

This is the first piece in our new Three Charts series, in which we aim to highlight interesting trends in three simple charts.

Australia is embarking on a transition from an electricity system that relies largely on coal to one that may one day be 100% renewable. Last week's [closure](#) of the Hazelwood coal-fired generator was an important milestone on this path.

The development of the renewables sector has not, however, been a smooth ride.

Estimates released by the [Australian Bureau of Statistics](#) suggest that the number of direct full-time equivalent jobs in renewable energy activities has continued to fall from its 2011-12 peak. Over a period in which the Australian economy saw [around 600,000](#) additional people get jobs, employment in the renewables sector has been going backwards.

A small employer

The renewables sector is estimated to have directly provided only 11,150 full-time equivalent jobs in 2015-16. The Australian labour force [exceeds 12.6 million](#) people. The sector thus makes a small contribution to national employment, although one that is quite important in some local economies.

Around half of the jobs in renewables in 2015-16 were in installing (and maintaining) rooftop solar systems. Hydroelectricity generation provides 1,840 full-time equivalent jobs, a number that is likely to increase if [pumped storage](#) is to make a larger contribution to smoothing Australia's electricity supply. Biomass provides 1,430 full-time jobs, and the wind industry around 620.

The fact that renewables is a small employer - especially once installations are up and running - is not a bad thing. If renewables were labour-intensive, they would be expensive.

Up then down

The rise and then fall in renewables jobs is primarily a result of what has happened to installations of rooftop solar. The annual number of small-scale solar installations (PV and solar water heaters) [skyrocketed](#) over the four years to 2011. This rapid growth was spurred by generous [feed-in-tariffs](#) , [rebates](#) , and [rules for federal government solar credits](#) .

There was also a [national program](#) to install solar panels on schools.

When these arrangements were curtailed, uptake fell. Annual installations of small-scale solar PV and water heaters are [down by more than 60%](#) from their peak. We are still installing a lot of new systems (more than 183,000 in 2016), but fewer than before. Employment estimates for small-scale solar closely track installation rates. The decline in employment in the wind energy sector is also worth noting.

The largest fall in renewables jobs has been in Queensland, a state that substantially tightened its feed-in-tariff scheme for rooftop solar in several steps from 2011 on. Queensland also holds the title of having Australia's highest residential rooftop solar PV penetration rate ([32%](#)). South Australia is not far behind, at 31%.

Ramping up large-scale renewables

Recent years of policy [uncertainty](#) and backtracking have not helped the rollout of large-scale renewables. The [termination](#) of Australia's carbon price and [downwards renegotiation](#) of the Renewable Energy Target had [chilling](#) effects on investment.

Those events are now behind us. With continued [reductions](#) in the cost of renewables, brighter days for the sector appear to be ahead, especially if our governments get policy settings right.

We can [expect](#) particularly rapid growth in jobs installing large-scale solar PV. Just last week, for example, it was [announced](#) that South Australia is to have a large new solar farm.

Three charts on: the incredible shrinking renewable energy job market

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Read more <http://theconversation.com/three-charts-on-the-incredible-shrinking-renewable-energy-job-market-75392>