

# Renewable Energy Index

October 2017



Green Energy Markets, November 2017

## Key highlights

### **Solar installs in October close to all time record but without feed-in tariff subsidies**

- Electricity consumers are flocking to solar to shield themselves from the significant electricity price rises that have unfolded this year. In October solar rooftop installations broke past 100 megawatts of capacity for the month, for only the second time ever. The 106 megawatts installed in October will produce an amount of power equal to the consumption of almost 28,000 homes.
- The level of capacity installed this month has been exceeded just once, back in June 2012, when subsidies were two-to-three times higher.
- The 15,736 systems installed over October supported 5,193 full-time jobs.

### **Queensland increases its lead in renewable energy jobs**

- Queensland was the only state to record new large-scale project commitments this month: phase 1 of the potentially giant Kennedy wind, solar and battery park; and the Emerald Solar Farm. Phase 1 of Northern Queensland's Kennedy Energy Park, is intended to prove-up the viability of a far larger \$2 billion second phase that at 1200MW would be the largest renewable energy power station in the country. It would also be the largest project in the world to combine both wind and solar in a single facility.
- As a result of the 2 new projects, Queensland has increased its lead over other states in large-scale renewable energy construction employment, with 5,847 job years of employment, ahead of NSW at 3,429 and Victoria third at 2,495. Total large-scale renewable energy construction employment across the nation now stands at 12,925 job-years, up from last month's 12,702.
- Queensland also leads the country in terms of rooftop solar installs and employment, with its 3960 system installs this month supporting 1,347 full time jobs, which shaded NSW in second with 1,285 full time jobs.
- Total jobs created by renewable energy projects (Large-scale + rooftop solar) in Queensland have almost doubled over four months from 3,634 at the end of 30 June 2017, to 7,194 in October.

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## About this report

The Green Energy Markets' Renewable Energy Index tracks on a monthly basis the amount of renewable energy Australia relies on, the jobs it's creating, the power bill savings it is delivering for Australian households, and the environmental benefits of the rising use of clean power.

This edition covers the period of October 2017.

The Renewable Energy Index is funded by GetUp! to provide a reliable, up-to-date record on renewable energy's contribution to Australia.

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## What renewable energy is contributing to the grid



### 1. Renewables made up 20.3% of the electricity generated in Australia's main grids

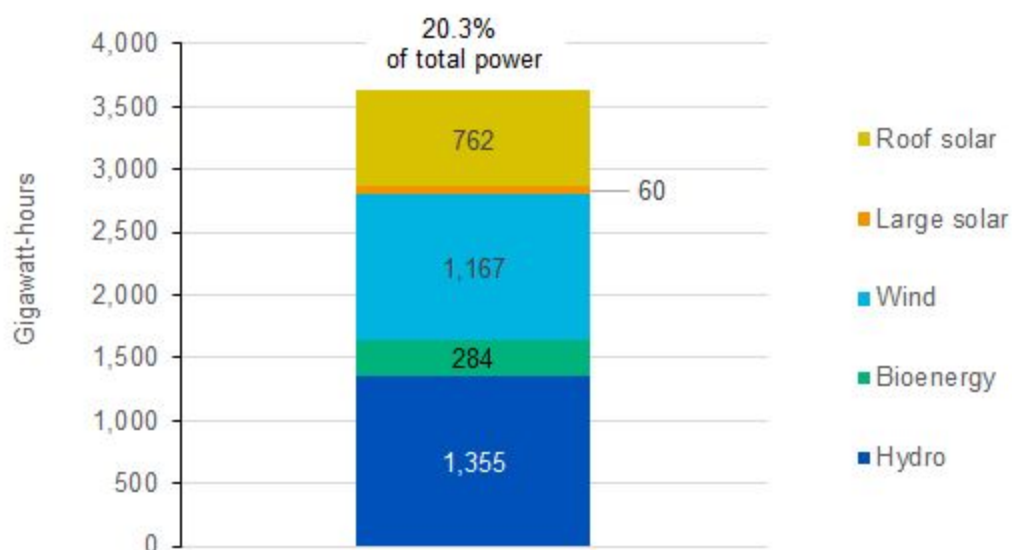


Figure 1: Renewable energy power generation by fuel & market share for west & east coast power grids – October 2017

## 2. Enough renewable energy to power 7.8 million homes

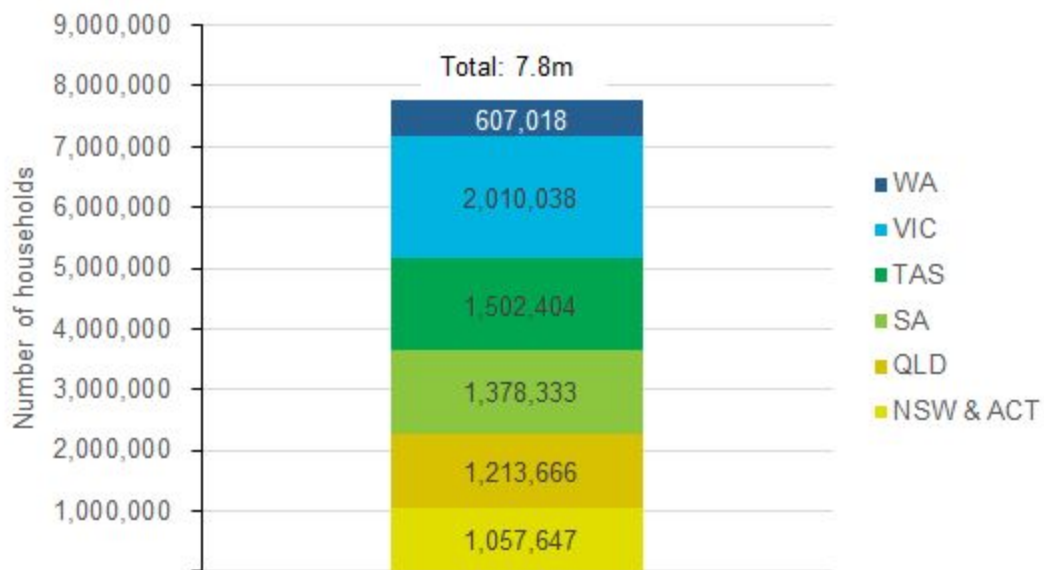


Figure 2: Renewable energy power generation October 2017 in terms of number of households' power consumption by state

## 3. Renewable energy avoided 2.2 million tonnes of CO2 pollution

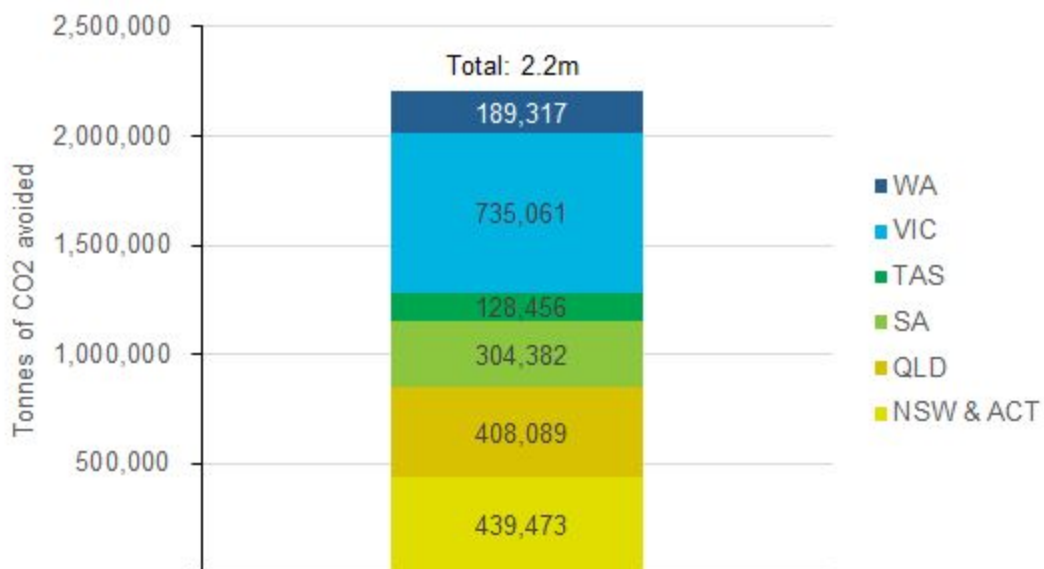


Figure 3. CO2 pollution avoided by renewable energy generation over October 2017

#### 4. Renewable energy avoided 8.4 million cars' worth of CO2 pollution over October



Figure 4. Number of cars' CO2 pollution avoided by renewable energy generation over October 2017



## Large-scale renewables construction activity



### 5. 3,810 megawatts of large-scale renewables under construction

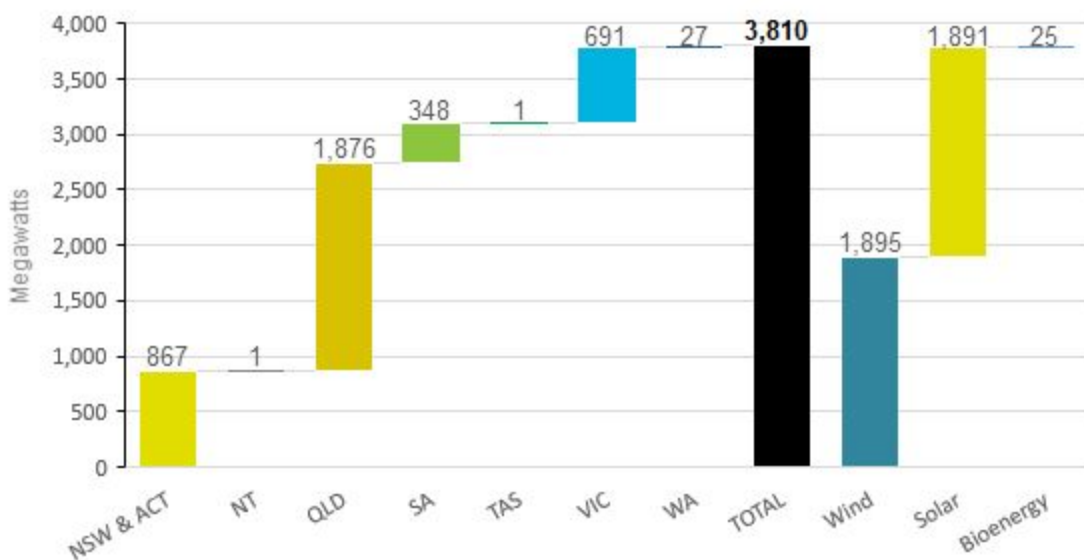


Figure 5: Megawatts of large-scale renewable energy projects under construction by state and fuel at end of October 2017

## 6. Enough work to employ 12,925 people

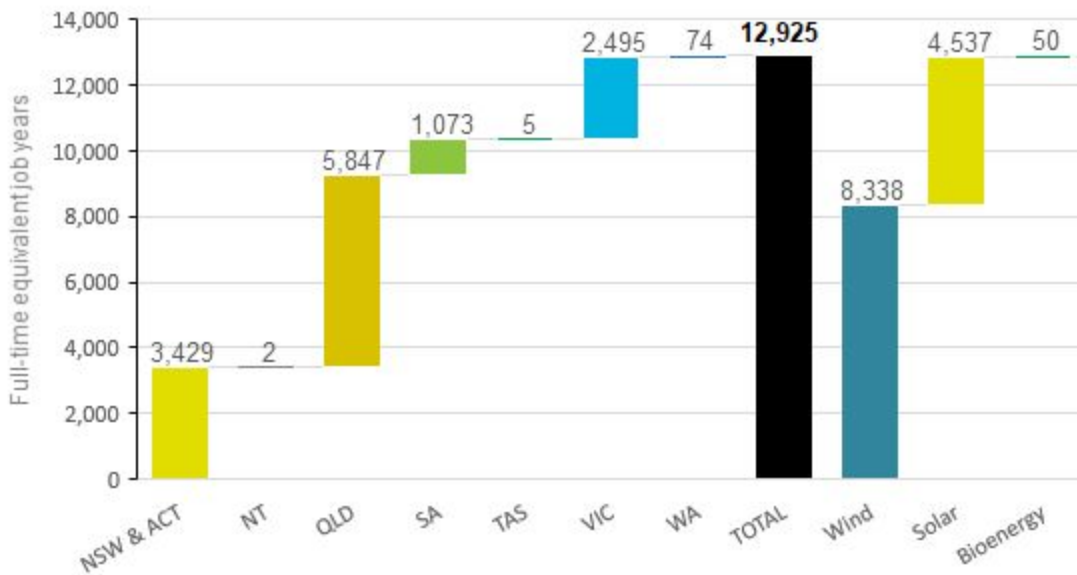


Figure 6: Job-years created by renewable energy projects currently under construction by state and fuel - as at end of October 2017



## Rooftop solar installation activity



### 7. 15,736 small-scale solar systems installed in October

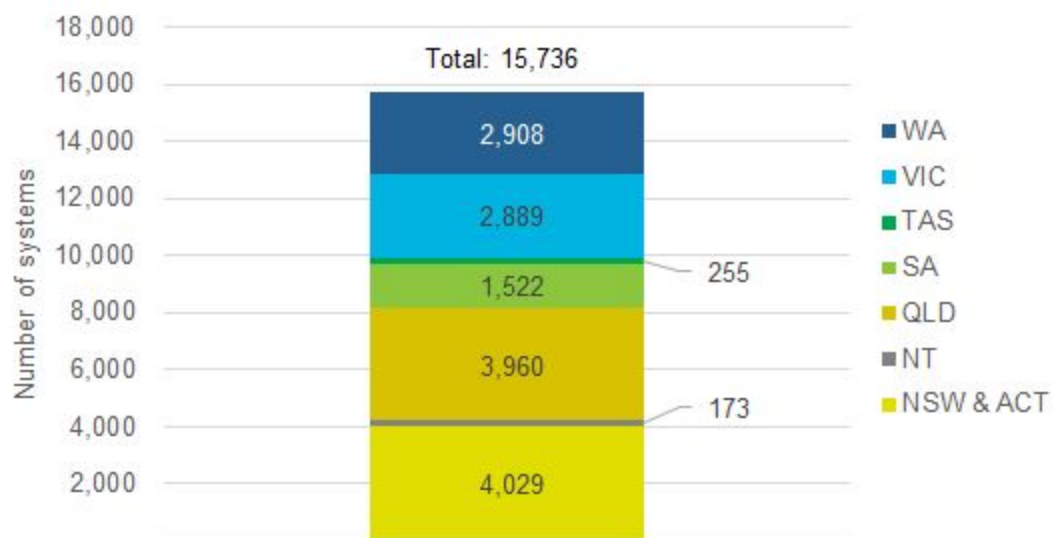


Figure 7: Small-scale solar PV systems installed by state - October 2017

## 8. Rooftop solar employed 5,193 people in October

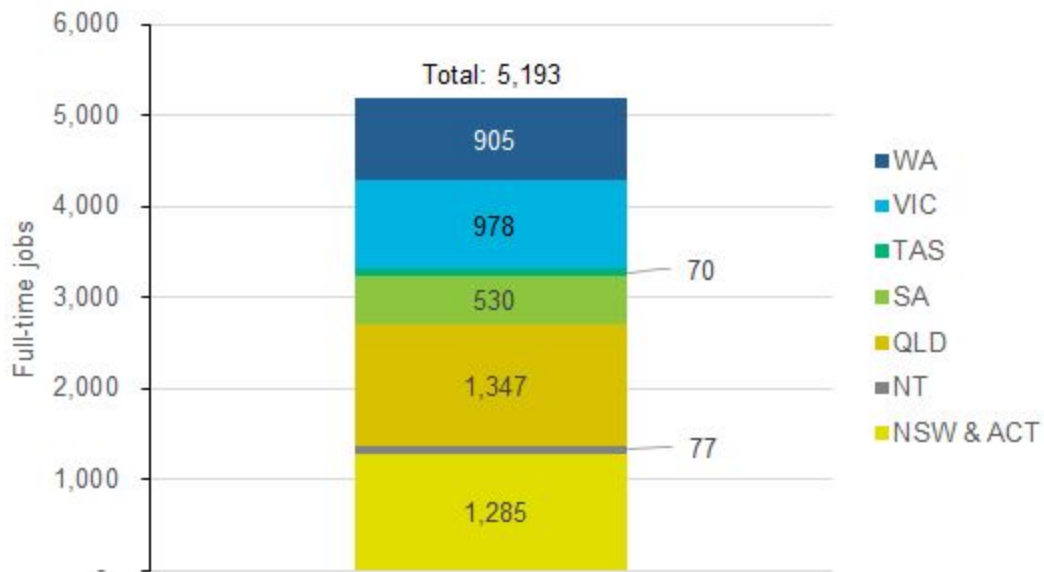


Figure 8. Number of full-time equivalent jobs by state in the installation and sale of rooftop solar PV systems installed over October 2017

## 9. Enough rooftop solar installed in October to power 27,893 homes

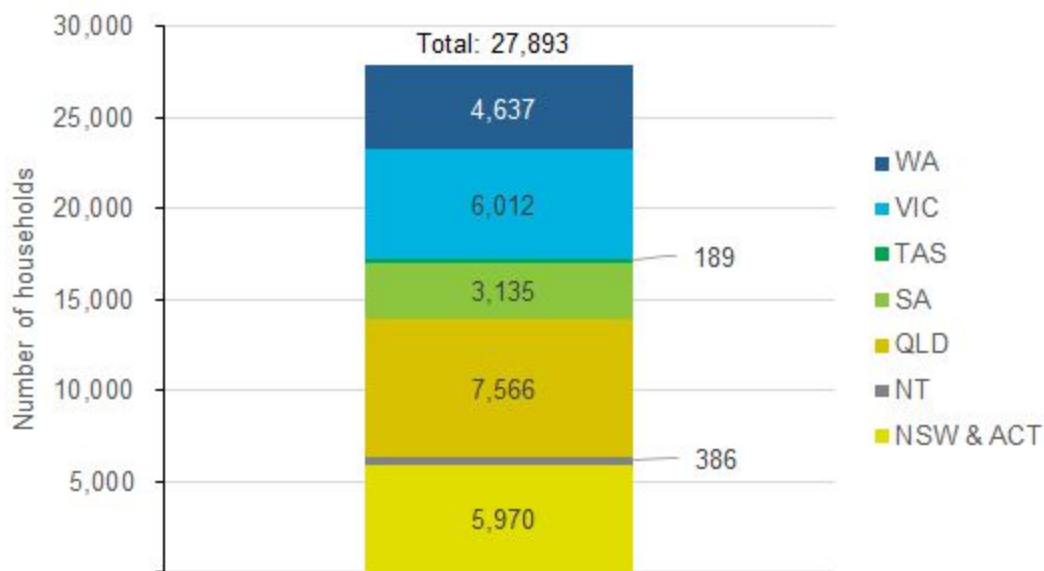


Figure 9: Expected generation from solar systems installed over October in terms of number of households' power consumption

## 10. Rooftop solar installed in October will deliver \$195 million in bill savings



Figure 10: Power bill savings (in \$millions) over next ten years from rooftop solar systems installed in October 2017

## Notes on sources and methodology

Figure 1 – Data sourced from the Australian Energy Market Operator (AEMO) and via NEM Review for all power except rooftop solar PV generation in the WEM. Rooftop solar PV generation in the WEM is derived from an estimate of the cumulative installed capacity in WA multiplied by a generic capacity factor for each month derived from AEMO's 2017 WA Electricity Statement of Opportunities with a discount to align it with Clean Energy Regulator estimates for solar PV annual average generation.

Figure 2 – This chart is calculated by dividing the amount of renewable energy produced in each state by the average annual electricity consumption of households in that state which are sourced from the Australian Energy Market Commission's 2016 Residential Electricity Price Trends publication.

Figure 3 – This chart is calculated by multiplying the amount of renewable energy produced in each state by the average emissions intensity of grid power in that state sourced from the Australian Government's National Greenhouse Accounts Factors – August 2016. Readers should note this is an approximate measure because estimating abatement precisely depends on a complex array of factors. The method employed in the Index is highly likely to underestimate abatement delivered by renewable energy in Tasmania and South Australia while potentially overestimating abatement in Victoria and to a lesser extent other states.

Figure 4 – This chart is calculated by dividing the estimated tonnes of CO<sub>2</sub> avoided by renewable energy generation by the average emissions of an Australian passenger car. The average annual emissions of an Australian passenger car was derived by dividing the total CO<sub>2</sub> emissions of Australia's passenger cars sourced from the Australian Government's 2016 Emissions Projections by the number of passenger vehicles in Australia as estimated in the Australian Bureau of Statistics' 2016 Motor Vehicle Census (31 Jan 2016).

Figure 5 – This data is sourced from [Green Energy Markets](#)' Power Plant Register which tracks information on every renewable energy project in the country that is currently registered or likely to register under the Large-Scale Renewable Energy Target.

Figure 6 – This chart is calculated by multiplying the number of megawatts under construction by an estimate of the job years (a person employed full-time for a year) involved in constructing renewable energy projects by fuel type sourced from ROAM Consulting report to the Clean Energy Council –RET Policy Analysis, dated 23 May 2014. Readers should note that job estimates provided by individual project proponents may not align due to inconsistent definitions of how to measure job creation that are not necessarily reported in job-years.

Figure 7 - Data sourced from [Green Energy Markets' Solar Report](#) produced using data extracted from the Clean Energy Regulator's register of Small Scale Technology Certificates.

Figure 8 – This chart is calculated by sorting solar PV systems into different kilowatt size categories using information sourced from the [Green Energy Markets Solar Report](#) using data extracted from the Clean Energy Regulator's register of Small Scale Technology Certificates. These are then multiplied by estimates of the average person-hours involved in selling, designing and installing such sized systems based on a Green Energy Markets' survey of solar PV industry participants which is then converted into full-time equivalents working a 37.5 hour work week.

Figure 9 - This chart is calculated by using data on the number of small-scale technology certificates within the Clean Energy Regulator's registry as a proxy for the expected average annual power generation from solar PV systems installed in each state. This is then divided by the average annual electricity consumption of households in that state which are sourced from the Australian Energy Market Commission's 2016 Residential Electricity Price Trends publication.

Figure 10 - This chart is calculated by using data on the number of small-scale technology certificates within the Clean Energy Regulator's registry as a proxy for the expected average annual power generation from solar PV systems installed in each state. To determine how much of this generation is displacing imported power from the grid at retail rates or exported to the grid where it receives a feed-in tariff tied to wholesale electricity prices, systems are sorted into different kilowatt size categories using information sourced from the [Green Energy Markets Solar Report](#) using data extracted from the Clean Energy Regulator's register of Small Scale Technology Certificates. The amount exported by solar power systems rises from 50% for 2 kilowatts systems up to 90% for 8-10kW systems based on advice received from the Alternative Technology Association. Systems larger than 15kW are assumed to only avoid or receive an electricity rate equal to the export feed-in tariff we estimate for residential customers in each state. The imported retail rate of electricity and the export feed-in rate is based on an average of the AGL, Origin and EnergyAustralia lowest post-discounted published offer for the capital cities in the states of QLD (Energex), NSW (Ausgrid), VIC (Citipower) and SA (SA Power Networks). For Tasmania, WA, ACT and NT we use the regulated and standard feed-in tariff rates of the Government-owned retailer in each state.