

Facts about Solar and the Small-scale Renewable Energy Scheme

Ric Brazzale 4 March 2014

A number of spurious claims have been made about the solar industry, the renewable energy target and the cost and contribution that solar makes.

The REC Agents Association (RAA) has developed a **Facts+** section to its website that includes up-to-date information about solar and includes data and information about the Small-scale Renewable Energy Scheme (SRES) and links to analysis expanding on the contribution that the solar industry makes.

Certificates are created under the SRES which forms part of the Renewable Energy Target which supports the progressive increase in renewable energy.

RAA is a national industry association representing companies that create and trade renewable energy certificates. RAA members work with solar companies to create Renewable Energy Certificates (RECs) that support households and businesses investing in solar.

RECs generally account for 20 to 30% of the capital cost of a typical solar system and reduces the payback from 8-9 years to 6-7 years.

The average residential PV system installed in Australia is approximately 3.5 kilo Watt (kW) which typically costs \$9,000 to \$10,000. Certificates to the value of approximately \$2,500 would be created reducing the up-front cost to the household to \$6,500 to \$7,500. This sized system would produce about 80 per cent of a typical household's electricity. Some of the electricity produced will be exported to the grid (40%) when the output of the system is greater than the household's usage . typically in the middle of the day.

Facts about Solar and the Small-scale Renewable Energy Scheme

Solar on more than 2 million roofs - More than 2 million solar installations have been supported by the Renewable Energy Target as of 31 January 2014 . 1,176,000 solar PV systems and 845,000 solar hot water systems. This means that 24 per cent of the 8.4 million occupied private dwellings in Australia have a solar system.

<http://ret.cleanenergyregulator.gov.au/REC-Registry/Data-reports>

More than \$1.7 billion invested by Australians in solar PV in 2013 . Data published by the Clean Energy Regulator for PV installations in the first half of 2013 showed that the average investment (net of the value of certificates) of \$2,000 per kW. More than 850 MW is estimated to have been installed in 2013 which means that Australian households and businesses invested more than \$1.7 billion in 2013 in putting solar PV on their roofs. This is money invested in Australia that will continue to provide returns for Australian households and businesses for more than 20 years.

<http://ret.cleanenergyregulator.gov.au/Forms-and-Publications/Publications/publication-of-oope>

Solar PV installed capacity amounts to nearly 6 per cent of Australia's generation . More than 3,161 Mega Watts (MW) of solar PV had been installed on Australian homes and businesses that had been supported by the Renewable Energy Target as at 31 January 2014. This amounts to 5.6 percent of the 55,983 MW of generation installed in Australia.

<http://ret.cleanenergyregulator.gov.au/REC-Registry/Data-reports>

Solar PV generation amounts to 2.2 percent of total electricity used . More than 3,161 MW of solar PV will produce approximately 4,400 GWh of electricity per annum. The Electricity Supply Association of Australia reported in their publication Electricity Gas Australia 2012 that total electricity supplied by transmission and distribution companies amounted to 202,950 GWh in 2011. Electricity

supplied to residential customers in 2011 amounted to 60,150 GWh (30 per cent of total electricity supplied).

Solar PV generation at 4,400 GWh per annum represents 2.2 per cent of total electricity supplied through networks. Residential PV installations (95 per cent of total PV generation) supplied 7 per cent of total residential power needs.

Solar PV and solar hot water are reducing electricity consumption by 0.4 per cent per annum -

The contribution of small-scale solar to energy supply (incorporating solar PV and solar hot water) is seen as a demand reduction and its contribution is expected to increase to 3.5 per cent of total demand by 2016. Another way to look at this is that solar is contributing to more than a 0.4% reduction in electricity consumption each year;

<http://www.recagents.asn.au/wp-content/uploads/2013/11/Assessment-of-SRES-for-RAA-Final.pdf>

Solar PV contributes to meeting peak demand . During the heat wave experienced by South Australia and Victoria in mid-January 2014 solar PV output contributed to reducing the peak demand by nearly 5 per cent. Both South Australia and Victoria would have achieved record peak demand if it had not been for the contribution of solar PV.

<http://www.recagents.asn.au/wp-content/uploads/2014/01/140120-RAA-solar-makes-significant-contribution.pdf>

Solar is not “free-riding” on the electricity system - Solar PV systems produce electricity in the middle of the day when demand for electricity is at its highest. Air-conditioning systems are using electricity at peak times in the middle of the day in the middle of summer. Those customers with large air-conditioning systems are being subsidised by other customers without air conditioners. The Productivity Commission found that households with air conditioners were being subsidised \$350 per annum from consumers who don't have one.

Households and businesses that have solar PV or have reduced their energy consumption through efficient appliances and efficient lighting should not have to pay for electricity that they do not consume or for electricity services that they do not use.

Currently, a low-income household without an air conditioner is effectively writing cheques to high-income users who run air conditioners during peaky periods. For example, a household running a 2 kilowatt (electrical input) reverse cycle air conditioner, and using it during peak times, receives an implicit subsidy equivalent of around \$350 per year from other consumers who don't do this. (Productivity Commission Report - Electricity Network Regulatory Frameworks, April 2013, Page 18)

http://www.pc.gov.au/data/assets/pdf_file/0016/123037/electricity-volume1.pdf

More than 17,700 people employed in Australia's solar PV industry in 2013 . The solar PV industry was estimated to have employed 23,500 people at its peak in 2012 when more than 1000 MW of solar PV was installed. When we include employment in the solar hot water and solar thermal sectors more than 24,800 people were employed in solar . equivalent to full time employees of 18,450. More than 4,300 businesses are active in the solar industry across Australia.

In 2013 employment in the solar PV industry reduced 17,700 as the level of solar installed fell by more than 20 per cent. Full time equivalent employees across all solar sectors in 2013 is estimated to be 13,500.

<http://www.recagents.asn.au/wp-content/uploads/2014/01/140129-solar-jobs-report.pdf>

There is no net cost to customers for the SRES - The cost of the RET that gets passed through to residential customers currently amounts to a modest 1.12 cents per Kilo Watt hour (kWh) or 4 per cent of the average residential electricity bill. The cost of the Small-scale Renewable Energy Scheme (SRES) that supports residential and commercial solar systems currently accounts for 0.54 cents per

kWh or 2 per cent of a customer's bill and is expected to more than halve over the next two years to account for less than 1 per cent.

The RET provides downward pressure on wholesale electricity prices and as a result wholesale prices are considerably lower than would otherwise be the case. The reduction in the wholesale price due to the RET is estimated to be \$6.70 per Mega Watt hour (MWh) equivalent to 0.67 cents per kWh. In the case of the SRES the reduction in the wholesale price (40 per cent of the total RET contribution) cancels out the future cost increase that gets passed through to customers. In fact, residential customers will be better off in the future with the operation of the SRES as the reduction in the wholesale price exceeds the cost pass-through on customer bills.

<http://www.recagents.asn.au/wp-content/uploads/2014/02/RAA-Impact-of-SRES-on-Power-prices-Final.pdf>

Network costs have driven higher power prices not the RET . The Productivity Commission undertook a review of Electricity Network Regulatory Frameworks dated April 2013 and found that spiralling network costs in most states were the main contributor to rising power prices.

“Average electricity prices have risen by 70 per cent in real terms from June 2007 to December 2012. Spiralling network costs in most states are the main contributor to these increases, partly driven by inefficiencies in the industry and flaws in the regulatory environment”

http://www.pc.gov.au/data/assets/pdf_file/0016/123037/electricity-volume1.pdf

<http://www.recagents.asn.au/wp-content/uploads/2014/02/RAA-Impact-of-SRES-on-Power-prices-Final.pdf>

Solar is improving our energy security and reducing our dependence on high priced gas

With the export of LNG to international markets gas is being diverted from the domestic market and this is leading to dramatic increases in gas prices. AGL recently announced that it is seeking to increase its residential gas price by 20 per cent due to rises in the wholesale price of gas.

AGL said the planned export of gas from Queensland was forcing the wholesale gas price to about \$6-\$7 a gigajoule, up from \$4.70 at present. Already, the price in Queensland is estimated at \$9.40 a gigajoule. The surge in the Queensland gas price is forcing gas retailers to look to obtaining increasing volumes of gas from Bass Strait suppliers, where the wholesale price is put at \$6.25-\$6.50 a gigajoule. But supplies from Victoria are constrained by a lack of pipeline capacity.

<http://www.smh.com.au/business/mining-and-resources/agl-moves-to-increase-household-gas-prices-by-more-than-20-per-cent-20140217-32v7t.html>

Gas-fired generation currently accounts for 12 per cent of electricity generation in the eastern states National Electricity Market (NEM). With the rises in the wholesale price and demand from international markets, gas will be diverted from the NEM and the price of gas-fired generation will increase dramatically. This is expected to have flow on effects to electricity prices. The Queensland Competition Commission has advised that energy generation costs are expected to increase by 29 per cent in 2014-15. This is driven by rising industrial demand associated with rapid development of the liquefied natural gas (LNG) export industry in Queensland and higher fuel prices (mainly gas).

<http://www.qca.org.au/Electricity/Consumer/Electricity-Prices/In-Progress/Electricity-Prices-2013-14>

Solar is installed throughout middle Australia (September 2012 Report) - most solar systems (53%) were installed in regional and rural communities with only 43% installed in the major capital cities. Of the systems installed in capital cities, those suburbs with the highest penetration (number of systems installed in suburb divided by the number of dwellings in that suburb) were typically in the outer metropolitan mortgage belt.

There was a slight inverse relationship between average incomes and solar penetration levels with the suburbs with the highest income levels did not correspond to those with highest penetration, the opposite was more likely. The suburbs with the highest penetration of solar systems in each state tended to be either regional or outer metropolitan.

<http://www.recagents.asn.au/wp-content/uploads/2012/09/Research-note-3-Geographical-Summary-Sep-2012-Final.pdf>

Australia is one of the largest markets for solar PV globally and was ranked seventh in size for capacity installed in 2012. According to data compiled by the Australian PV Association (APVA), 1038 MW of solar PV was installed in 2012 of which 1008 MW or 97% was grid-connected decentralised roof-top solar on homes and businesses across Australia.

Table 1. Largest PV Markets - Installed Capacity (MW)

	2012	Share
Germany	7,604	26.0%
Italy	3,647	12.4%
China	3,500	11.9%
US	3,362	11.5%
Japan	1,718	5.9%
France	1,079	3.7%
Australia	1,038	3.5%
India	950	3.2%
UK	925	3.2%
Greece	900	3.1%
Other Countries	4,575	15.6%
Global Total	29,298	100.0%

Source: PVPS Trends 2013 in Photovoltaic Applications

Solar PV installed in Australia in 2013 fell to approximately 850 MW which is likely to have seen Australia drop a few places in global rankings.

<http://www.recagents.asn.au/wp-content/uploads/2013/11/Assessment-of-SRES-for-RAA-Final.pdf>

Australians support renewable energy – Polling by Essential Media in February 2014 on the Renewable Energy Target found that only 13 percent of people think that the 20 per cent renewable energy target is too high . 64 per cent think that it is either too low or about right

<http://essentialvision.com.au/category/essentialreport>