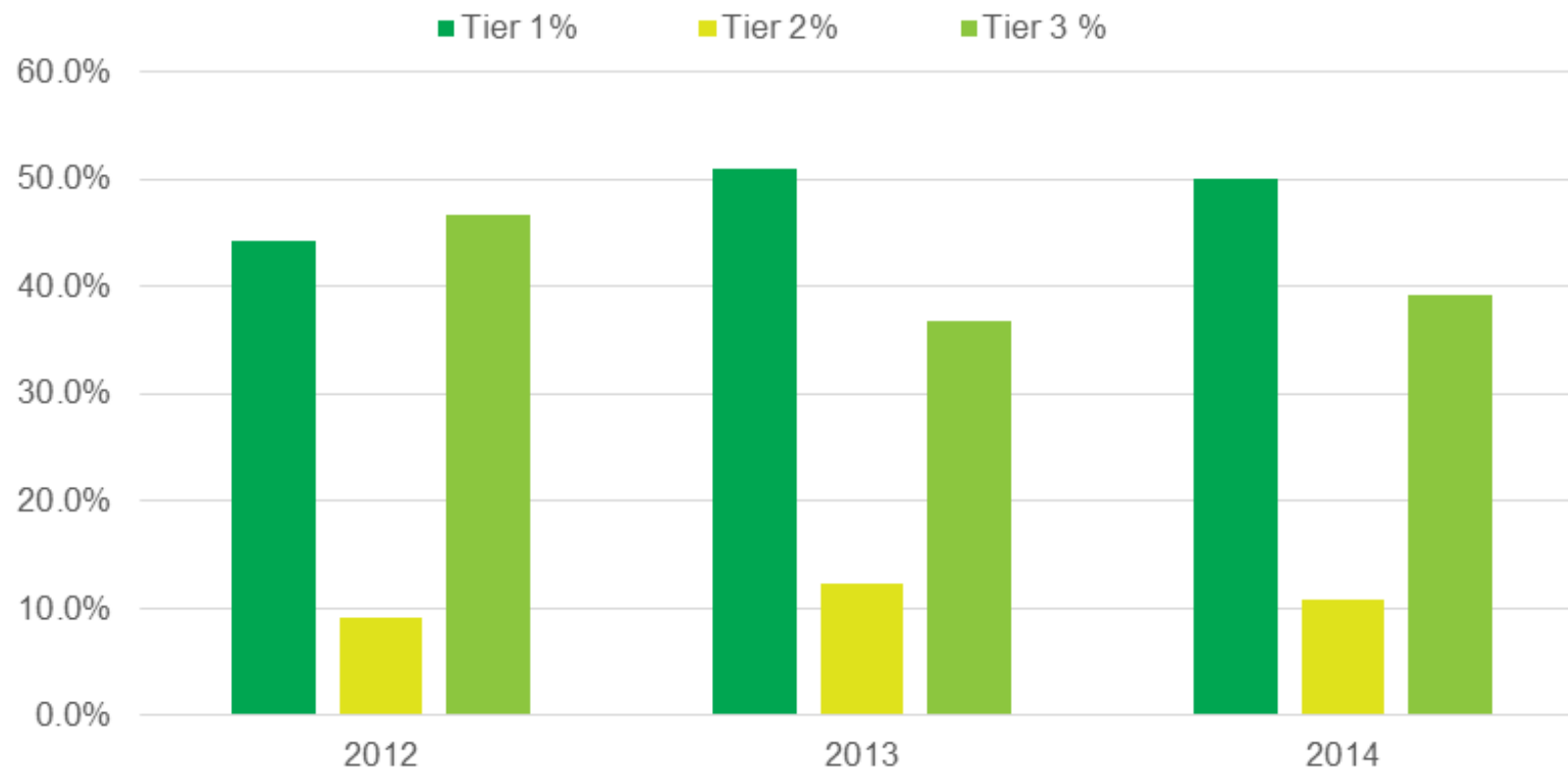
Report to the Clean Energy Regulator

December 2014

<http://greenmarkets.com.au/advisory/reports-to-industry/>

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Quality of systems improving

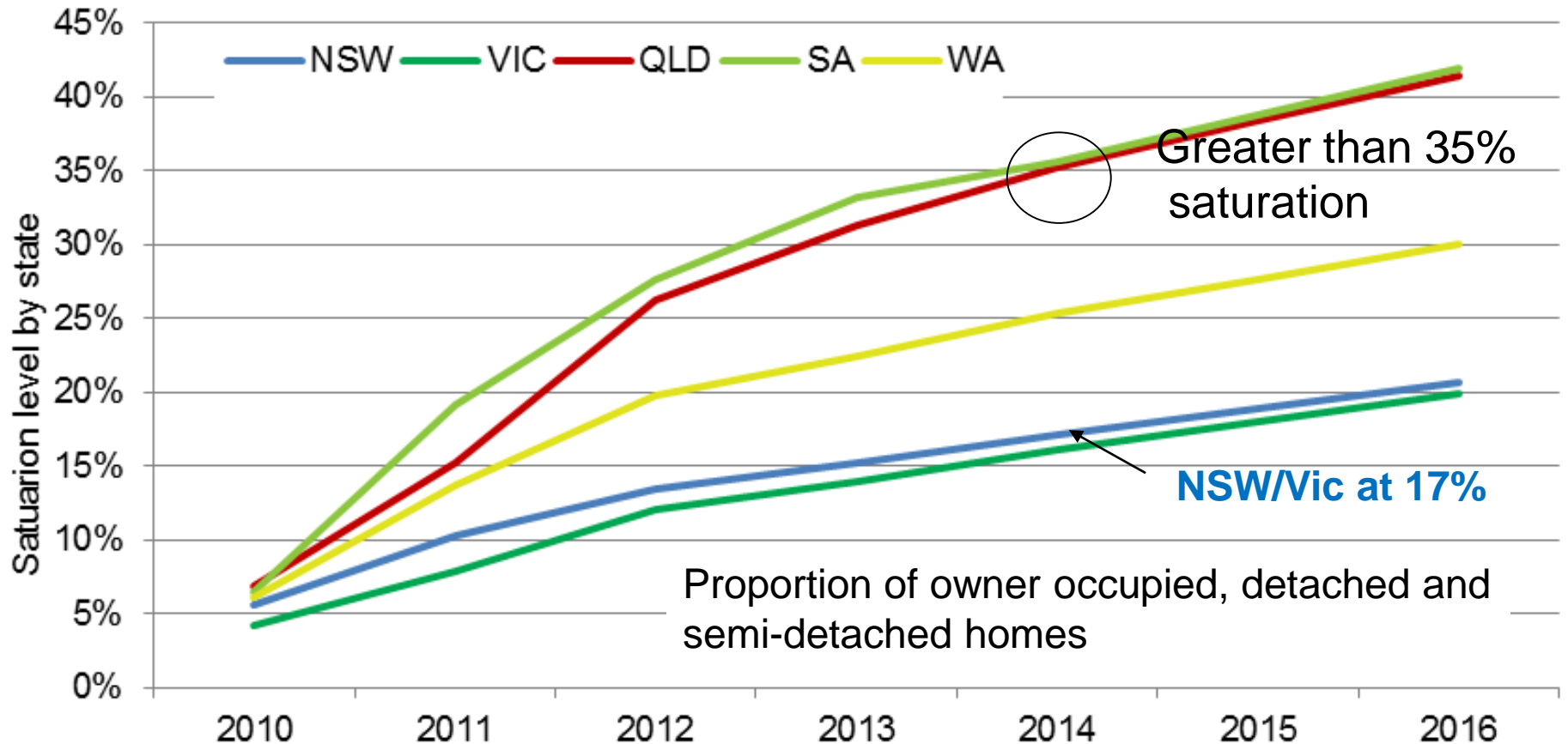


Source: Green Energy Markets: STC Modelling Report, Dec 2014

Tier 1 systems accounted for 35% of capacity in 2011

Residential systems saturation

– high levels of saturation in Qld/SA

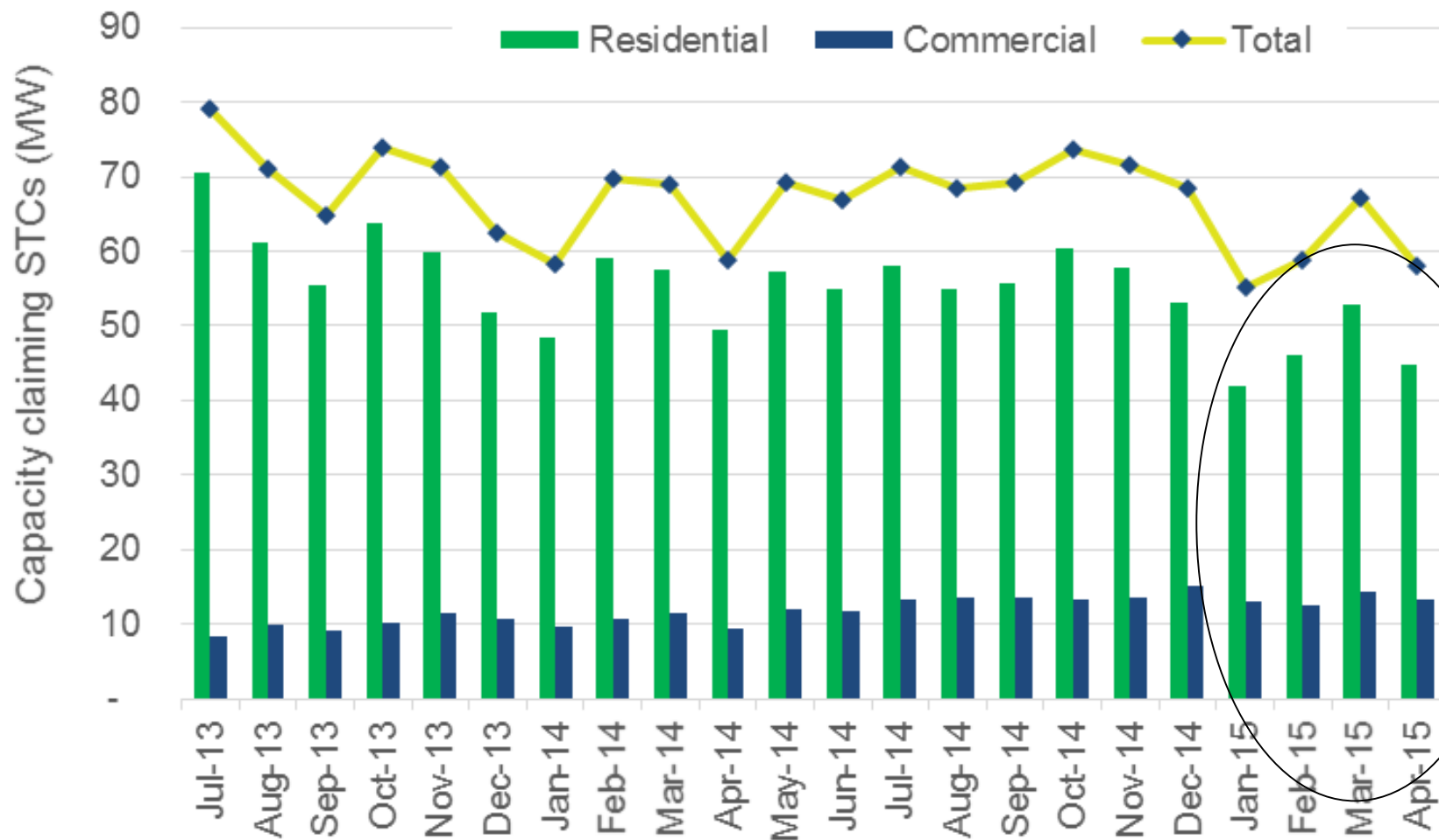


Source: Green Energy Markets: STC Modelling Report, Dec 2014

Number of residential installations expected to decline

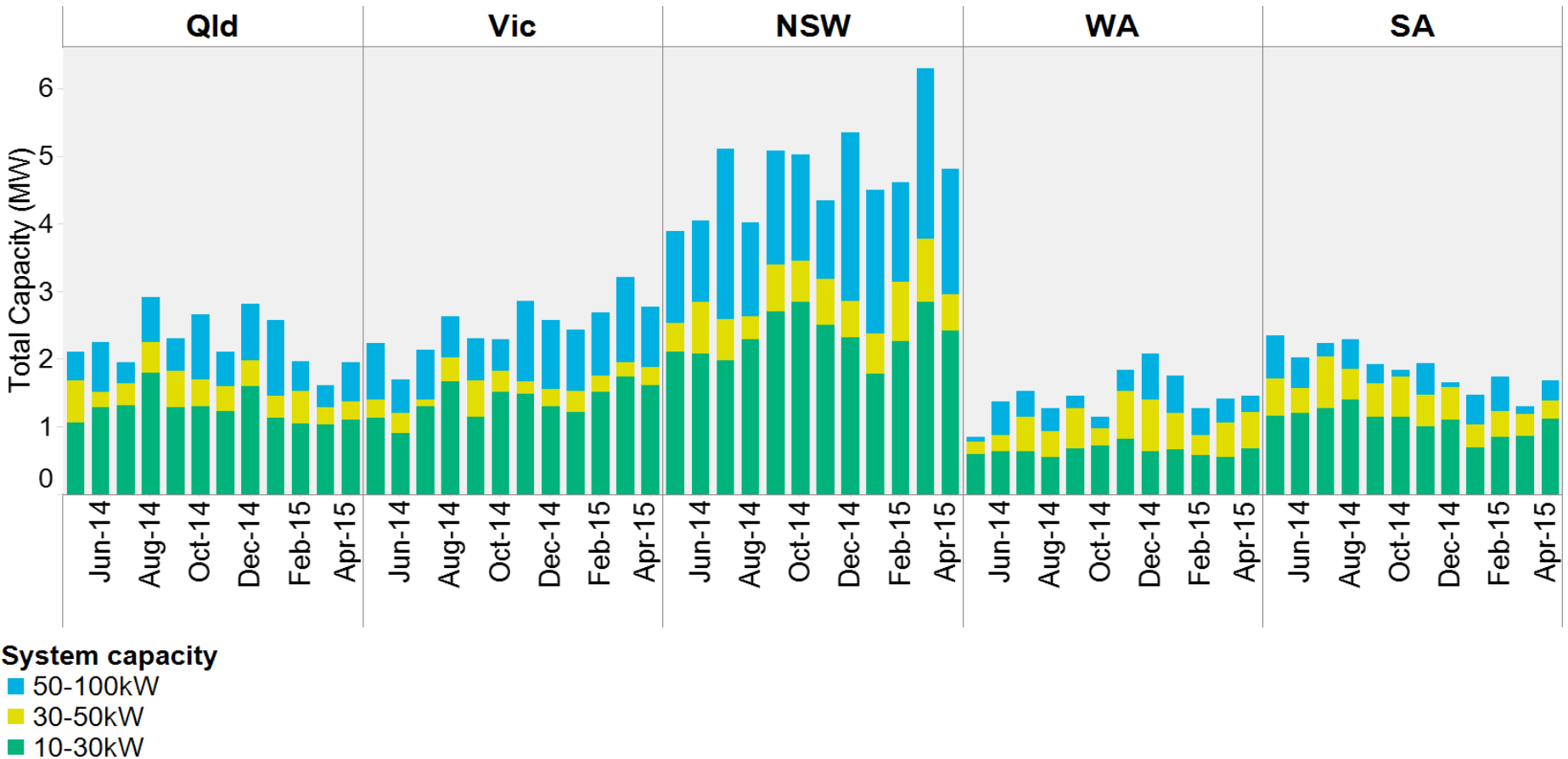
Slow start to 2015 - 6.5% lower

4 mths to April 15 compared to same time last year



Residential - 13% lower
Commercial - 30% higher

Commercial sized systems increasing



NSW dominates commercial sized market
NSW has high proportion of larger systems (50-100kW)

Table 7.4 Number of Commercial systems (2013 and 2014) by Urban Classification

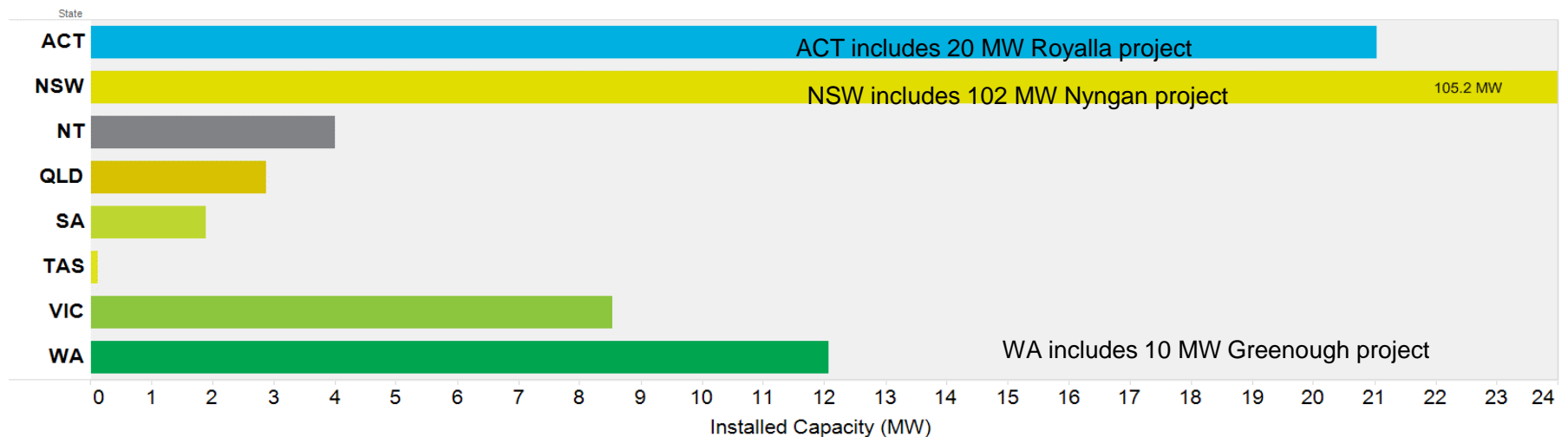
| | Major urban - Capital City | Major urban - Non-Capital City | Other | Regional - High Urbanisation | Regional - Low Urbanisation | Rural | Total | Non Capital City Proportion |
|--------------|-------------------------------|-----------------------------------|-----------|------------------------------------|-----------------------------------|--------------|--------------|-----------------------------------|
| ACT | 85 | | | 25 | | | 110 | 22.7% |
| NSW | 544 | 229 | 4 | 538 | 337 | 465 | 2,117 | 74.3% |
| NT | 15 | | 3 | 14 | 10 | 11 | 53 | 71.7% |
| QLD | 369 | 348 | 2 | 134 | 103 | 317 | 1,273 | 71.0% |
| SA | 695 | | 1 | 141 | 162 | 426 | 1,425 | 51.2% |
| TAS | 32 | 14 | | 16 | 7 | 52 | 121 | 73.6% |
| VIC | 555 | 76 | 13 | 227 | 110 | 281 | 1,262 | 56.0% |
| WA | 371 | 14 | 9 | 93 | 32 | 176 | 695 | 46.6% |
| Total | 2,666 | 681 | 32 | 1,188 | 761 | 1,728 | 7,056 | 62.2% |

Source: Green Energy Markets: STC Modelling Report, Dec 2014

Large scale solar is negligible in Australia at present (though growing)

- Approx. 61,000 LGCs in 2014 and 159,000 in 2015 (1%)
- 55 MW operating at end 2014 + more than 500 MW under development or construction (incl Solar flagships and ACT tender)

As at 30 April 2015

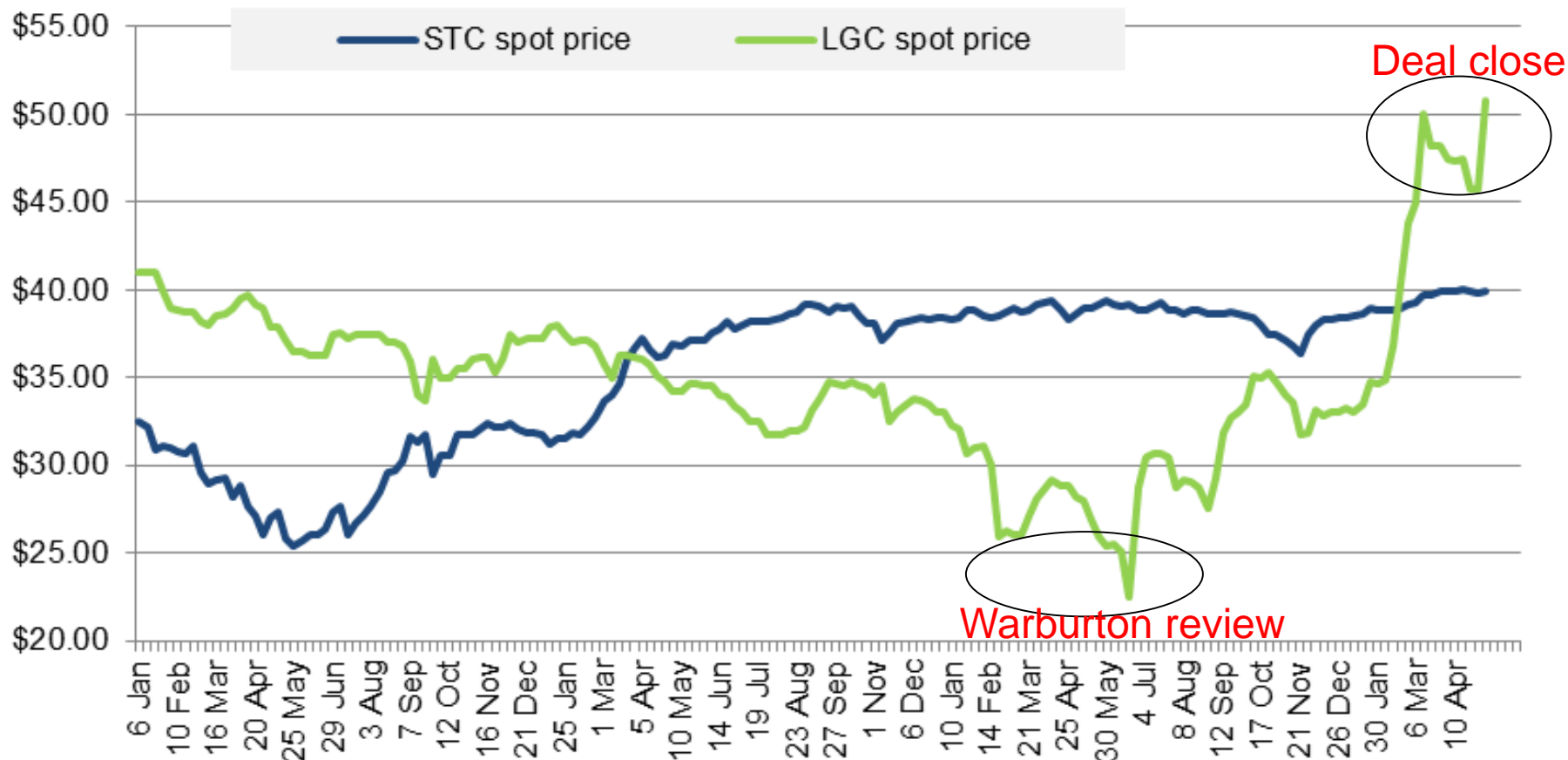


RET Review



LGC price reflects a deal being close

Spot prices from Jan 2012



(March 2015)

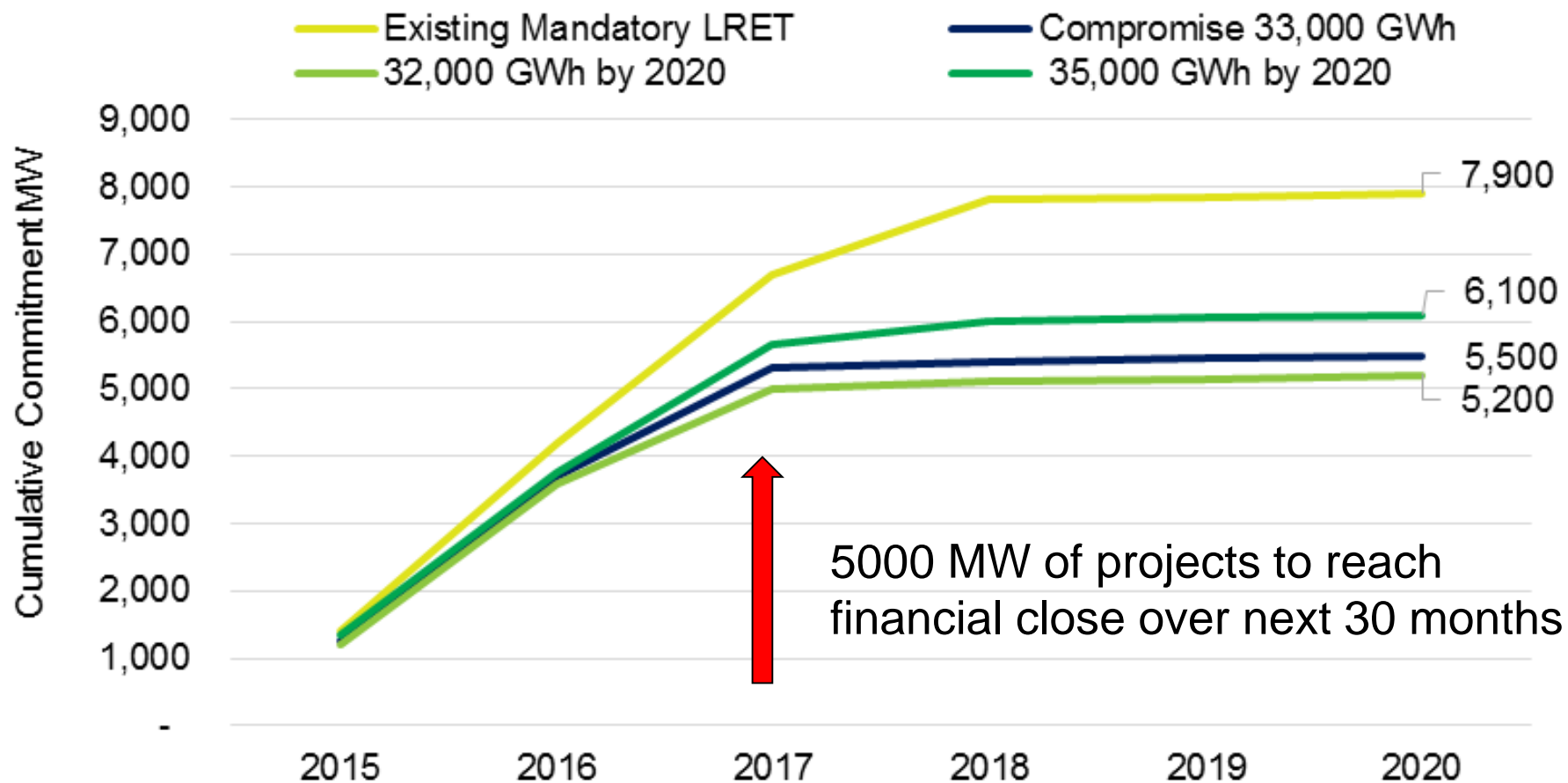
Government softened its stance on the RET

- Supports a 32,000 GWh target (up from 26,000 GWh)
- Remove 2 yearly review
- No changes to the small-scale scheme
- Exempt energy intensive trade exposed industry

(9 May 2015)

- Prepared to increase target to 33,000 GWh
- Now wants 2 year reviews
- Include native forest wood waste

Compromise target requires 5500 MW to be built



- Small-scale solar market seems to be stabilising at around 800-820 MW
- Residential market to decline as saturation increases
- Commercial market to continue growing
- Large scale solar market now emerging
- RET Review outcome more positive – but need resolution

Thank you

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